

Transportation Impact Analysis

# **GREENLEAF BUSINESS CENTER PROJECT**

Santa Fe Springs, CA  
September 24, 2019

PREPARED FOR  
**CENTERPOINT PROPERTIES**  
725 S. Figueroa Street, Suite 3005  
Los Angeles, CA 90017  
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PREPARED BY  
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Orange, CA 92868  
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Project No. 22812

September 24, 2019



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## 1.0 INTRODUCTION

This report presents the findings of the transportation impact analysis conducted for the Greenleaf Business Center Project (herein referred to as the “proposed Project”) in the City of Santa Fe Springs, California.

This study assessed the potential impacts resulting from the addition of the traffic generated by the proposed Project on the surrounding transportation system and to identify feasible measures to mitigate any significant impacts. In addition, this study includes a review of the site plan for the proposed Project to verify adequacy of internal circulation and external access.

The proposed Project location and vicinity are shown in Figure 1.

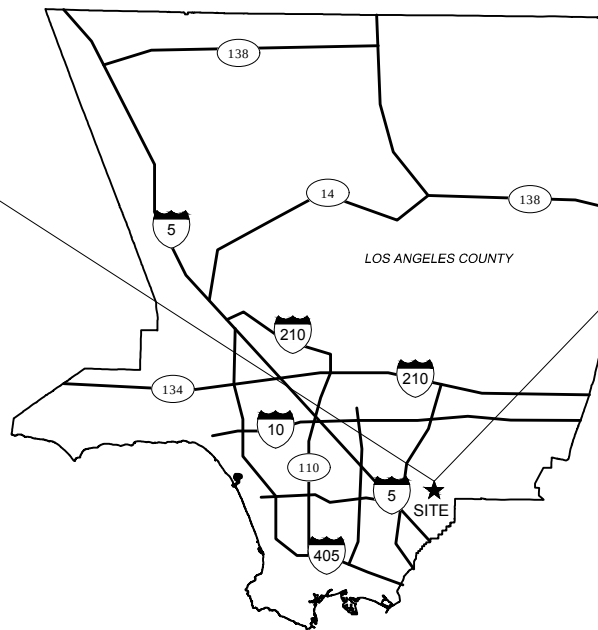
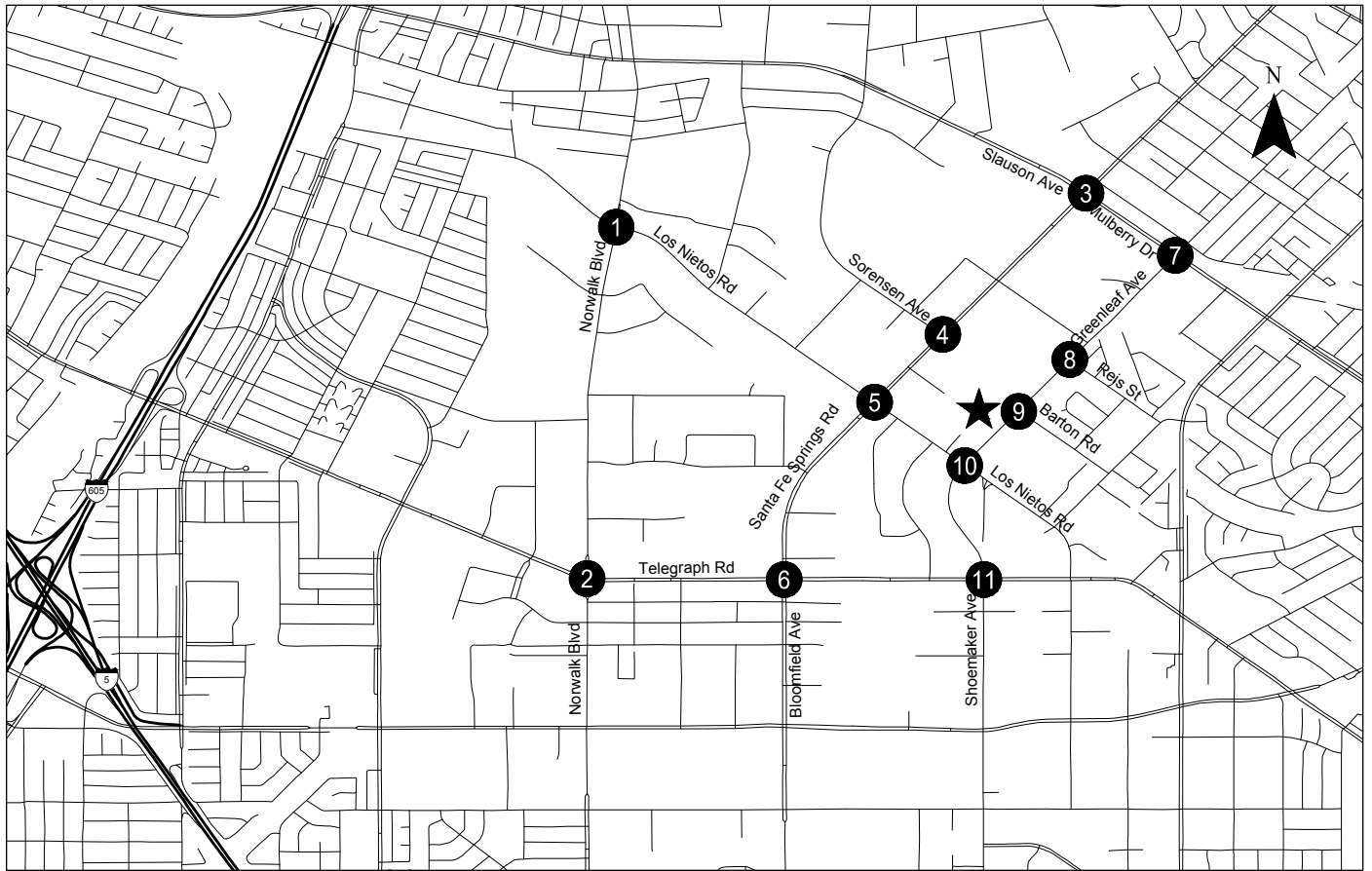
### 1.1 PROJECT DESCRIPTION AND LOCATION

The proposed Project site is located on the northwest corner of the Greenleaf Avenue/Los Nietos Road intersection in the City of Santa Fe Springs, California (City). Interstate 605 (I-605) is located approximately 1.6 miles west of the proposed Project site and Interstate 5 (I-5) is located approximately 3 miles south of the proposed Project site. The proposed Project site is currently largely vacant with a small industrial facility on the east side of the site. The proposed Project would replace this existing facility.

The proposed Project includes the demolition of the existing facility and construction of one new building that would consist of 200,500 square feet (sf) of warehousing space (approximately 60,150 sf is anticipated to be utilized for light industrial uses with the remaining 140,350 sf used as general warehousing space) and a 16,000-sf office to support the industrial tenants. In addition, the proposed Project would provide 459 surface parking spaces intended for trailer parking and storage but may also be utilized by automobiles. The Project proposes to provide 120 automobile parking spaces along the north side of the proposed Project site and 100 automobile parking spaces to the south of the proposed building. The building would consist of 46 loading dock positions on the west side facing the trailer parking area.

Site access would be provided via one driveway on Santa Fe Springs Road, one driveway on Los Nietos Avenue, and one driveway on Greenleaf Avenue. Due to the driveway’s close proximity to St. Paul High School to the north, the driveway on Greenleaf Avenue would be restricted to automobiles only and trucks would not be able to access the site through it. Primary truck access would be provided via the driveway on Santa Fe Springs Road and the driveway on Los Nietos Avenue.

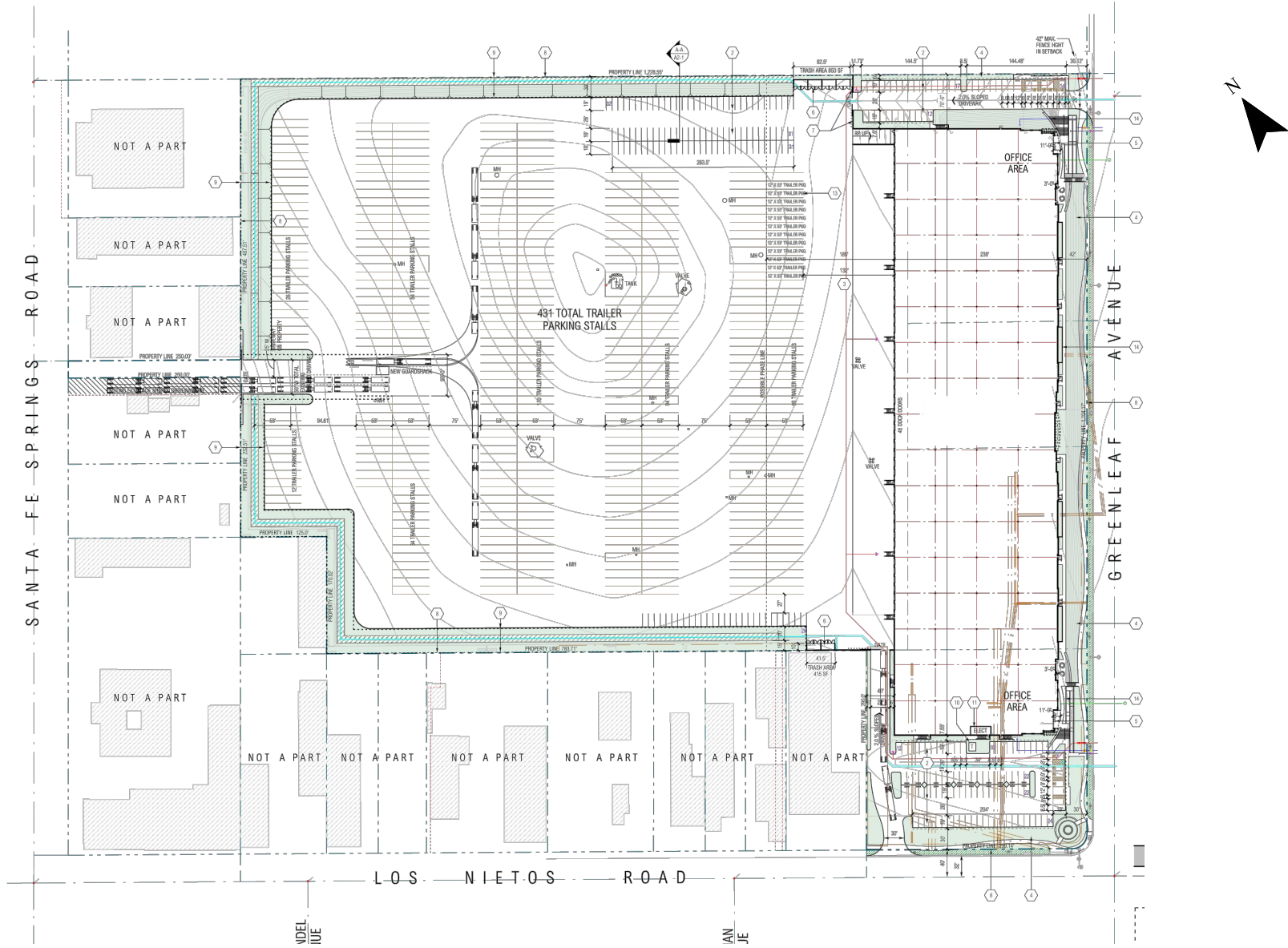
The site plan for the proposed Project is presented in Figure 2.



Site Vicinity Map  
Santa Fe Springs, California

Figure  
1

H:\22\22812 - Santa Fe Springs Industrial TIA\figures\22812\_figures\_20190923.dwg Sep 23, 2019 - 11:41am - cdougherty Layout Tab: Proposed Site Plan



Proposed Site Plan Provided by CenterPoint Properties

Proposed Site Plan  
Santa Fe Springs, California

Figure  
2

## 1.2 STUDY SCOPE AND METHODOLOGY

The scope and analysis methodologies utilized for this study were developed in consultation with staff from the City of Santa Fe Springs Public Works Engineering Department, and are presented in this section.

### Analysis Scenarios

A vehicle level of service (LOS) analysis was performed to assess the performance of the transportation system during the weekday AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak periods for the following four scenarios:

- Existing Conditions;
- Existing Plus Proposed Project Conditions;
- Opening Year 2020 Conditions; and,
- Opening Year 2020 Plus Proposed Project Conditions.

### Study Intersections

Based on the expected distribution of the trips generated by the proposed Project and subsequent conversations with City staff, the following study intersections were selected for analysis:

1. Norwalk Boulevard/Los Nietos Road (signalized)
2. Norwalk Boulevard/Telegraph Road (signalized)
3. Santa Fe Springs Road/Slauson Avenue-Mulberry Drive (signalized)
4. Santa Fe Springs Road/Sorensen Avenue (unsignalized)
5. Santa Fe Springs Road/Los Nietos Road (signalized)
6. Santa Fe Springs Road-Bloomfield Avenue/Telegraph Road (signalized)
7. Greenleaf Avenue/Mulberry Drive (signalized)
8. Greenleaf Avenue/Reis Street (signalized)
9. Greenleaf Avenue/Barton Road (unsignalized)
10. Greenleaf Avenue/Los Nietos Road (signalized)
11. Greenleaf Avenue/Telegraph Road (signalized)

The study area for the analysis extends from Norwalk Boulevard to the west, Slauson Avenue to the north, Greenleaf Avenue to the east, and Telegraph Road to the south. The location of the study intersections are shown on the map in Figure 1.

## Intersection Analysis Methodology

In addition to the Circulation Element of the City's General Plan<sup>1</sup>, the City utilizes the guidelines in the Los Angeles County Traffic Impact Analysis guidelines<sup>2</sup>. Per the guidelines, the operating conditions at the study intersections under the jurisdiction of the City were evaluated using the Intersection Capacity Utilization (ICU) methodology, which is based on the sum of the volume to capacity (V/C) ratios for the conflicting movements at the intersection during the AM and PM peak hours.

All intersections were analyzed using the Synchro 10 analysis software that has the capability to perform the ICU method.

### *Level of Service*

"Level of service" (LOS) describes the operating conditions experienced by users of a facility. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions and delay, freedom to maneuver, driving comfort and convenience. LOS is designated A through F from best to worst, and cover the entire range of traffic operations that might occur. LOS A through LOS E generally represent traffic volumes at less than roadway capacity, while LOS F represents over capacity and/or forced flow conditions. The LOS for the ICU methodology is based on the V/C ratio.

Table 1 presents the range of the V/C ratios (from City standards) associated with each LOS grade designation.

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<sup>1</sup> Santa Fe Springs General Plan, Circulation Element, City of Santa Fe Springs, 1994.

<sup>2</sup> Traffic Impact Analysis Report Guidelines, Los Angeles County, January 1997.



**Table 1: Signalized Intersection Level of Service Definitions**

| LOS | Description of Traffic Conditions                                                                                                                                                                                                                                 | Intersection Capacity Utilization Methodology (Volume/Capacity Ratio) |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| A   | Low volumes; high speeds; speed is not restricted by other vehicles; all signal cycles clear with no vehicles waiting through more than one signal cycle.                                                                                                         | $\leq 0.600$                                                          |
| B   | Operating speeds beginning to be affected by other traffic; between one and 10 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.                                                  | 0.601 - 0.700                                                         |
| C   | Operating speeds and maneuverability closely controlled by other traffic; between 11 and 30 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods; recommended ideal design standards. | 0.701 – 0.800                                                         |
| D   | Tolerate operating speeds; 31 to 70 percent of the signal cycle have one or more vehicles which wait through more than one signal cycle during peak traffic periods; often used as design standard in urban areas.                                                | 0.801 – 0.900                                                         |
| E   | Capacity; the maximum traffic volume an intersection can accommodate; restricted speeds; 71 to 100 percent of the signal cycles have one or more vehicles which wait through more than one signal cycle during peak traffic periods.                              | 0.901 – 1.000                                                         |
| F   | Long queues of traffic, unstable flow; stoppages of long duration; traffic volume and traffic speed can drop to zero; traffic volume will be less than the volume which occurs at Level of Service “E”.                                                           | > 1.000                                                               |

Source: Santa Fe Springs General Plan, Circulation Element, City of Santa Fe Springs, 1994.

### **Significance Criteria**

According to the City guidelines, an intersection operating at a LOS D or better is considered to be operating satisfactory. A significant impact occurs if the operating conditions worsen from LOS D or better to LOS E or F after the addition of the traffic generated by a project. If the intersection is already operating at LOS E or F in the without-project conditions, a significant impact occurs if the V/C ratio increases by 0.01 or more after the addition of the traffic generated by a project.

### **Site Access and Circulation**

A qualitative site access and circulation analysis was conducted. This included a review of the proposed Project access points and a review of truck turning movements expected to occur on the site and whether the proposed Project site provided sufficient space to make the movements.

## 2.0 EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions in the vicinity of the proposed Project. The Existing Conditions analysis includes an assessment of the existing street system and an analysis of traffic volumes and current operating conditions.

### 2.1 ROADWAY NETWORK

The existing roadway network in the study area is comprised of the following street system:

**Interstate 605 (I-605)** is a freeway providing a connection between Interstate 210 and State Route 22. I-605 travels in the north-south direction west of the Project site. In the study area, there are generally five 12-foot general purpose lanes in each direction and access is provided via ramps on Telegraph Avenue and Slauson Avenue. The posted speed limit on I-605 is 65 miles per hour (mph).

**Interstate I-5 (I-5)** is a freeway providing a connection throughout Greater Los Angeles and extends to the north and to the south beyond Los Angeles. I-5 travels in the north-south direction south of the Project site. In the study area, there are generally three 12-foot general purpose lanes in each direction and access is provided via ramps on San Antonio Drive (which turns into Norwalk Boulevard) and Rosecrans Avenue. The posted speed limit on I-5 is 65 miles per hour (mph).

**Norwalk Boulevard** is a north-south major arterial roadway per the City's Circulation Element of the General Plan with two travel lanes in each direction. The street is approximately 80 feet wide with a posted speed limit of 40 miles per hour and consists of a two-way left-turn center lane. Parking is generally not permitted along both sides of the street.

**Santa Fe Springs Road** is a northeast-southwest major arterial roadway per the City's Circulation Element of the General Plan with two travel lanes in each direction. The street is approximately 80 feet wide with a posted speed limit of 45 miles per hour and consists of both raised center medians and a two-way left-turn center lane. With the exception of short segments, parking is generally not permitted along both sides of the street. The Project site is accessible from Santa Fe Springs Road via an existing driveway.

**Greenleaf Avenue** is a northwest-southwest secondary arterial roadway per the City's Circulation Element of the General Plan with one travel lane in each direction. The street is approximately 60 feet wide with a posted speed limit of 40 miles per hour and consists of a two-way left-turn center lane. Parking is generally permitted along both sides of the street. The Project site is accessible from Greenleaf Avenue via an existing driveway.

**Slauson Avenue** is an east-west major arterial roadway per the City's Circulation Element of the General Plan with three travel lanes in each direction. The street is approximately 85 feet wide with a

posted speed limit of 45 miles per hour and consists of a raised center median. Parking is generally not permitted along both sides of the street.

**Reis Street** is an east-west residential collector per the Los Angeles County Street Masterplan with one travel lane in each direction. The street is approximately 40 feet wide with a speed limit of 25 miles per hour. Parking is generally permitted along both sides of the street.

**Sorensen Avenue** is an east-west secondary arterial roadway per the City's Circulation Element of the General Plan with one travel lane in each direction in the project study area (widens to two lanes in each direction and shifts to a north-south direction west of the study area). The street is approximately 60 feet wide with a speed limit of 40 miles per hour and consists of a two-way left-turn center lane. Parking is generally permitted along both sides of the street.

**Barton Road** is an east-west residential collector per the Los Angeles County Street Masterplan with one travel lane in each direction. The street is approximately 35 feet wide with a speed limit of 25 miles per hour. Parking is generally permitted along both sides of the street.

**Los Nietos Road** is a northwest-southwest secondary arterial roadway per the City's Circulation Element of the General Plan with one travel lane in each direction. The street is approximately 60 feet wide with a posted speed limit of 40 miles per hour and consists of a two-way left-turn center lane. Parking is generally permitted along both sides of the street. The Project site is accessible from Los Nietos Road via an existing driveway.

**Telegraph Road** is an east-west major arterial roadway per the City's Circulation Element of the General Plan with three travel lanes in each direction. The street is approximately 80 feet wide with a posted speed limit ranging from 40-45 miles per hour and consists of a raised center median. Parking is generally not permitted along both sides of the street.

## 2.2 TRANSIT FACILITIES

The Norwalk Transit System (NTS) and Los Angeles County Metropolitan Transportation Authority (LA Metro) provide transit service in the study area. The following routes operate in the vicinity of the proposed Project site:

**NTS Route 3** extends from the Gateway Plaza to the Norwalk Boulevard/166<sup>th</sup> Street intersection. Route 3 travels on Telegraph Road in the vicinity of the proposed Project site. During the weekday AM and PM commute periods, Route 3 provides headways of approximately 60 minutes (one bus per hour) in both directions.

**NTS Route 7** extends from the El Monte Station to the Green Line Station. Route 7 travels on Santa Fe Springs Road in the vicinity of the proposed Project site. During the weekday AM commute period, Route 7 provides headways of approximately 50 minutes (approximately one bus per hour) in both directions. During the PM commute period, Route 7 provides headways of approximately 50 minutes (approximately one bus per hour) in both directions.

**LA Metro Route 120** extends from the Whittwood Town Center to the Aviation/LAX Station. Route 120 travels on Telegraph Road in the vicinity of the proposed Project site. During the weekday AM commute period, Route 120 provides headways of approximately 45 minutes (approximately 1.3 buses per hour) in both directions. During the weekday PM commute period, Route 120 provides headways of approximately 45 minutes (approximately 1.3 buses per hour) in the both directions.

## 2.3 BICYCLE AND PEDESTRIAN FACILITIES

A Class II Bicycle Lane is provided on Los Nietos Road west of Santa Fe Springs Road and on Santa Fe Springs Road south of Los Nietos Road. No other bicycle facilities are provided in the immediate vicinity of the proposed Project site.

All of the roadways in the study area, except Los Nietos Road, consist of sidewalks on both sides of the street, and all signalized intersections provide marked pedestrian crosswalks with pedestrian signals.

## 2.4 EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

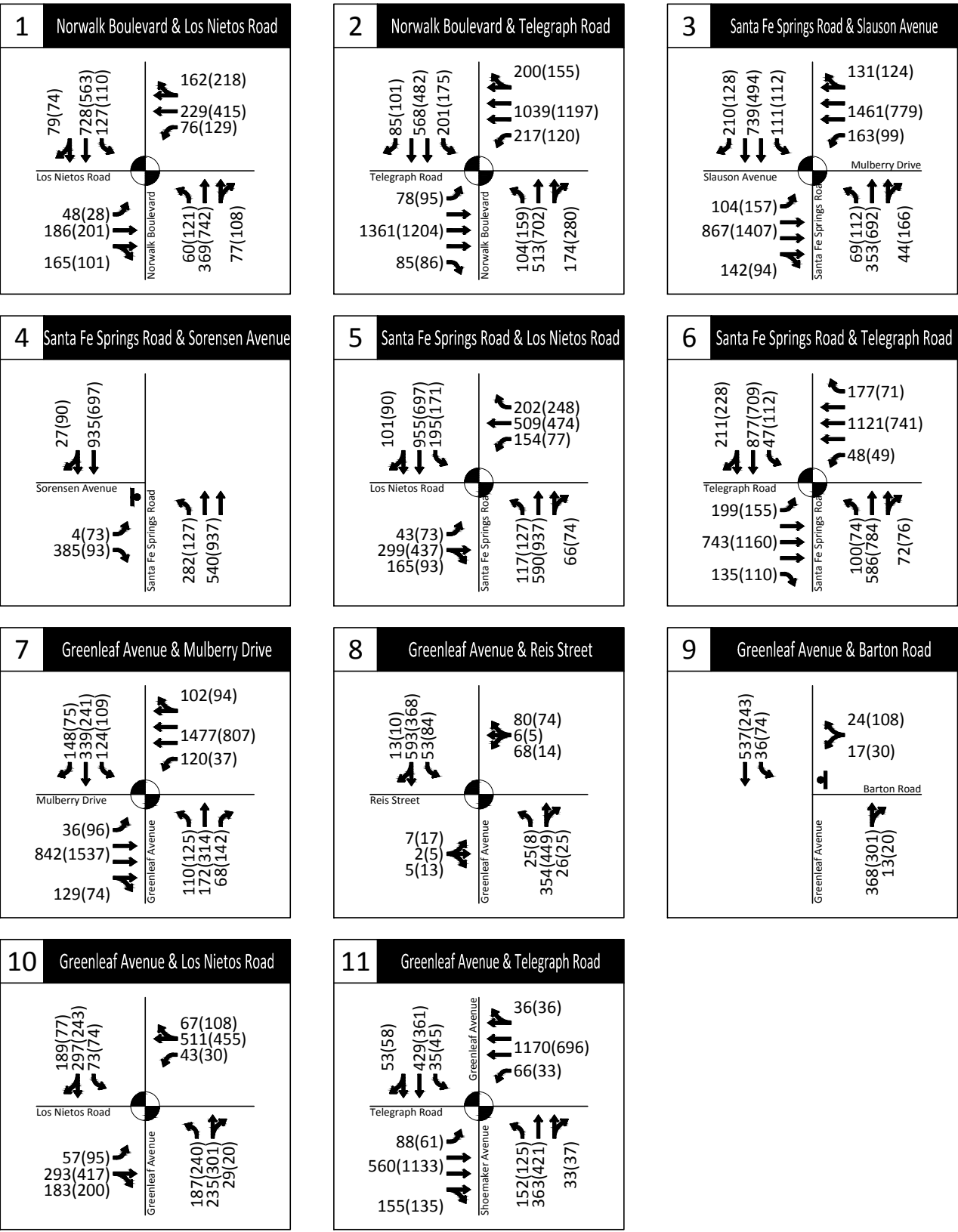
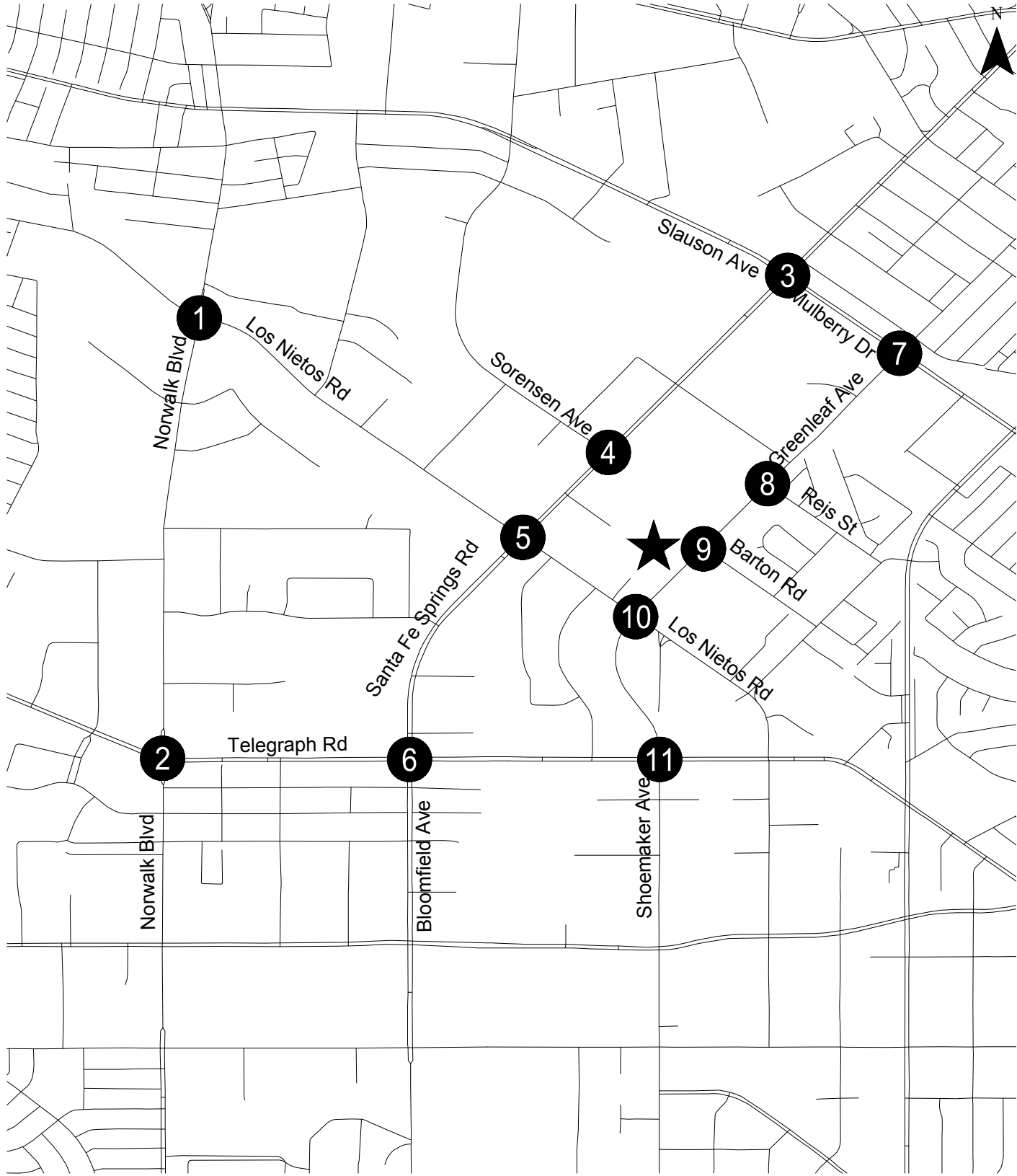
This section presents the existing peak hour turning movement traffic volumes and the resulting operating conditions at each study intersection.

### Existing Traffic Volumes

The existing operations of the study intersections were assessed for the weekday AM and PM peak hours. Existing traffic volume data at the intersections of Norwalk Boulevard/Los Nietos Road (Intersection 1) and Norwalk Boulevard/Telegraph Road (Intersection 2) was collected on Wednesday, April 10, 2019 and the existing traffic volume data at the remaining intersections was collected on Wednesday, May 16, 2018. Both days represent a typical weekday with local schools and colleges in session. Data was collected between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM. The peak hour volumes utilized in this analysis, shown in Figure 3, represent the highest hour during the weekday AM and PM data collection periods.

Appendix A provides the detailed count sheets for each intersection.

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AM(PM) - Traffic Volume

⬇ - Stop Sign

⬇ - Traffic Signal

Existing Traffic Volumes  
AM & PM Peak Hours  
Santa Fe Springs, California

Figure  
3

## Existing Intersection Levels of Service

Intersection turning movement volumes, lane configurations, and traffic control were used to calculate the levels of service using the ICU method at the study intersections for the weekday AM and PM peak hours. Table 2 shows the LOS results based on the V/C ratios for the study intersections under Existing Conditions. As shown, all intersections currently operate at or better than the LOS D standard set forth by the City during both peak hours.

Detailed LOS worksheets for Existing Conditions are presented in Appendix B.

**Table 2: Intersection Level of Service - Existing Conditions**

| #  | Intersection                                           | Control    | Peak Hour | Existing |     |
|----|--------------------------------------------------------|------------|-----------|----------|-----|
|    |                                                        |            |           | V/C      | LOS |
| 1  | Norwalk Boulevard/Los Nietos Road                      | Signalized | AM        | 0.575    | A   |
|    |                                                        |            | PM        | 0.677    | B   |
| 2  | Norwalk Boulevard/Telegraph Road                       | Signalized | AM        | 0.842    | D   |
|    |                                                        |            | PM        | 0.849    | D   |
| 3  | Santa Fe Springs Road/Slauson Avenue-Mulberry Drive    | Signalized | AM        | 0.748    | C   |
|    |                                                        |            | PM        | 0.787    | C   |
| 4  | Santa Fe Springs Road/Sorensen Avenue                  | TWSC       | AM        | 0.572    | A   |
|    |                                                        |            | PM        | 0.527    | A   |
| 5  | Santa Fe Springs Road/Los Nietos Road                  | Signalized | AM        | 0.838    | D   |
|    |                                                        |            | PM        | 0.840    | D   |
| 6  | Santa Fe Springs Road-Bloomfield Avenue/Telegraph Road | Signalized | AM        | 0.825    | D   |
|    |                                                        |            | PM        | 0.710    | C   |
| 7  | Greenleaf Avenue/Mulberry Drive                        | Signalized | AM        | 0.722    | C   |
|    |                                                        |            | PM        | 0.714    | C   |
| 8  | Greenleaf Avenue/Reis Street                           | Signalized | AM        | 0.569    | A   |
|    |                                                        |            | PM        | 0.455    | A   |
| 9  | Greenleaf Avenue/Barton Road                           | TWSC       | AM        | 0.383    | A   |
|    |                                                        |            | PM        | 0.366    | A   |
| 10 | Greenleaf Avenue/Los Nietos Road                       | Signalized | AM        | 0.860    | D   |
|    |                                                        |            | PM        | 0.824    | D   |
| 11 | Greenleaf Avenue/Telegraph Road                        | Signalized | AM        | 0.636    | B   |
|    |                                                        |            | PM        | 0.612    | B   |

Notes:

V/C – Volume to Capacity Ratio

LOS – Level of Service

Signalized – Signal Controlled Intersection

TWSC – Two-Way Stop Controlled

Source: Kittelson & Associates, Inc., 2019

## 3.0 PROPOSED PROJECT TRAVEL DEMAND

This chapter describes the assumptions and methodology used in developing the traffic volumes associated with the proposed Project within the Study Area.

### 3.1 PROPOSED PROJECT DESCRIPTION

The proposed Project includes the construction of one new building that would consist of 200,500 sf of warehousing space (approximately 60,150 sf of which is anticipated to be utilized for light industrial uses with the remaining 140,350 sf used as general warehousing space) and a 16,000-sf office to support the industrial tenants. In addition, the proposed Project would provide 459 surface parking spaces intended for trailer parking and storage but may also be utilized by automobiles.

Site access would be provided via one driveway on Santa Fe Springs Road, one driveway on Los Nietos Avenue, and one driveway on Greenleaf Avenue. Due to the driveway's close proximity to St. Paul High School to the north, the driveway on Greenleaf Avenue would be restricted to automobiles only and trucks would not be able to access the site through it. Primary truck access would be provided via the driveway on Santa Fe Springs Road and the driveway on Los Nietos Avenue.

### 3.2 PROPOSED PROJECT TRIP GENERATION

The number of trips expected to be generated by the proposed Project were estimated using rates published in the Institute of Transportation Engineer's (ITE) Trip Generation Manual<sup>3</sup>. These rates are provided as both daily rates and AM and PM peak hour rates. Overall, the rates relate the number of vehicle trips traveling to and from the Project Site to the size of development of each land use. No credit for the existing uses on the project site was taken as the existing uses are largely vacant.

Based on discussions with the City staff and the project sponsor, the General Light Industrial land-use rates (ITE Code 110), the Warehousing land-use rates (ITE Code 150), and General Office Building land-use rates (ITE Code 710) were applied to determine the number of trips generated by the proposed Project. Data from the Fontana Truck Trip Generation Study<sup>4</sup> was used to account for the trucks expected to be generated by the proposed Project. It was estimated that 21.4% of the trips would be truck trips and a passenger car equivalent (PCE) factor was applied to the expected number of truck trips to convert them into automobile trips. Appendix C includes the detailed Project trip generation rates and calculations. The trips associated with the open yard component of the proposed Project that would be utilized for trailer parking and storage are captured by the square footage of the building in

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<sup>3</sup> Trip Generation Manual, 10<sup>th</sup> Edition, Institute of Transportation Engineers, September 2017.

<sup>4</sup> Fontana Truck Trip Generation Study, City of Fontana, August 2003.



the trip generation estimates. This portion of the proposed Project is not expected to generate additional trips.

As shown in Table 3, the proposed Project is expected to generate 863 trips on a weekday daily basis, including 105 trips in the AM peak hour (83 inbound and 22 outbound) and 103 trips in the PM peak hour (27 inbound and 76 outbound).

**Table 3: Project Trip Generation**

| Land Use                                                                     | GLA     | Units | Daily      | AM        |           |            | PM        |           |            |
|------------------------------------------------------------------------------|---------|-------|------------|-----------|-----------|------------|-----------|-----------|------------|
|                                                                              |         |       |            | In        | Out       | Total      | In        | Out       | Total      |
| General Light Industrial (ITE Code 110)                                      | 60,150  | sf    | 298        | 32        | 10        | 42         | 10        | 28        | 38         |
| Warehousing (ITE Code 150)                                                   | 140,350 | Sf    | 244        | 18        | 6         | 24         | 7         | 20        | 27         |
| Office (ITE Code 710)                                                        | 16,000  | sf    | 156        | 16        | 3         | 19         | 3         | 15        | 18         |
| Estimated Number of Total Passenger Vehicle Trips (78.6% of total trips) [a] |         |       | 582        | 56        | 15        | 71         | 17        | 52        | 69         |
| Estimated Number of Total Truck Trips (21.4% of total trips) [b]             |         |       | 115        | 11        | 3         | 14         | 4         | 10        | 14         |
| Estimated Number of Total Truck PCE Trips [c]                                |         |       | 281        | 27        | 7         | 34         | 10        | 24        | 34         |
| <b>TOTAL [a+c]</b>                                                           |         |       | <b>863</b> | <b>83</b> | <b>22</b> | <b>105</b> | <b>27</b> | <b>76</b> | <b>103</b> |

Notes:

GLA – Gross Leasable Area

sf – Square feet

Source: Kittelson & Associates, Inc., 2019

### 3.3 PROJECT TRIP DISTRIBUTION

The geographic distribution of trips generated by the proposed Project is dependent on characteristics of the street system serving the proposed Project Site and the level of accessibility of the routes to and from the proposed Project Site. The truck trip distribution was prepared in accordance with the designated City of Santa Fe Springs truck routes and no trucks were assigned traveling north on Greenleaf Avenue north of the proposed Project driveway.

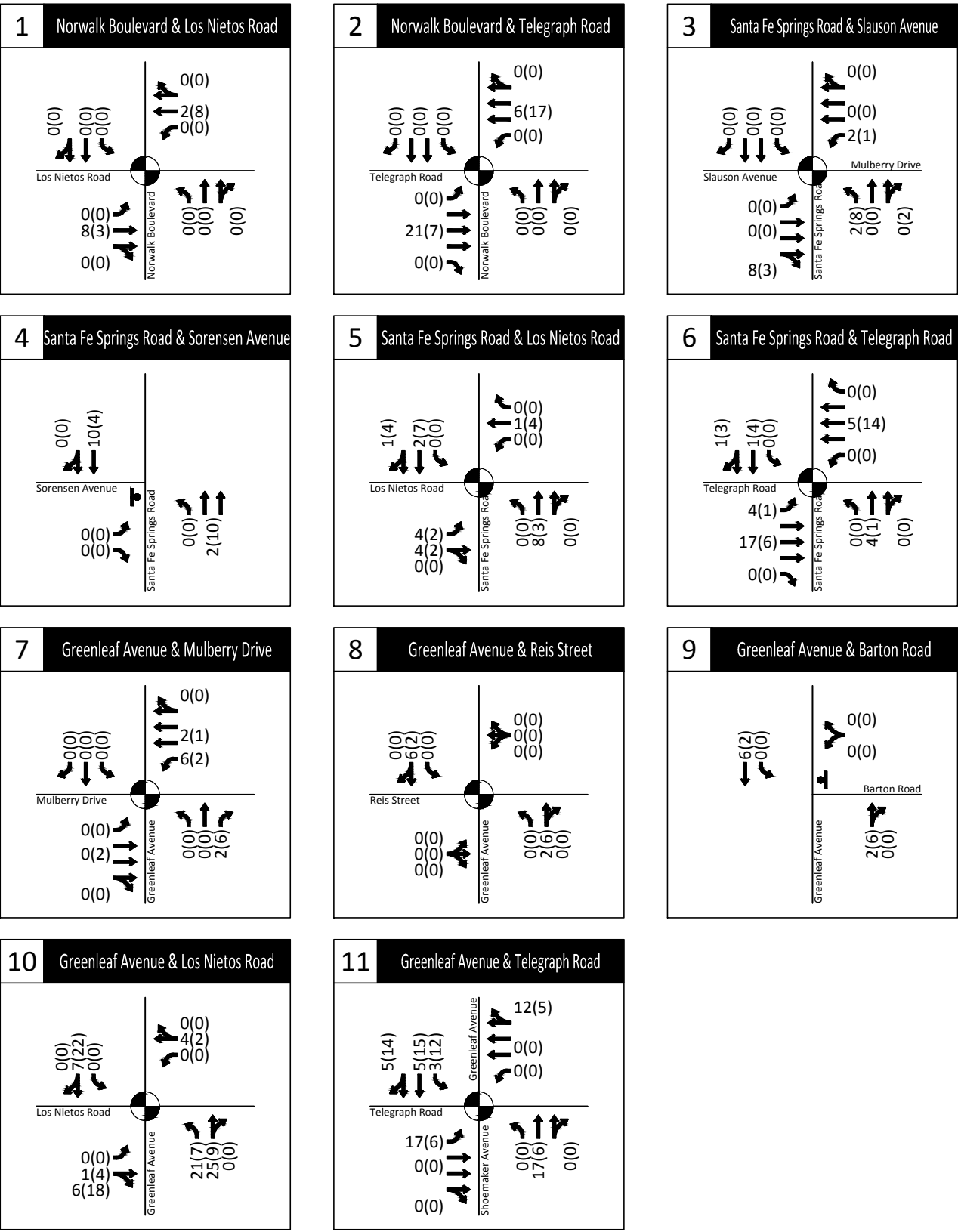
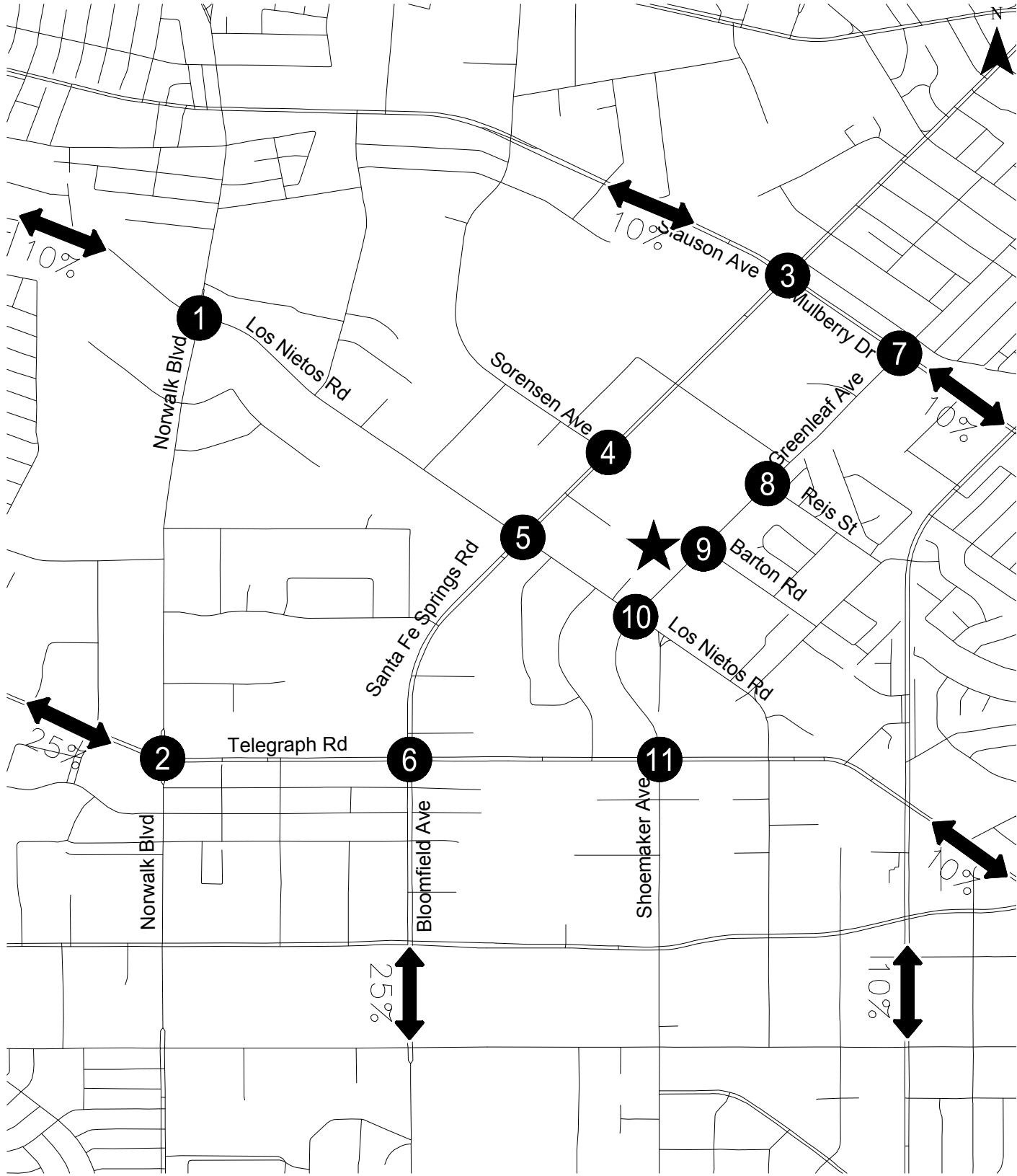
The proposed Project trip distribution is presented in Figure 4.

### 3.4 PROJECT TRIP ASSIGNMENT

The trip distribution patterns shown in Figure 4 were applied to the proposed Project trip generation estimates summarized in Table 3 to calculate Project-generated traffic through the study intersections. Figure 4 illustrates the Project-only traffic volumes at the study intersections during the weekday AM and PM peak hours.



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AM(PM) - Traffic Volume  
- Stop Sign  
- Traffic Signal

Project-Only Traffic Volumes  
AM & PM Peak Hours  
Santa Fe Springs, California  
Figure 4

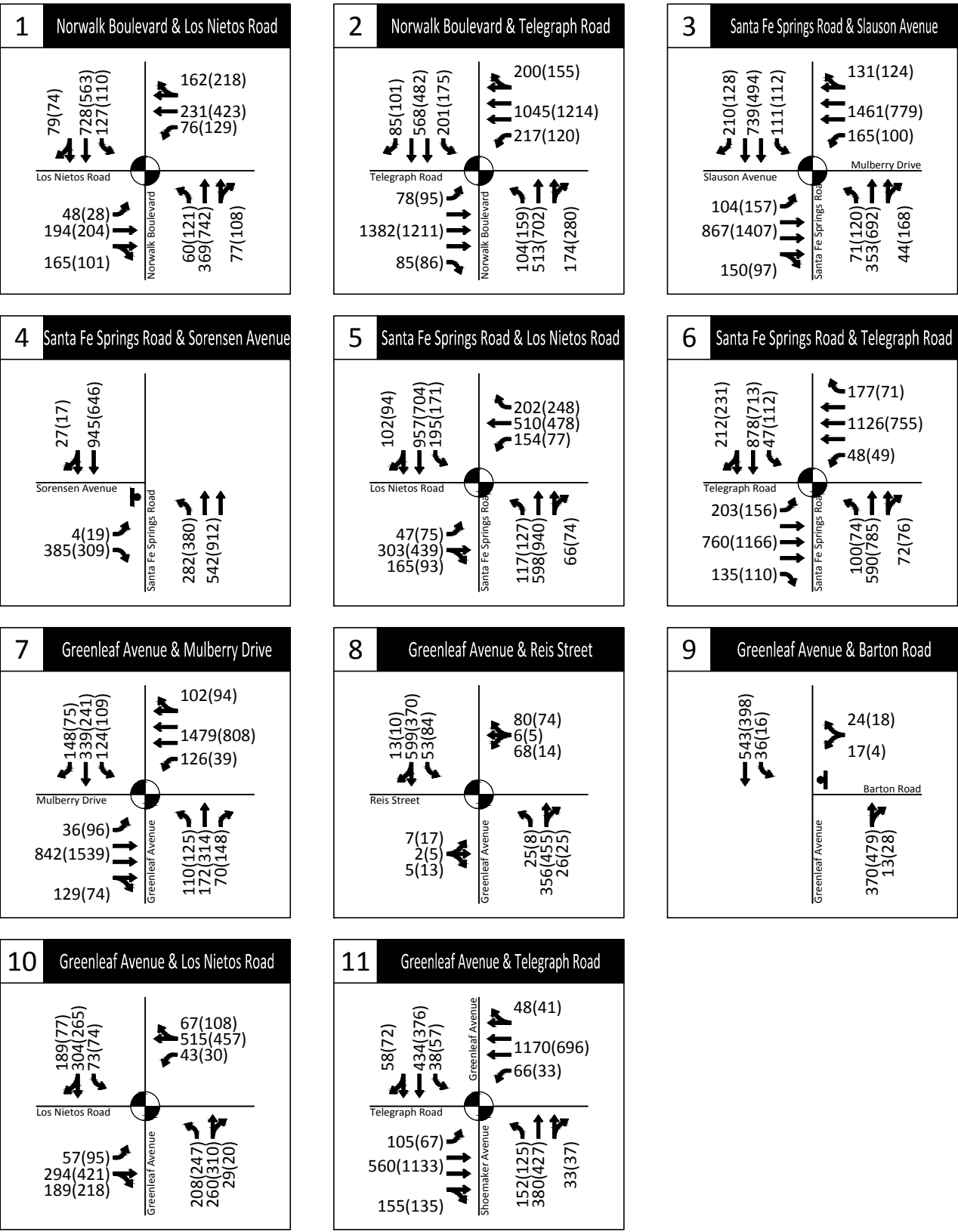
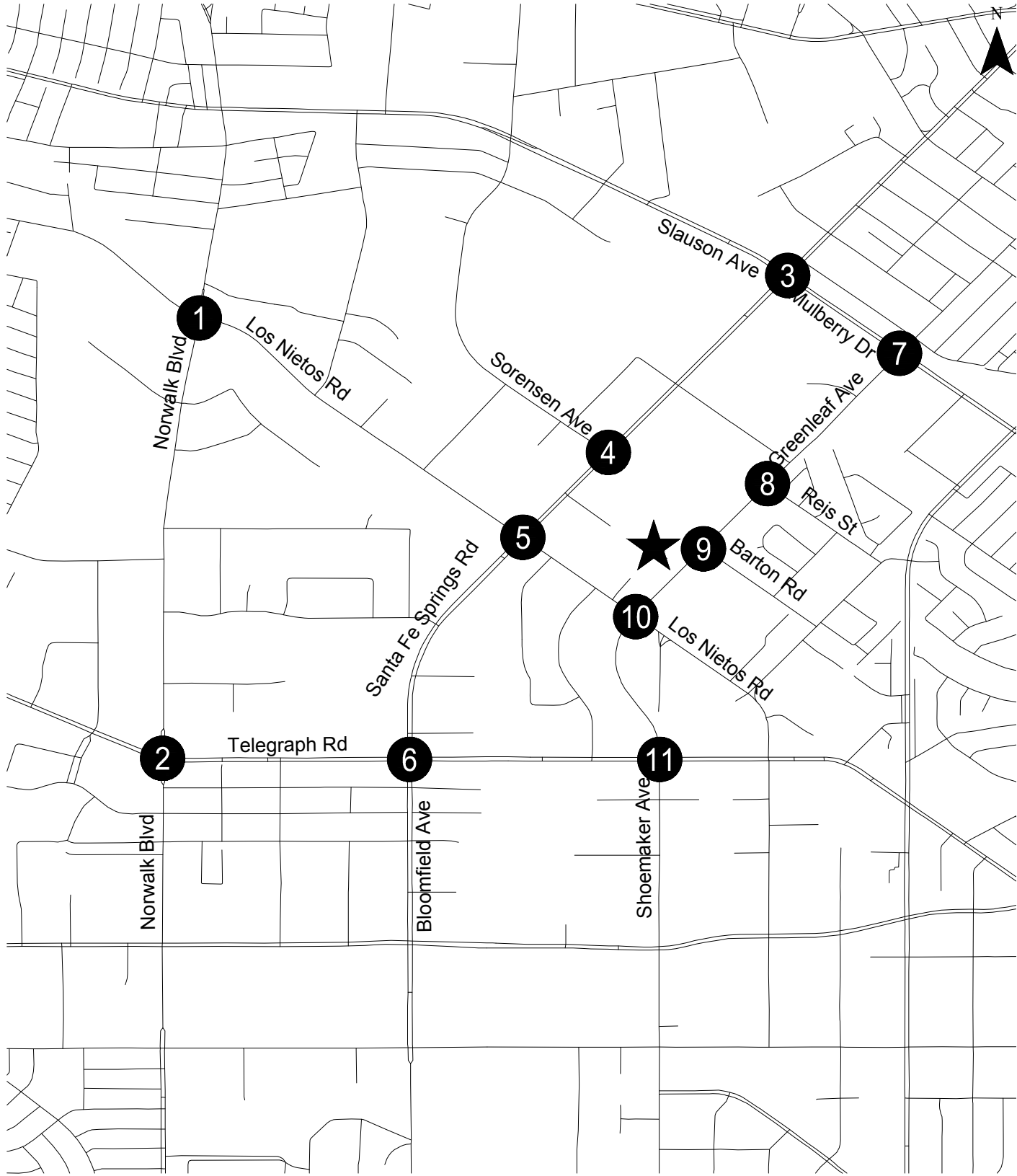
## 4.0 EXISTING PLUS PROJECT CONDITIONS

This section describes intersection operating conditions associated with the addition of the proposed Project traffic to the Existing Conditions. The analysis utilizes the data presented in the Existing Conditions section, plus the new activity generated by the proposed Project. The Existing Plus Project Conditions represent the existing traffic volumes and intersection configurations in year 2019 with the addition of the proposed Project traffic.

### 4.1 EXISTING PLUS PROJECT TRAFFIC VOLUMES

The weekday AM and PM peak hour traffic volumes generated by the proposed Project (as shown in Figure 4) were added to the Existing AM and PM peak hour traffic volumes (as shown in Figure 3). The resulting volumes are illustrated in Figure 5 and represent Existing Plus Project Conditions after addition of the proposed Project traffic to the Existing Conditions.

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AM(PM) - Traffic Volume

⬇ - Stop Sign

⬇ - Traffic Signal

Existing Plus Project Traffic Volumes  
AM & PM Peak Hours  
Santa Fe Springs, California

Figure  
5

## 4.2 EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Existing lane configurations and traffic controls were used along with the Existing Plus Project traffic volumes to calculate the levels of service at the study intersections for the weekday AM and PM peak hours.

Table 4 shows the LOS results based on the V/C ratios for the study intersections for Existing Plus Project Conditions. As shown, all intersections continue to operate at or better than the LOS D standard set forth by the City during both peak hours. As such, the addition of the proposed Project traffic would not cause any significant impacts at the study intersections during the Existing Plus Project Conditions.

Detailed LOS worksheets for Existing Plus Project Conditions are presented in Appendix D.

**Table 4: Intersection Level of Service - Existing Plus Project Conditions**

| #  | Intersection                                           | Control    | Peak Hour | Existing |     | Existing Plus Project |     |
|----|--------------------------------------------------------|------------|-----------|----------|-----|-----------------------|-----|
|    |                                                        |            |           | V/C      | LOS | V/C                   | LOS |
| 1  | Norwalk Boulevard/Los Nietos Road                      | Signalized | AM        | 0.575    | A   | 0.576                 | A   |
|    |                                                        |            | PM        | 0.677    | B   | 0.679                 | B   |
| 2  | Norwalk Boulevard/Telegraph Road                       | Signalized | AM        | 0.842    | D   | 0.846                 | D   |
|    |                                                        |            | PM        | 0.849    | D   | 0.852                 | D   |
| 3  | Santa Fe Springs Road/Slauson Avenue-Mulberry Drive    | Signalized | AM        | 0.748    | C   | 0.748                 | C   |
|    |                                                        |            | PM        | 0.787    | C   | 0.789                 | C   |
| 4  | Santa Fe Springs Road/Sorensen Avenue                  | TWSC       | AM        | 0.572    | A   | 0.575                 | A   |
|    |                                                        |            | PM        | 0.527    | A   | 0.528                 | A   |
| 5  | Santa Fe Springs Road/Los Nietos Road                  | Signalized | AM        | 0.838    | D   | 0.841                 | D   |
|    |                                                        |            | PM        | 0.840    | D   | 0.842                 | D   |
| 6  | Santa Fe Springs Road-Bloomfield Avenue/Telegraph Road | Signalized | AM        | 0.825    | D   | 0.829                 | D   |
|    |                                                        |            | PM        | 0.710    | C   | 0.713                 | C   |
| 7  | Greenleaf Avenue/Mulberry Drive                        | Signalized | AM        | 0.722    | C   | 0.723                 | C   |
|    |                                                        |            | PM        | 0.714    | C   | 0.714                 | C   |
| 8  | Greenleaf Avenue/Reis Street                           | Signalized | AM        | 0.569    | A   | 0.573                 | A   |
|    |                                                        |            | PM        | 0.455    | A   | 0.459                 | A   |
| 9  | Greenleaf Avenue/Barton Road                           | TWSC       | AM        | 0.383    | A   | 0.386                 | A   |
|    |                                                        |            | PM        | 0.366    | A   | 0.369                 | A   |
| 10 | Greenleaf Avenue/Los Nietos Road                       | Signalized | AM        | 0.860    | D   | 0.877                 | D   |
|    |                                                        |            | PM        | 0.824    | D   | 0.853                 | D   |
| 11 | Greenleaf Avenue/Telegraph Road                        | Signalized | AM        | 0.636    | B   | 0.651                 | B   |
|    |                                                        |            | PM        | 0.612    | B   | 0.620                 | B   |

Notes:

V/C – Volume to Capacity Ratio

LOS – Level of Service

Signalized – Signal Controlled Intersection (LOS based on V/C ratios)

TWSC – Two-Way Stop Controlled (LOS based on highest delay approach)

Source: Kittelson & Associates, Inc., 2019

## 5.0 OPENING YEAR 2020 CONDITIONS

The Opening Year 2020 Conditions analysis forecasts how the study area's transportation system would operate with the full build-out of the proposed Project in combination with the growth and changes of the surrounding community by the year 2020. To derive the Opening Year 2020 baseline traffic forecast volumes, approved and pending projects in the vicinity of the proposed Project site were considered.

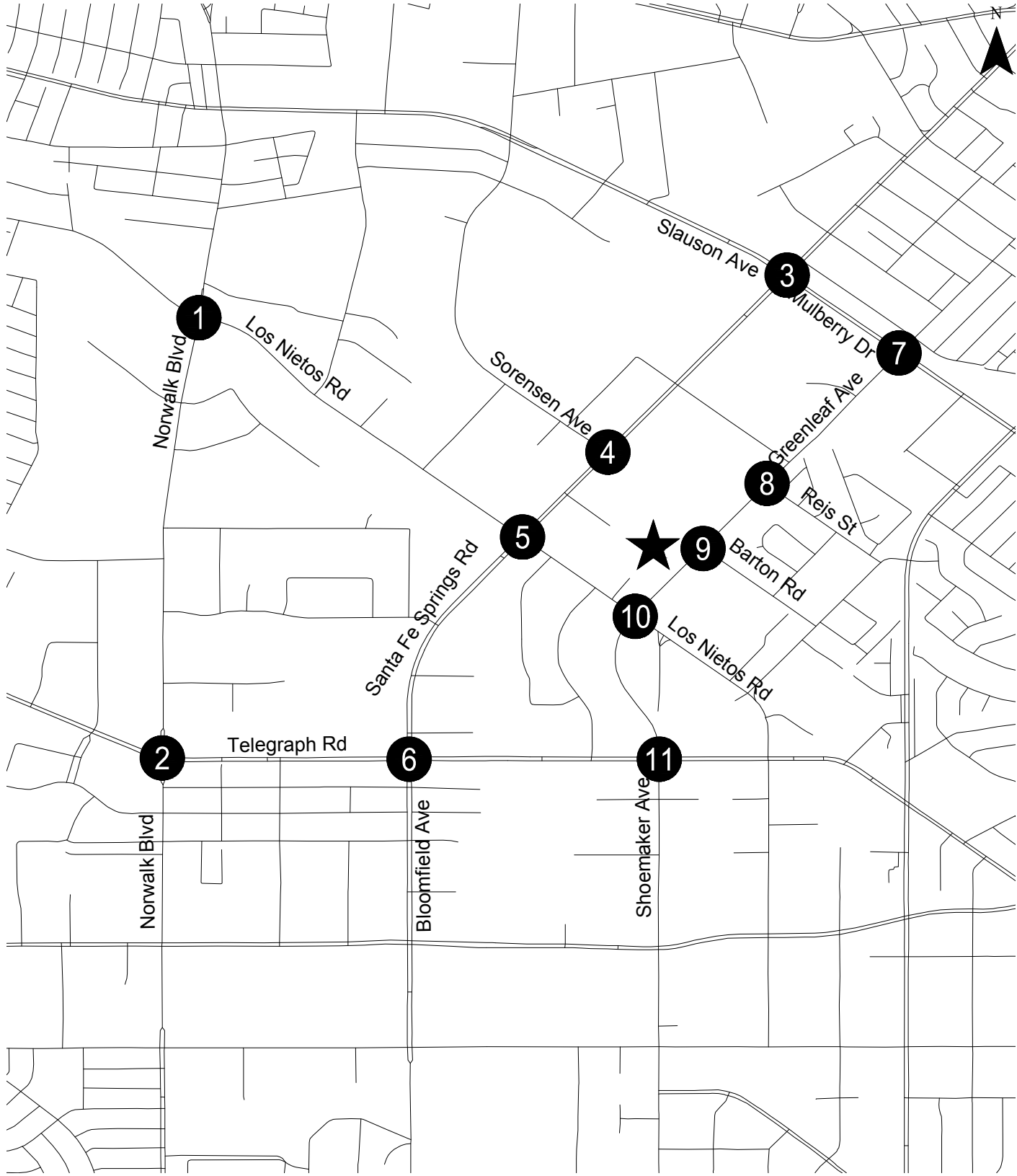
### 5.1 EXPECTED TRANSPORTATION IMPROVEMENTS

Based on conversations with the City staff, no roadway improvements or changes are expected to be implemented by the year 2020 in the study area.

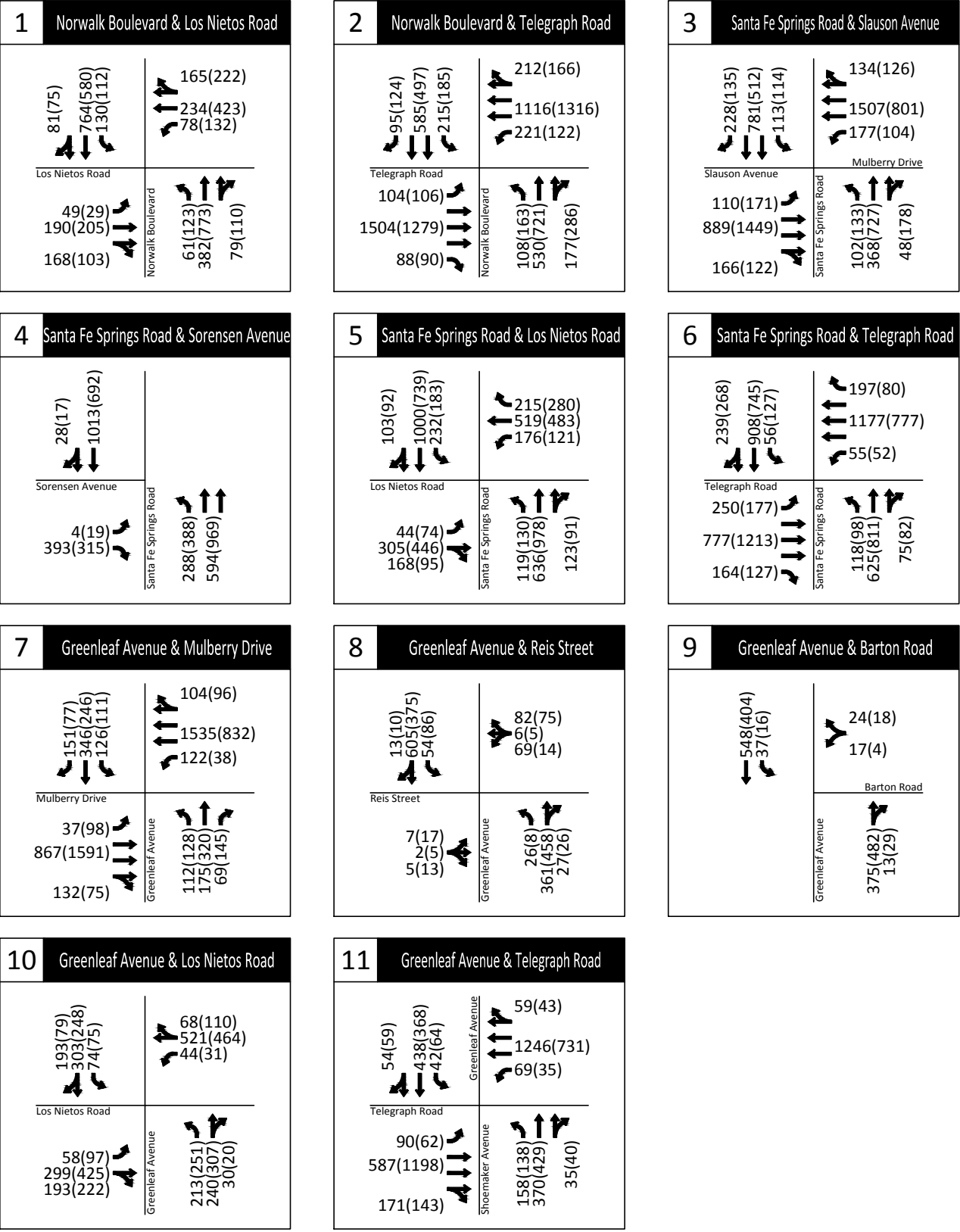
### 5.2 TRAFFIC VOLUME FORECASTING

A list of approved/pending projects was provided by the City staff and is included in Appendix E. The number of trips generated by the approved/pending projects is also presented in Appendix E. Per direction from the City staff, a 1% per year growth rate was applied to the Existing traffic volumes and the traffic expected to be generated by the approved/pending projects was added. The resulting Opening Year 2020 Conditions traffic volumes is presented in Figure 6.

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AM(PM) - Traffic Volume  
 - Stop Sign  
 - Traffic Signal



Opening Year 2020 Traffic Volumes  
AM & PM Peak Hours  
Santa Fe Springs, California  
Figure 6



### 5.3 OPENING YEAR 2020 INTERSECTION LEVEL OF SERVICE

The Opening Year 2020 Conditions traffic counts presented in Figure 7 were added to the existing street network to calculate the levels of service at the study intersections for the weekday AM and PM peak hours. Table 5 shows the LOS results based on the V/C ratios for the study intersections for Opening Year 2020 Conditions. As shown, all intersections would operate at or better than the LOS D standard set forth by the City during both peak hours.

Detailed LOS worksheets for Opening Year 2020 Conditions are presented in Appendix F.

**Table 5: Intersection Level of Service – Opening Year 2020 Conditions**

| #  | Intersection                                           | Control    | Peak Hour | Opening Year 2020 |     |
|----|--------------------------------------------------------|------------|-----------|-------------------|-----|
|    |                                                        |            |           | V/C               | LOS |
| 1  | Norwalk Boulevard/Los Nietos Road                      | Signalized | AM        | 0.588             | A   |
|    |                                                        |            | PM        | 0.690             | B   |
| 2  | Norwalk Boulevard/Telegraph Road                       | Signalized | AM        | 0.885             | D   |
|    |                                                        |            | PM        | 0.893             | D   |
| 3  | Santa Fe Springs Road/Slauson Avenue-Mulberry Drive    | Signalized | AM        | 0.788             | C   |
|    |                                                        |            | PM        | 0.819             | D   |
| 4  | Santa Fe Springs Road/Sorensen Avenue                  | TWSC       | AM        | 0.599             | A   |
|    |                                                        |            | PM        | 0.545             | A   |
| 5  | Santa Fe Springs Road/Los Nietos Road                  | Signalized | AM        | 0.869             | D   |
|    |                                                        |            | PM        | 0.894             | D   |
| 6  | Santa Fe Springs Road-Bloomfield Avenue/Telegraph Road | Signalized | AM        | 0.892             | D   |
|    |                                                        |            | PM        | 0.755             | C   |
| 7  | Greenleaf Avenue/Mulberry Drive                        | Signalized | AM        | 0.739             | C   |
|    |                                                        |            | PM        | 0.729             | C   |
| 8  | Greenleaf Avenue/Reis Street                           | Signalized | AM        | 0.578             | A   |
|    |                                                        |            | PM        | 0.462             | A   |
| 9  | Greenleaf Avenue/Barton Road                           | TWSC       | AM        | 0.388             | A   |
|    |                                                        |            | PM        | 0.371             | A   |
| 10 | Greenleaf Avenue/Los Nietos Road                       | Signalized | AM        | 0.886             | D   |
|    |                                                        |            | PM        | 0.852             | D   |
| 11 | Greenleaf Avenue/Telegraph Road                        | Signalized | AM        | 0.663             | B   |
|    |                                                        |            | PM        | 0.635             | B   |

Notes:

V/C – Volume to Capacity Ratio

LOS – Level of Service

Signalized – Signal Controlled Intersection (LOS based on V/C ratios)

TWSC – Two-Way Stop Controlled (LOS based on highest delay approach)

Source: Kittelson & Associates, Inc., 2019

## 6.0 OPENING YEAR 2020 PLUS PROJECT CONDITIONS

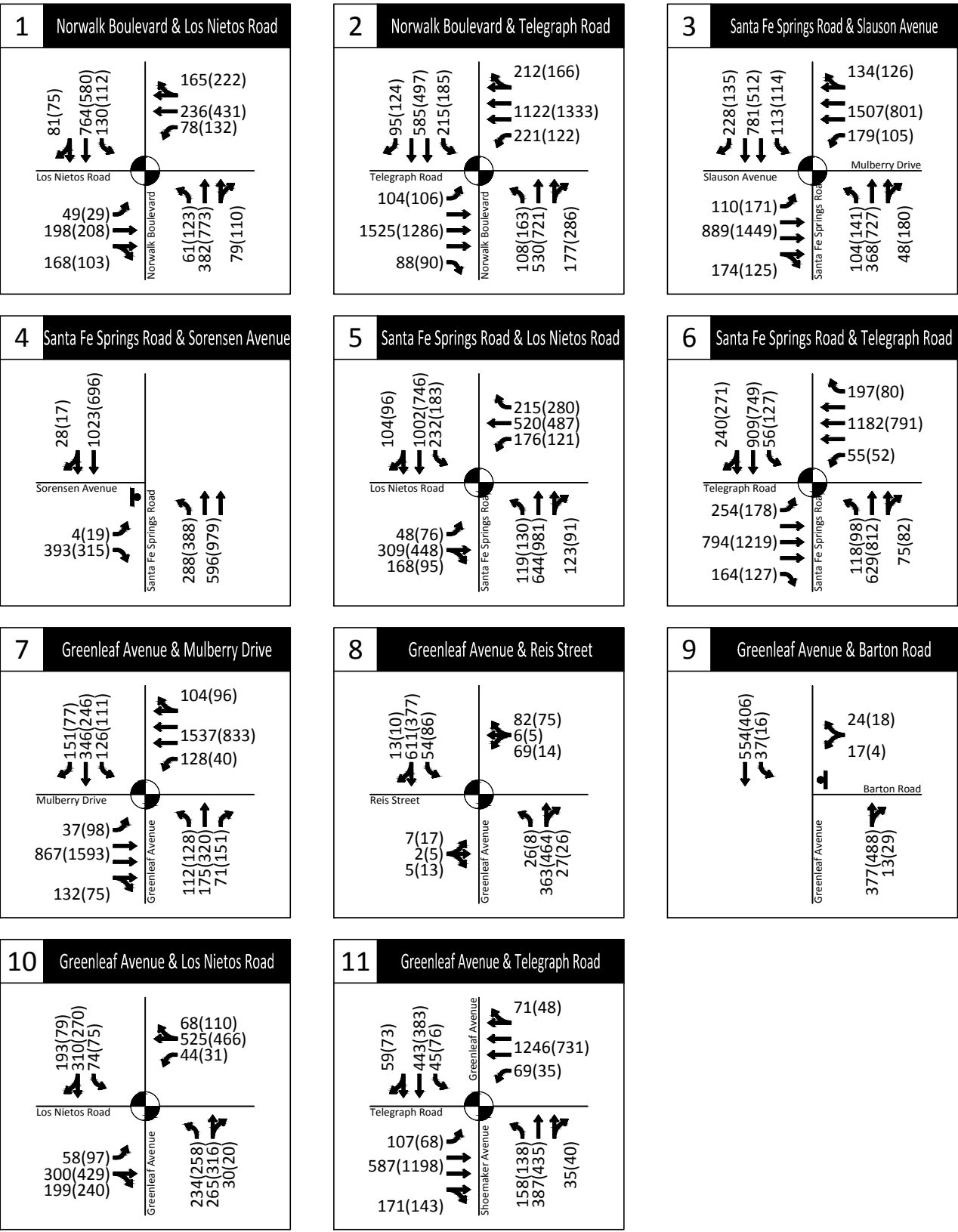
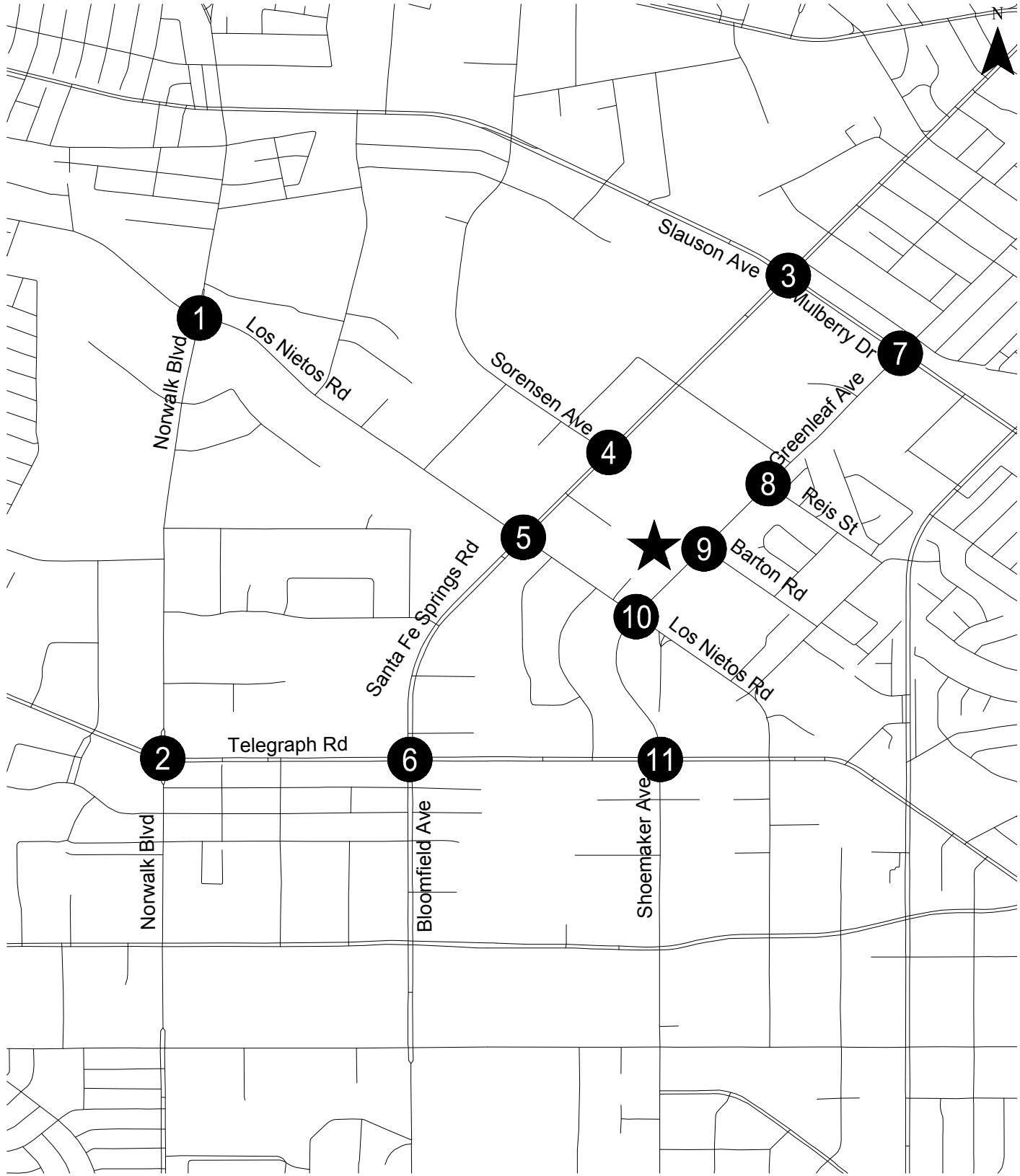
This section describes intersection operating conditions associated with the addition of the proposed Project traffic to the Opening Year 2020 Conditions.

### 6.1 OPENING YEAR 2020 PLUS PROJECT TRAFFIC VOLUMES

The weekday AM and PM peak hour traffic volumes generated by the proposed Project (as shown in Figure 4) were added to the Opening Year 2020 Conditions AM and PM peak hour traffic volumes (as shown in Figure 6). The resulting volumes are illustrated in Figure 7 and represent Opening Year 2020 Plus Project Conditions after addition of the proposed Project traffic to the Opening Year 2020 Conditions.



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AM(PM) - Traffic Volume  
- Stop Sign  
- Traffic Signal

Opening Year 2020 Plus Project Traffic Volumes  
AM & PM Peak Hours  
Santa Fe Springs, California

Figure  
7

## 6.2 OPENING YEAR 2020 PLUS PROJECT INTERSECTION LEVEL OF SERVICE

The Opening Year 2020 Plus Project traffic volumes were added to the existing street network to calculate the levels of service at the study intersections for the AM and PM peak hours.

Table 6 shows the LOS results based on the V/C ratios for the study intersections for Opening Year 2020 Plus Project Conditions. As shown, all intersections would continue to operate at or better than the LOS D standard set forth by the City during both peak hours except for the Greenleaf Avenue/Los Nietos Road intersection (intersection 10), which would operate at LOS E during the AM peak hour. As such, the addition of the proposed Project traffic would cause a significant impact at the Greenleaf Avenue/Los Nietos Road intersection during the Opening Year 2020 Plus Project Conditions and a mitigation measure to alleviate the significant impact at the intersection has been proposed.

Detailed LOS worksheets for Opening Year 2020 Plus Project Conditions are presented in Appendix G.

**Table 6: Intersection Level of Service – Opening Year 2020 Plus Project Conditions**

| #         | Intersection                                           | Control           | Peak Hour | Opening Year 2020 |          | Opening Year 2020 Plus Project |          |
|-----------|--------------------------------------------------------|-------------------|-----------|-------------------|----------|--------------------------------|----------|
|           |                                                        |                   |           | V/C               | LOS      | V/C                            | LOS      |
| 1         | Norwalk Boulevard/Los Nietos Road                      | Signalized        | AM        | 0.588             | A        | 0.588                          | A        |
|           |                                                        |                   | PM        | 0.690             | B        | 0.693                          | B        |
| 2         | Norwalk Boulevard/Telegraph Road                       | Signalized        | AM        | 0.885             | D        | 0.889                          | D        |
|           |                                                        |                   | PM        | 0.893             | D        | 0.896                          | D        |
| 3         | Santa Fe Springs Road/Slauson Avenue-Mulberry Drive    | Signalized        | AM        | 0.788             | C        | 0.789                          | C        |
|           |                                                        |                   | PM        | 0.819             | D        | 0.821                          | D        |
| 4         | Santa Fe Springs Road/Sorensen Avenue                  | TWSC              | AM        | 0.599             | A        | 0.602                          | B        |
|           |                                                        |                   | PM        | 0.545             | A        | 0.546                          | A        |
| 5         | Santa Fe Springs Road/Los Nietos Road                  | Signalized        | AM        | 0.869             | D        | 0.872                          | D        |
|           |                                                        |                   | PM        | 0.894             | D        | 0.895                          | D        |
| 6         | Santa Fe Springs Road-Bloomfield Avenue/Telegraph Road | Signalized        | AM        | 0.892             | D        | 0.896                          | D        |
|           |                                                        |                   | PM        | 0.755             | C        | 0.758                          | C        |
| 7         | Greenleaf Avenue/Mulberry Drive                        | Signalized        | AM        | 0.739             | C        | 0.739                          | C        |
|           |                                                        |                   | PM        | 0.729             | C        | 0.729                          | C        |
| 8         | Greenleaf Avenue/Reis Street                           | Signalized        | AM        | 0.578             | A        | 0.581                          | A        |
|           |                                                        |                   | PM        | 0.462             | A        | 0.466                          | A        |
| 9         | Greenleaf Avenue/Barton Road                           | TWSC              | AM        | 0.388             | A        | 0.392                          | A        |
|           |                                                        |                   | PM        | 0.371             | A        | 0.374                          | A        |
| <b>10</b> | <b>Greenleaf Avenue/Los Nietos Road</b>                | <b>Signalized</b> | <b>AM</b> | <b>0.886</b>      | <b>D</b> | <b>0.903</b>                   | <b>E</b> |
|           |                                                        |                   | PM        | 0.852             | D        | 0.880                          | D        |
| 11        | Greenleaf Avenue/Telegraph Road                        | Signalized        | AM        | 0.663             | B        | 0.678                          | B        |
|           |                                                        |                   | PM        | 0.635             | B        | 0.644                          | B        |

Notes:

V/C – Volume to Capacity Ratio

LOS – Level of Service

Signalized – Signal Controlled Intersection (LOS based on volume weighted average of delay for all approaches)

TWSC – Two-Way Stop Controlled (LOS based on highest delay approach)

**BOLD** – Significantly impact intersection

Source: Kittelson & Associates, Inc., 2019

## 7.0 MITIGATIONS

The addition of the proposed Project traffic would cause a significant impact at the Greenleaf Avenue/Los Nietos Road intersection during the AM peak hour for Opening Year 2020 Plus Project Conditions. This section presents the proposed mitigation measures to alleviate the significant impact at the intersection. The operating conditions with the mitigation measure implemented were analyzed and compared with the significant impact found for the Opening Year 2020 Plus Project Conditions.

### 7.1 SPECIFIC INTERSECTION IMPROVEMENT

Specific intersection improvements designed to alleviate the significant impact were considered and are identified in this section.

In order to reduce the significant impact at the Greenleaf Avenue/Los Nietos Road intersection (Intersection 10) to a less-than-significant level, a 100-foot long (consistent with the existing left-turn lane) southbound right-turn only lane should be striped adjacent to the curb. Currently, the curb lane is approximately 24 feet wide and operates as a shared through/right-turn lane. As such, striping a separate southbound right-turn only lane would result in a 12-foot through lane and a 12-foot right-turn lane. The resulting southbound lane configurations on Greenleaf Avenue would be one left-turn only lane, one through lane, and one right-turn only lane. This mitigation measure can be accommodated within the existing right of way for Greenleaf Avenue and no widening of the roadway would be required. The project would be required to implement this mitigation measure prior to opening.

### 7.2 INTERSECTION LEVEL OF SERVICE WITH MITIGATION

This section provides the change in the level of service results after implementation of the proposed mitigations measures at the impacted study intersection for the Opening Year 2020 Plus Project Conditions.

Table 7 shows a comparison between results under the Opening Year 2020 Conditions and the results with the proposed mitigation measures implemented at the Greenleaf Avenue/Los Nietos Road intersection. As shown, the proposed mitigation measure (restripe to add a separate southbound right-turn lane) improves the LOS to an acceptable level of LOS D based on City standards and reduces the impact to less-than-significant levels during the Opening Year 2020 Plus Project Conditions.

Detailed LOS worksheets for Opening Year 2020 Plus Project Conditions with Mitigation Conditions are presented in Appendix G.

**Table 7: Intersection Level of Service - Opening Year 2020 Plus Project with Mitigation Conditions**

| #  | Intersection                     | Control    | Peak Hour | Opening Year 2020 |     | Opening Year 2020 Plus Project with Mitigation |     |
|----|----------------------------------|------------|-----------|-------------------|-----|------------------------------------------------|-----|
|    |                                  |            |           | V/C               | LOS | V/C                                            | LOS |
| 10 | Greenleaf Avenue/Los Nietos Road | Signalized | AM        | 0.886             | D   | 0.785                                          | C   |
|    |                                  |            | PM        | 0.852             | D   | 0.832                                          | D   |

Notes:

V/C – Volume to Capacity Ratio

LOS – Level of Service

Signalized – Signal Controlled Intersection (LOS based on volume weighted average of delay for all approaches)

Source: Kittelson & Associates, Inc., 2019

## 8.0 SITE ACCESS AND CIRCULATION

This section describes the access and on-site circulation for the proposed Project site.

### 8.1 SITE ACCESS

As shown in the site plan provided in Figure 2, site access would be provided via one driveway on Santa Fe Springs Road, one driveway on Los Nietos Road, and one driveway on Greenleaf Avenue. Due to the driveway's close proximity to St. Paul High School to the north, the driveway on Greenleaf Avenue would be restricted to automobiles only and trucks would not be able to access the site through it. Primary truck access would be provided via the driveway on Santa Fe Springs Road and the driveway on Los Nietos Road. As currently proposed, all proposed Project driveways would operate as full access with all inbound movements uncontrolled and all outbound movements stop-controlled.

A review of the access points found that inbound vehicles making a right-turn into the proposed Project site at any of the driveways are not expected to experience any queuing on City streets as these inbound movements would be uncontrolled internal to the proposed Project site. As shown in the truck turning templates provided in Appendix H, trucks turning right into the proposed Project driveways on Santa Fe Springs Road and Los Nietos Road would need to utilize the entire curb lane as well as the entire width of the driveway.

Santa Fe Springs Road, Los Nietos Road and Greenleaf Avenue all consist of striped two-way left-turn center lanes. Inbound vehicles making a left-turn into the proposed Project site at either of the driveways are able to utilize the two-way left-turn center lanes to seek refuge and there is adequate vehicle storage in these center lanes for queueing. Any queuing that would occur for the outbound left turn movements will occur on the proposed Project site and would not affect City streets. As shown in the truck turning templates provided in Appendix H, trucks turning left into the proposed Project driveways on Santa Fe Springs Road and Los Nietos Road are able to adequately make the movement from the center two-way left-turn lanes and need to utilize the entire width of the driveway.

### 8.2 SITE CIRCULATION

As shown in the site plan in Figure 2, the proposed Project would provide surface parking spaces intended for trailer parking on the western portion of the Project site. The site plan provides adequate space for trucks to turn into and out of the proposed Project site and circulate through the truck parking and storage area. The site plan also provides adequate space in front of the loading dock positions for trucks to maneuver into and out of the loading docks. The truck turning templates for circulation internal to the proposed Project site are provided in Appendix H.

The proposed Project would also provide automobile parking areas to the north and south of the proposed warehouse building located on the east side of the Project site. The site plan provides

adequate space for automobiles to turn into and out of the proposed Project site and circulate through the automobile parking areas. Trucks would not be able to access the automobile parking areas.

## 9.0 CONCLUSIONS AND FINDINGS

The proposed Project includes the construction of one new building that would consist of 200,500 sf of warehousing space (approximately 60,150 sf of which is anticipated to be utilized for light industrial uses with the remaining 140,350 sf used as general warehousing space) and a 16,000-sf office to support the industrial tenants. In addition, the proposed Project would provide 459 surface parking spaces intended for trailer parking and storage but may also be utilized by automobiles.

Based on the City's significant impact criteria, it is expected that the addition of the proposed Project traffic would not cause any significant impacts at the study intersections during the Existing Plus Project Conditions but would result in one significant impact during the AM peak hour of the Opening Year 2020 Plus Project Conditions at the Greenleaf Avenue/Los Nietos Road intersection. The mitigation recommended at this intersection proposes to stripe a southbound right-turn only lane adjacent to the curb. This mitigation measure can be accommodated within the existing right of way and no widening of the roadway would be required. The proposed mitigation measure improves the LOS to an acceptable level based on City standards and reduces the impact to less-than-significant levels during the Opening Year 2020 Plus Project Conditions. The project would be required to implement this mitigation measure prior to opening.

Based on the proposed Project site plan, no issues were identified with site access and circulation. The proposed Project site plan provided adequate space on-site for truck stacking and thus, no excessive queuing at the proposed Project driveways would occur on any City streets.



## **Appendix A**

### Traffic Count Data

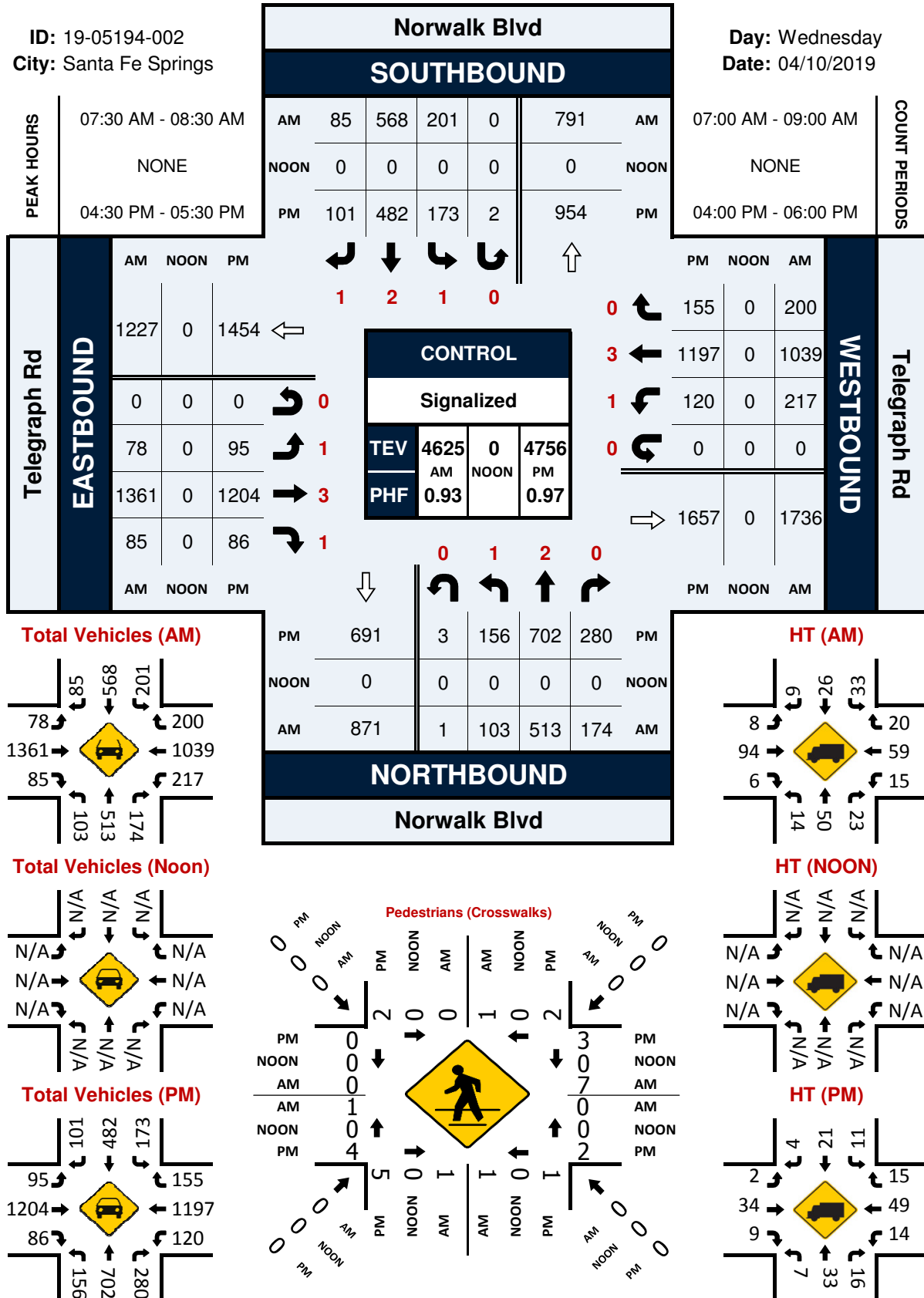


# Norwalk Blvd & Telegraph Rd

## Peak Hour Turning Movement Count

ID: 19-05194-002  
City: Santa Fe Springs

Day: Wednesday  
Date: 04/10/2019

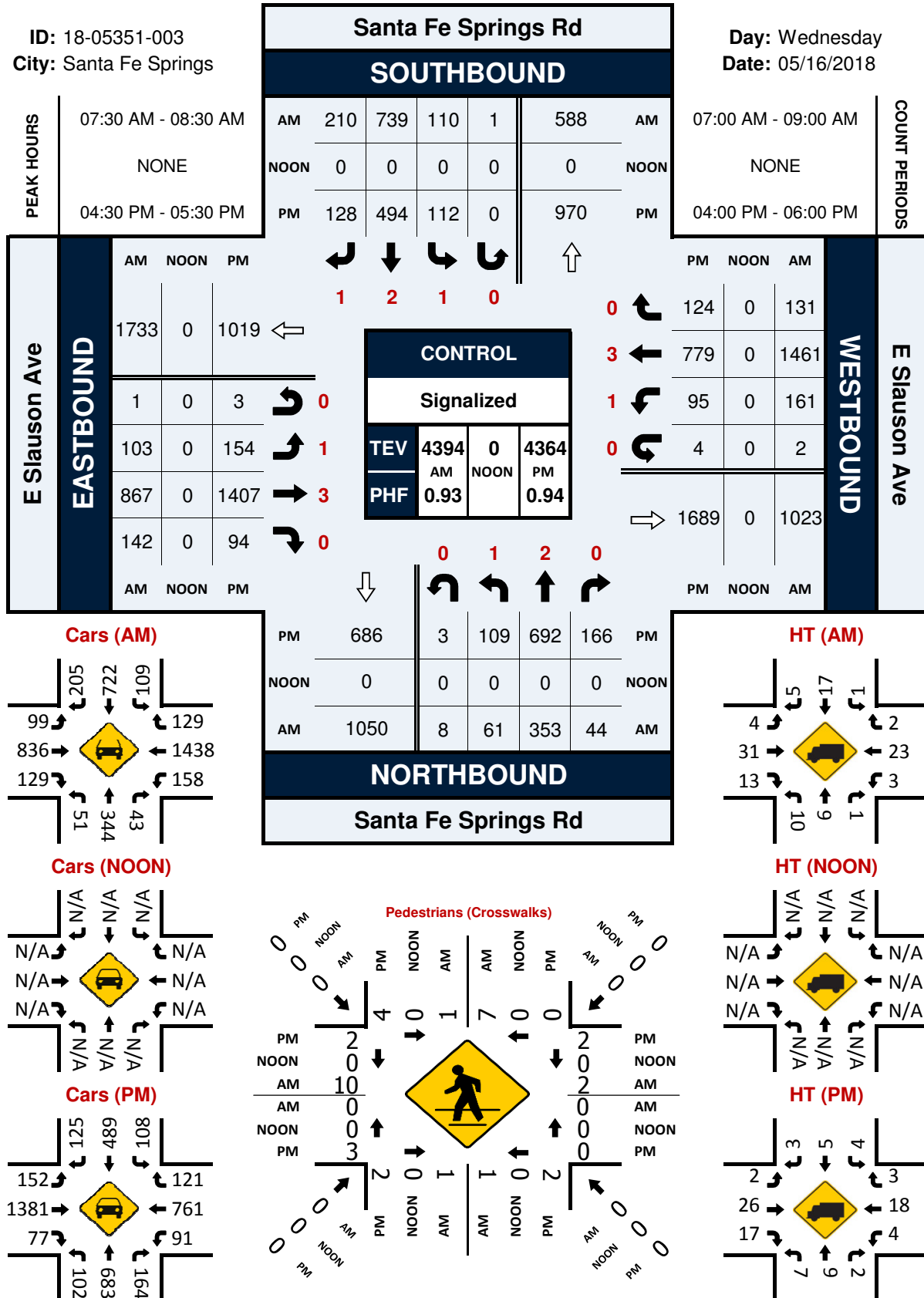


# Santa Fe Springs Rd & E Slauson Ave

## Peak Hour Turning Movement Count

ID: 18-05351-003  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

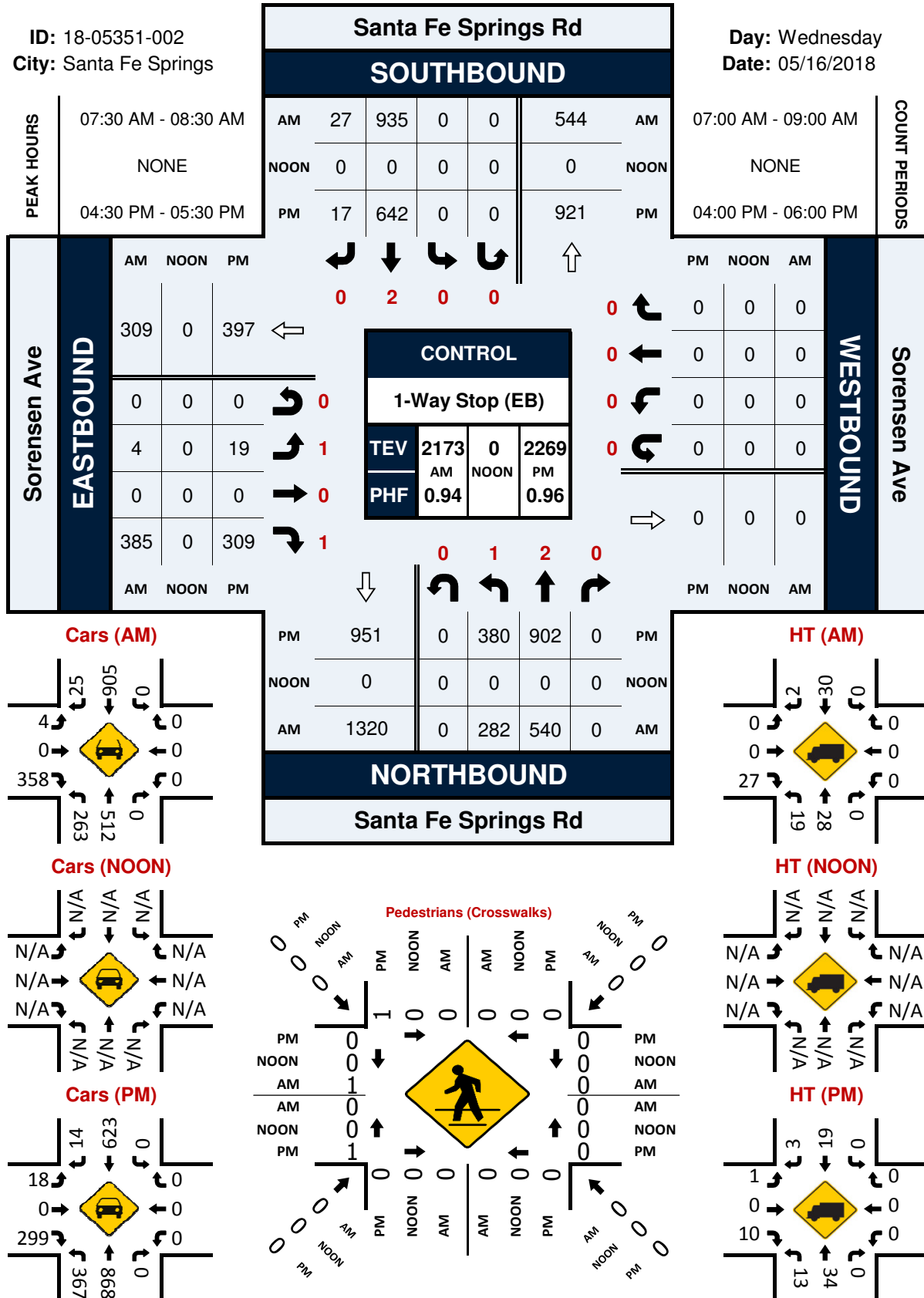


# Santa Fe Springs Rd & Sorensen Ave

## Peak Hour Turning Movement Count

ID: 18-05351-002  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

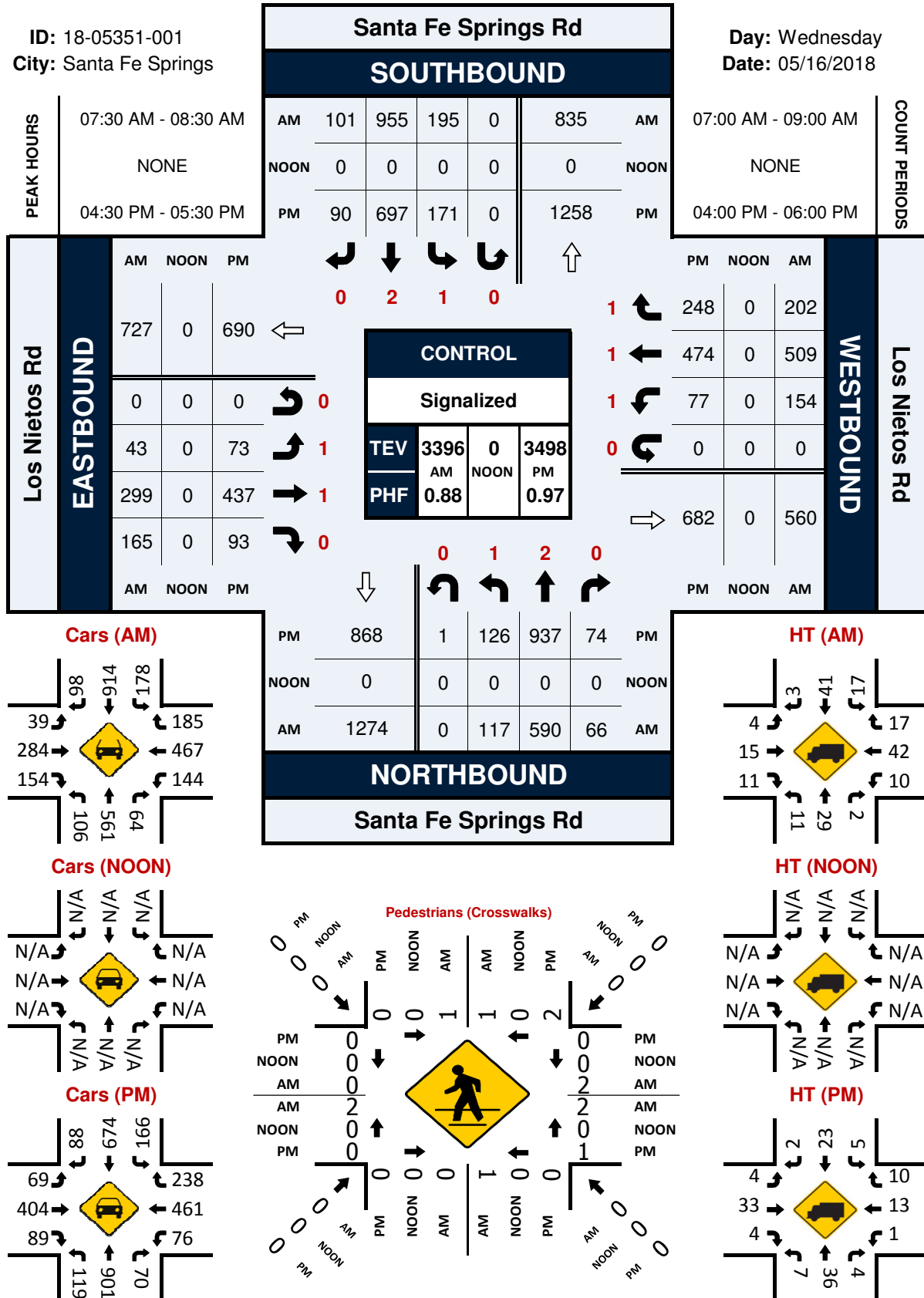


# Santa Fe Springs Rd & Los Nietos Rd

## Peak Hour Turning Movement Count

ID: 18-05351-001  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

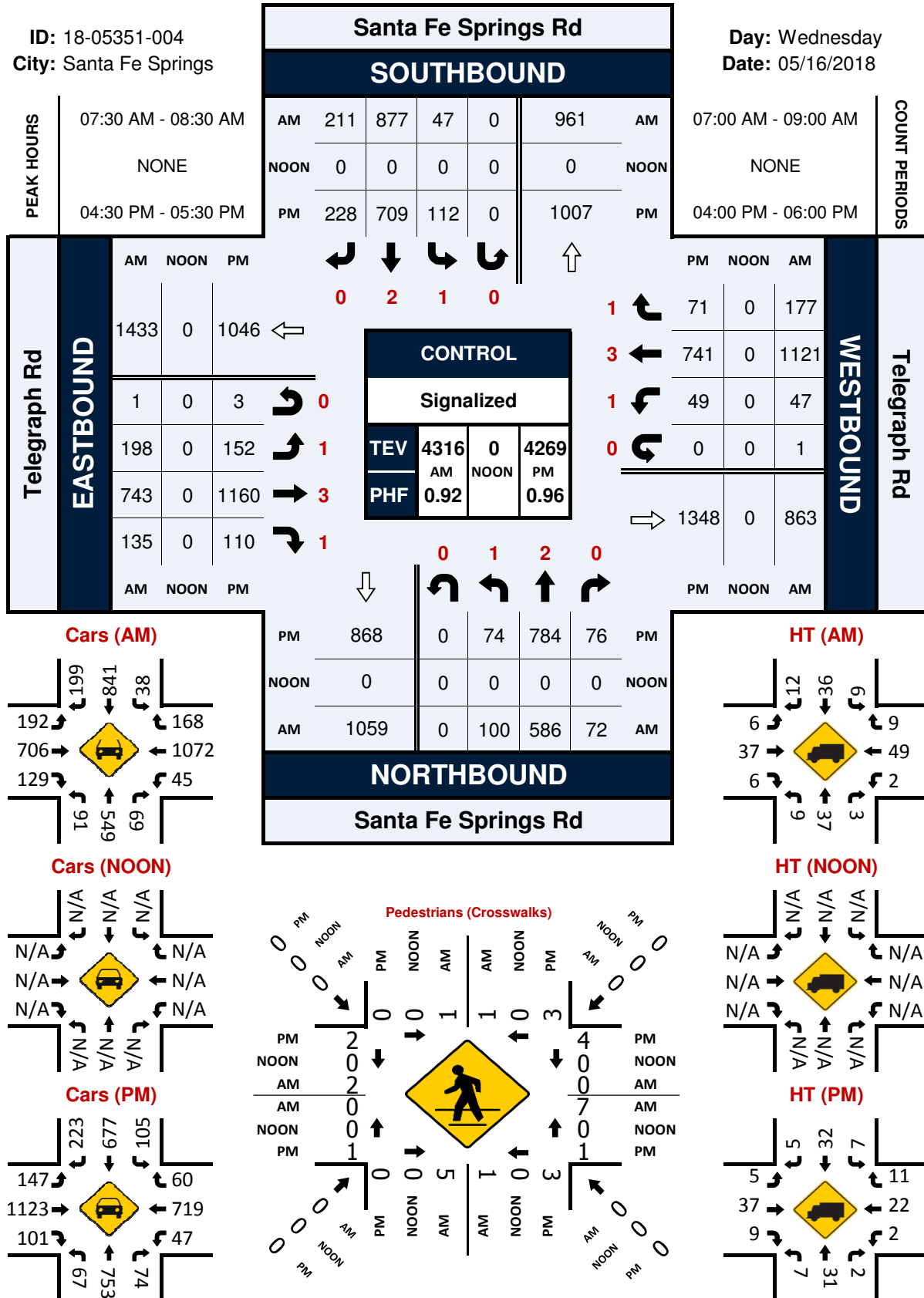


# Santa Fe Springs Rd & Telegraph Rd

## Peak Hour Turning Movement Count

ID: 18-05351-004  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

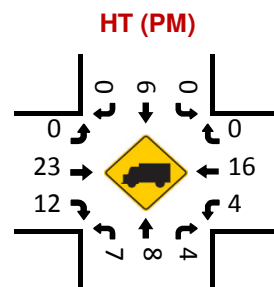
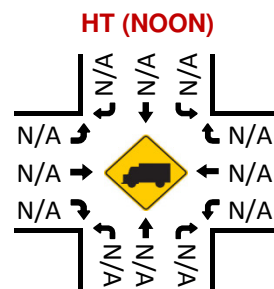
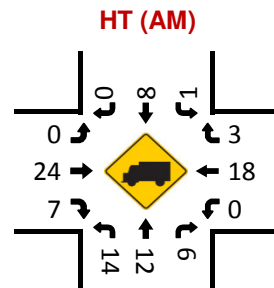
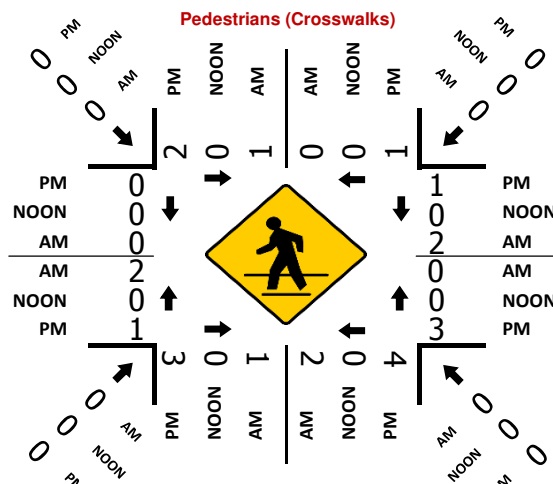
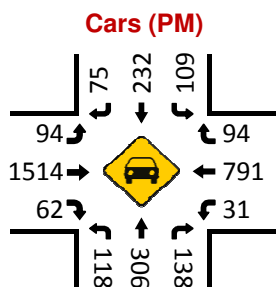
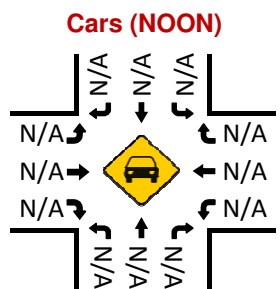
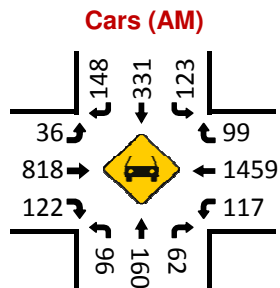
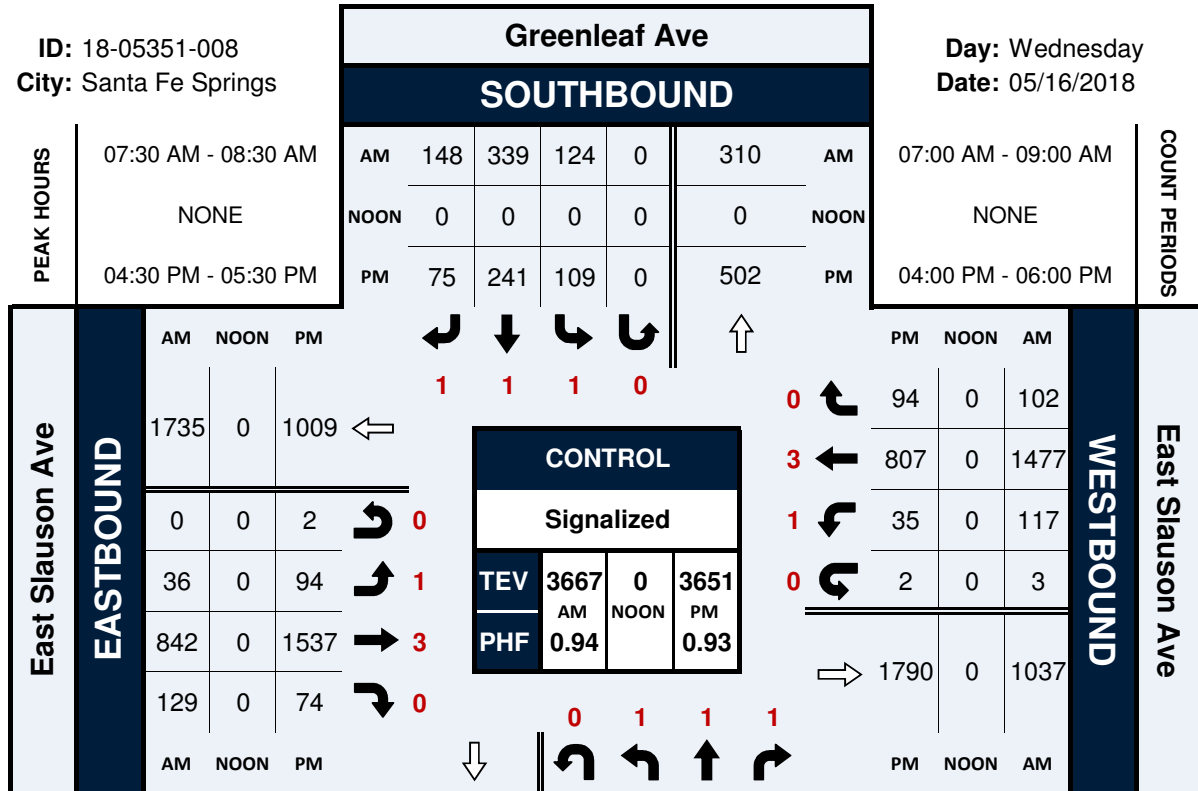


# Greenleaf Ave & East Slauson Ave

## Peak Hour Turning Movement Count

ID: 18-05351-008  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018



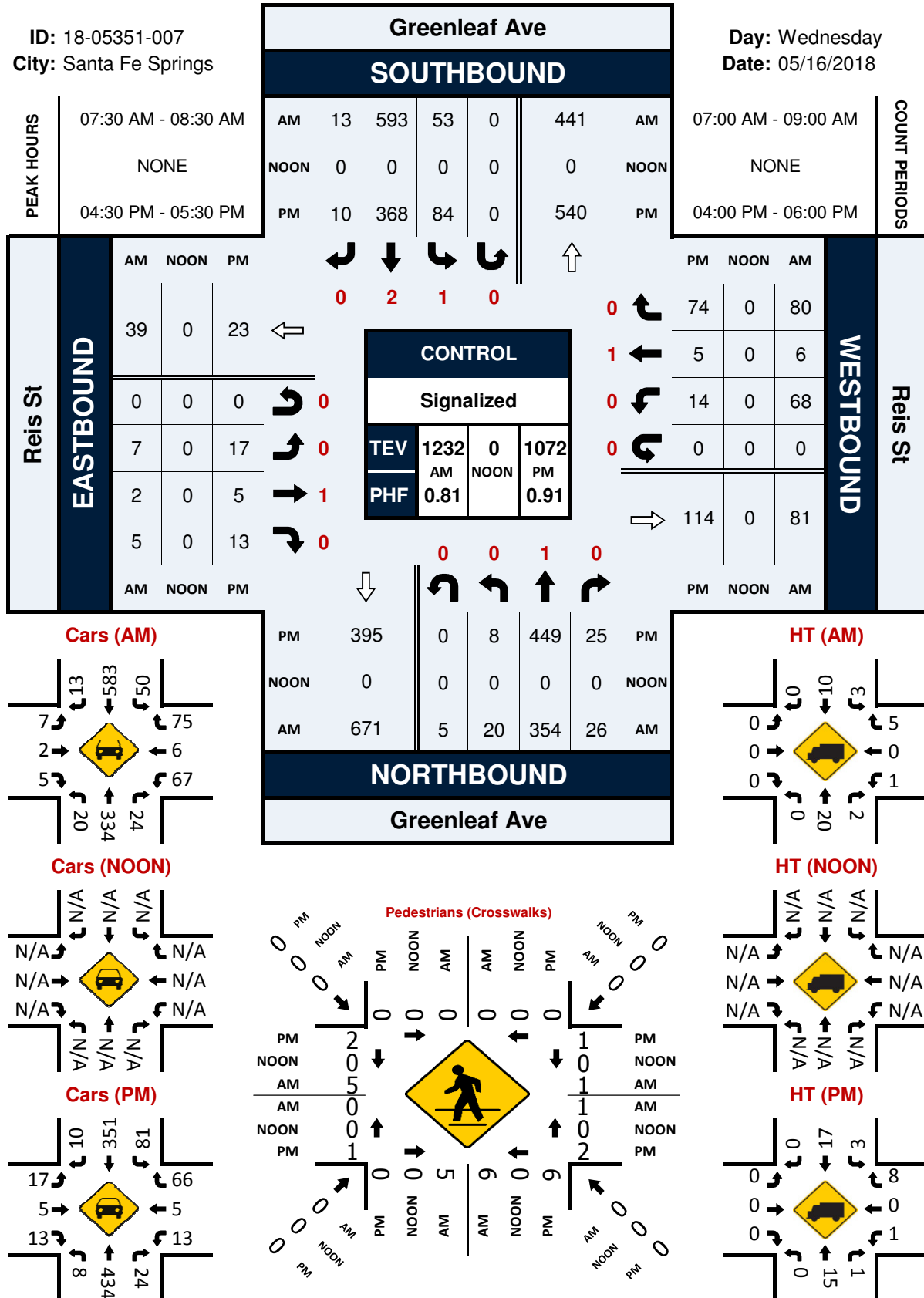


## Greenleaf Ave &amp; Reis St

## Peak Hour Turning Movement Count

ID: 18-05351-007  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

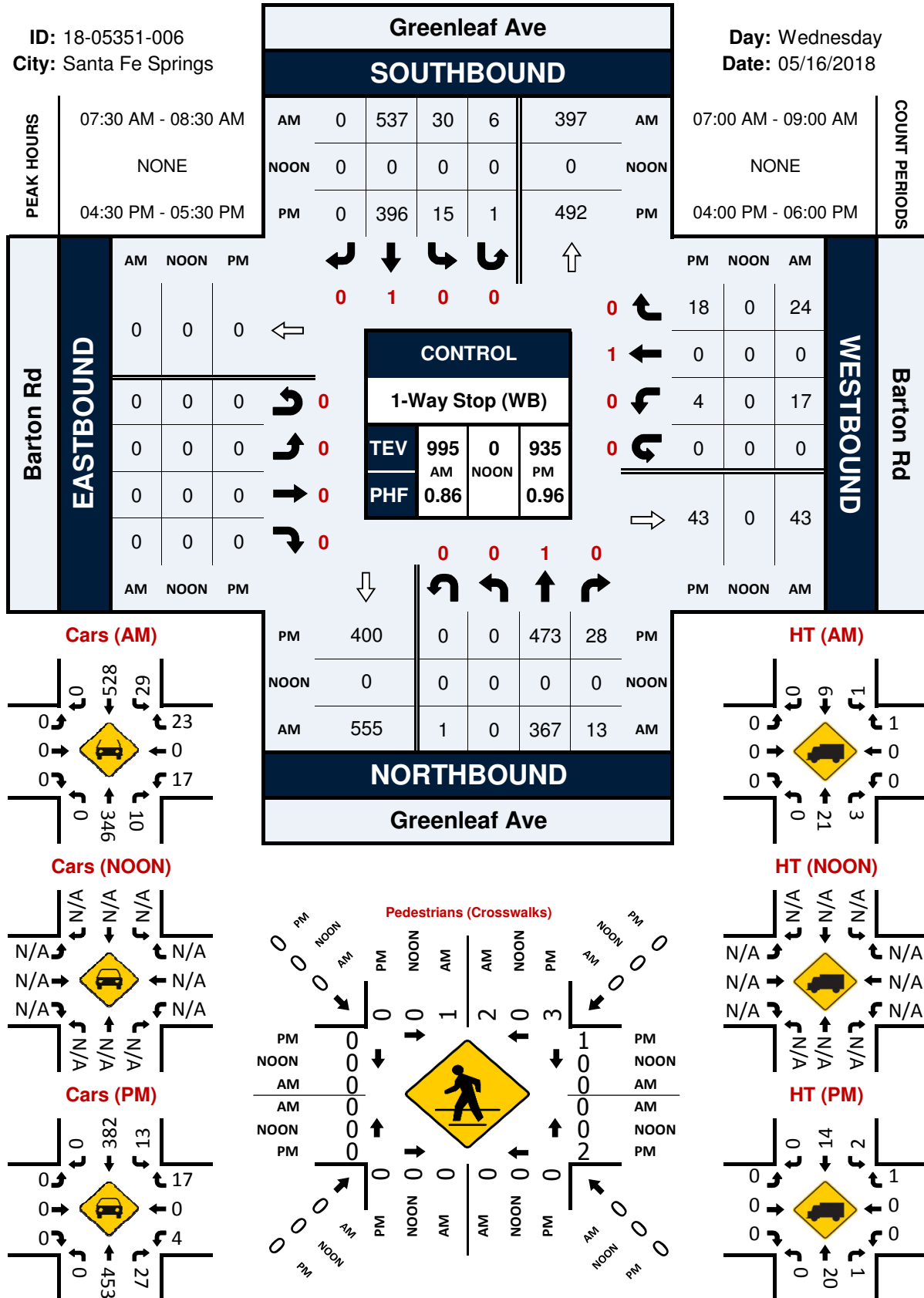


## Greenleaf Ave &amp; Barton Rd

## Peak Hour Turning Movement Count

ID: 18-05351-006  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

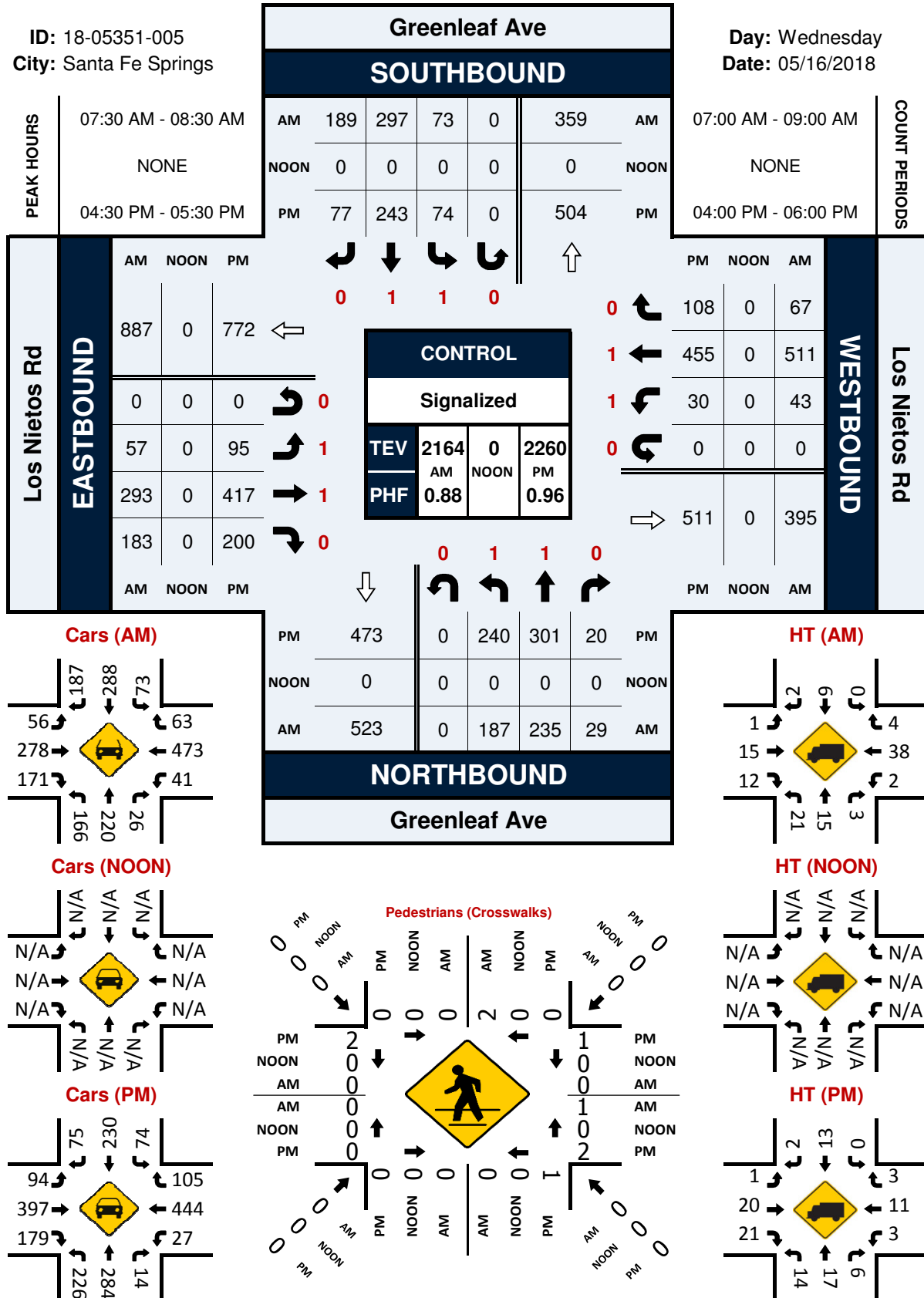


# Greenleaf Ave & Los Nietos Rd

## Peak Hour Turning Movement Count

ID: 18-05351-005  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018

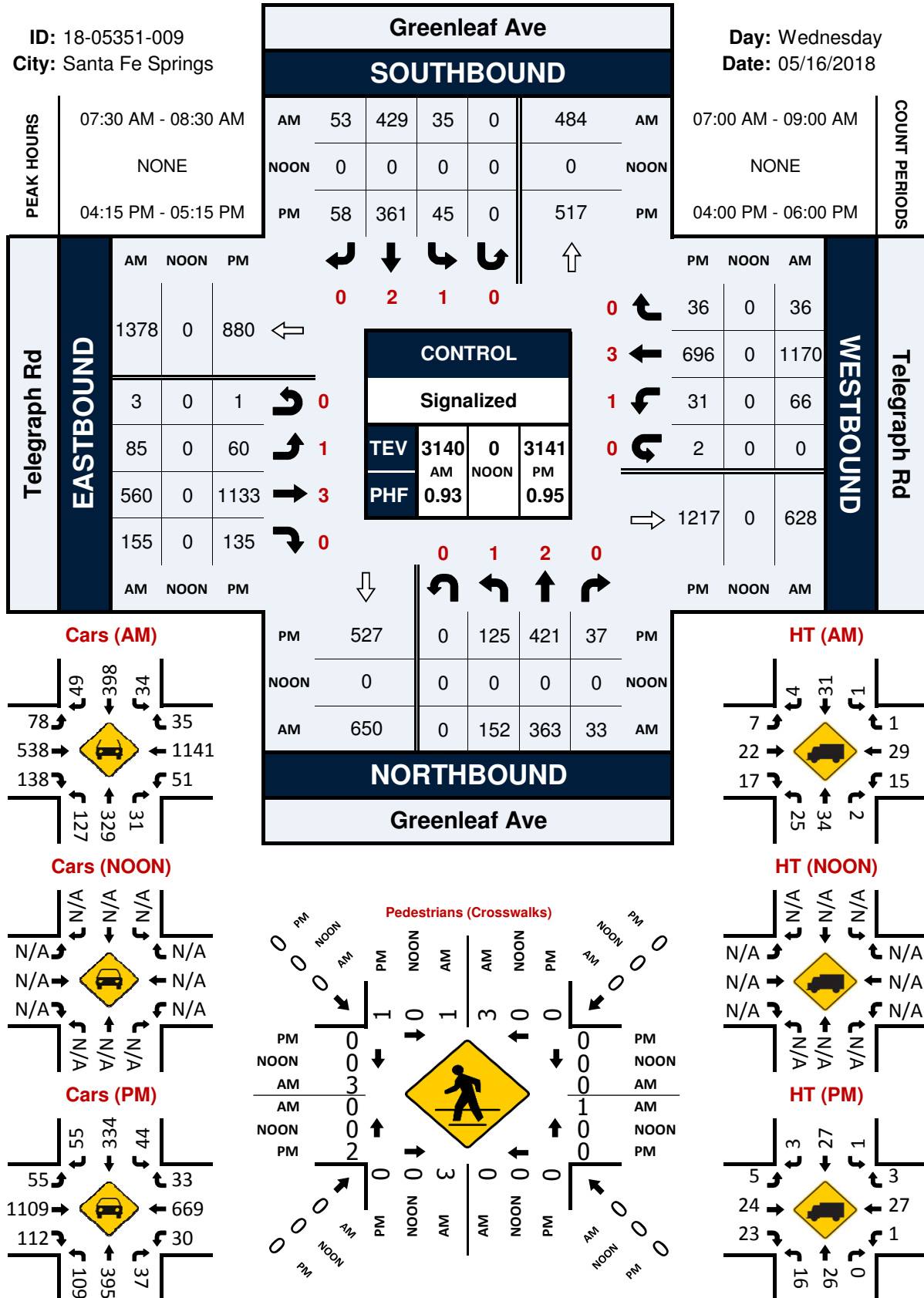


# Greenleaf Ave & Telegraph Rd

## Peak Hour Turning Movement Count

ID: 18-05351-009  
City: Santa Fe Springs

Day: Wednesday  
Date: 05/16/2018



**Appendix B**  
LOS Worksheets – Existing Conditions

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 48                                                                                | 186                                                                               | 165                                                                               | 76                                                                                | 229                                                                               | 162                                                                               | 60                                                                                  | 369                                                                                 | 77                                                                                  | 127                                                                                 | 728                                                                                 | 79                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 48                                                                                | 351                                                                               | 0                                                                                 | 76                                                                                | 391                                                                               | 0                                                                                 | 60                                                                                  | 446                                                                                 | 0                                                                                   | 127                                                                                 | 807                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.93                                                                              | 0.85                                                                              | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3363                                                                              | 0                                                                                 | 1805                                                                              | 3393                                                                              | 0                                                                                 | 1805                                                                                | 3524                                                                                | 0                                                                                   | 1805                                                                                | 3564                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 3.2                                                                               | 12.5                                                                              | 0.0                                                                               | 5.1                                                                               | 13.8                                                                              | 0.0                                                                               | 4.0                                                                                 | 15.2                                                                                | 0.0                                                                                 | 8.4                                                                                 | 27.2                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 17.0                                                                              | 0.0                                                                               | 9.6                                                                               | 18.3                                                                              | 0.0                                                                               | 9.5                                                                                 | 19.7                                                                                | 0.0                                                                                 | 12.9                                                                                | 31.7                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1681                                                                              |                                                                                   | 120                                                                               | 1696                                                                              |                                                                                   | 120                                                                                 | 1762                                                                                |                                                                                     | 120                                                                                 | 1782                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 47.9                                                                              | 12.5                                                                              |                                                                                   | 75.8                                                                              | 13.8                                                                              |                                                                                   | 59.8                                                                                | 15.2                                                                                |                                                                                     | 126.6                                                                               | 27.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                   | 75.8                                                                              |                                                                                   |                                                                                     | 59.8                                                                                |                                                                                     |                                                                                     | 126.6                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 52.4                                                                              |                                                                                   |                                                                                   | 80.3                                                                              |                                                                                   |                                                                                     | 64.3                                                                                |                                                                                     |                                                                                     | 131.1                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.2                                                                               | 12.5                                                                              |                                                                                   | 5.1                                                                               | 13.8                                                                              |                                                                                   | 4.0                                                                                 | 15.2                                                                                |                                                                                     | 8.4                                                                                 | 27.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.2                                                                               | 6.6                                                                               |                                                                                   | 5.1                                                                               | 8.1                                                                               |                                                                                   | 4.0                                                                                 | 12.6                                                                                |                                                                                     | 8.4                                                                                 | 24.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 12.5                                                                              | 12.5                                                                              |                                                                                   | 13.8                                                                              | 13.8                                                                              |                                                                                   | 15.2                                                                                | 15.2                                                                                |                                                                                     | 27.2                                                                                | 27.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 17.0                                                                              | 17.0                                                                              |                                                                                   | 18.3                                                                              | 18.3                                                                              |                                                                                   | 19.7                                                                                | 19.7                                                                                |                                                                                     | 31.7                                                                                | 31.7                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 27.8                                                                              |                                                                                   | 41.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 80.3                                                                              |                                                                                   | 131.1                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 35.4                                                                              |                                                                                   | 51.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 27.8                                                                              |                                                                                   | 41.2                                                                              |                                                                                   | 69.0                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 57.5%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

05/07/2019

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|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |  |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 78                                                                                | 1361                                                                              | 85                                                                                | 217                                                                               | 1039                                                                              | 200                                                                               | 104                                                                                 | 513                                                                                 | 174                                                                                 | 201                                                                                 | 568                                                                                 | 85                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.5                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 78                                                                                | 1361                                                                              | 85                                                                                | 217                                                                               | 1239                                                                              | 0                                                                                 | 104                                                                                 | 687                                                                                 | 0                                                                                   | 201                                                                                 | 568                                                                                 | 85                                                                                  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.96                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                              | 1615                                                                              | 1805                                                                              | 5050                                                                              | 0                                                                                 | 1805                                                                                | 3480                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 5.2                                                                               | 31.6                                                                              | 6.3                                                                               | 14.4                                                                              | 29.4                                                                              | 0.0                                                                               | 6.9                                                                                 | 23.7                                                                                | 0.0                                                                                 | 13.4                                                                                | 18.8                                                                                | 6.3                                                                                 |
| Adj Reference Time (s)                                                         | 9.7                                                                               | 36.1                                                                              | 10.8                                                                              | 18.9                                                                              | 33.9                                                                              | 0.0                                                                               | 11.4                                                                                | 28.2                                                                                | 0.0                                                                                 | 17.9                                                                                | 23.3                                                                                | 10.8                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                              |                                                                                   | 120                                                                               | 1683                                                                              |                                                                                   | 120                                                                                 | 1740                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 77.8                                                                              | 31.6                                                                              |                                                                                   | 216.4                                                                             | 29.4                                                                              |                                                                                   | 103.7                                                                               | 23.7                                                                                |                                                                                     | 200.4                                                                               | 18.8                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 77.8                                                                              |                                                                                   |                                                                                   | 216.4                                                                             |                                                                                   |                                                                                     | 103.7                                                                               |                                                                                     |                                                                                     | 200.4                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 82.3                                                                              |                                                                                   |                                                                                   | 220.9                                                                             |                                                                                   |                                                                                     | 108.2                                                                               |                                                                                     |                                                                                     | 204.9                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 5.2                                                                               | 31.6                                                                              |                                                                                   | 14.4                                                                              | 29.4                                                                              |                                                                                   | 6.9                                                                                 | 23.7                                                                                |                                                                                     | 13.4                                                                                | 18.8                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 5.2                                                                               | 31.6                                                                              |                                                                                   | 14.4                                                                              | 24.7                                                                              |                                                                                   | 6.9                                                                                 | 17.7                                                                                |                                                                                     | 13.4                                                                                | 18.8                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.6                                                                              | 31.6                                                                              |                                                                                   | 29.4                                                                              | 29.4                                                                              |                                                                                   | 23.7                                                                                | 23.7                                                                                |                                                                                     | 18.8                                                                                | 18.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 36.1                                                                              | 36.1                                                                              |                                                                                   | 33.9                                                                              | 33.9                                                                              |                                                                                   | 28.2                                                                                | 28.2                                                                                |                                                                                     | 23.3                                                                                | 23.3                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 55.0                                                                              |                                                                                   | 46.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 220.9                                                                             |                                                                                   | 204.9                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 70.0                                                                              |                                                                                   | 51.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 55.0                                                                              |                                                                                   | 46.1                                                                              |                                                                                   | 101.0                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | EBR                                                                               |                                                                                   | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 10.8                                                                              |                                                                                   | 10.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 23.3                                                                              |                                                                                   | 33.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 18.9                                                                              |                                                                                   | 11.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 53.1                                                                              |                                                                                   | 56.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 84.2%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

05/07/2019

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| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 104                                                                               | 867                                                                               | 142                                                                               | 163                                                                               | 1461                                                                              | 131                                                                               | 69                                                                                  | 353                                                                                 | 44                                                                                  | 111                                                                                 | 739                                                                                 | 210                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 104                                                                               | 1009                                                                              | 0                                                                                 | 163                                                                               | 1592                                                                              | 0                                                                                 | 69                                                                                  | 397                                                                                 | 0                                                                                   | 111                                                                                 | 739                                                                                 | 210                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5066                                                                              | 0                                                                                 | 1805                                                                              | 5112                                                                              | 0                                                                                 | 1805                                                                                | 3557                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.9                                                                               | 23.9                                                                              | 0.0                                                                               | 10.8                                                                              | 37.4                                                                              | 0.0                                                                               | 4.6                                                                                 | 13.4                                                                                | 0.0                                                                                 | 7.4                                                                                 | 24.5                                                                                | 15.6                                                                                |
| Adj Reference Time (s)                                                         | 10.9                                                                              | 27.9                                                                              | 0.0                                                                               | 14.8                                                                              | 41.4                                                                              | 0.0                                                                               | 9.0                                                                                 | 17.4                                                                                | 0.0                                                                                 | 11.4                                                                                | 28.5                                                                                | 19.6                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1689                                                                              |                                                                                   | 120                                                                               | 1704                                                                              |                                                                                   | 120                                                                                 | 1779                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 103.7                                                                             | 23.9                                                                              |                                                                                   | 162.5                                                                             | 37.4                                                                              |                                                                                   | 68.8                                                                                | 13.4                                                                                |                                                                                     | 110.7                                                                               | 24.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 103.7                                                                             |                                                                                   |                                                                                   | 162.5                                                                             |                                                                                   |                                                                                     | 68.8                                                                                |                                                                                     |                                                                                     | 110.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 107.7                                                                             |                                                                                   |                                                                                   | 166.5                                                                             |                                                                                   |                                                                                     | 72.8                                                                                |                                                                                     |                                                                                     | 114.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.9                                                                               | 23.9                                                                              |                                                                                   | 10.8                                                                              | 37.4                                                                              |                                                                                   | 4.6                                                                                 | 13.4                                                                                |                                                                                     | 7.4                                                                                 | 24.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.9                                                                               | 20.5                                                                              |                                                                                   | 10.8                                                                              | 34.3                                                                              |                                                                                   | 4.6                                                                                 | 11.9                                                                                |                                                                                     | 7.4                                                                                 | 24.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 23.9                                                                              | 23.9                                                                              |                                                                                   | 37.4                                                                              | 37.4                                                                              |                                                                                   | 13.4                                                                                | 13.4                                                                                |                                                                                     | 24.5                                                                                | 24.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 27.9                                                                              | 27.9                                                                              |                                                                                   | 41.4                                                                              | 41.4                                                                              |                                                                                   | 17.4                                                                                | 17.4                                                                                |                                                                                     | 28.5                                                                                | 28.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 52.3                                                                              |                                                                                   | 37.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 166.5                                                                             |                                                                                   | 114.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 69.3                                                                              |                                                                                   | 45.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 52.3                                                                              |                                                                                   | 37.5                                                                              |                                                                                   | 89.8                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 19.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 41.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 70.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 74.8%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

05/07/2019



| Movement                                                                       | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations                                                            |  |  |  |  |  |      |
| Volume (vph)                                                                   | 4                                                                                 | 385                                                                               | 282                                                                               | 540                                                                               | 935                                                                               | 27   |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |      |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900 |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Minimum Green (s)                                                              | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120  |
| Volume Combined (vph)                                                          | 4                                                                                 | 385                                                                               | 282                                                                               | 540                                                                               | 962                                                                               | 0    |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              | 1.00 |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85 |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1615                                                                              | 1805                                                                              | 3618                                                                              | 3602                                                                              | 0    |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              | 0.00                                                                              |      |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   |                                                                                   | Yes                                                                               | Yes                                                                               |      |
| Reference Time (s)                                                             |                                                                                   | 28.6                                                                              | 18.7                                                                              | 17.9                                                                              | 32.0                                                                              | 0.0  |
| Adj Reference Time (s)                                                         |                                                                                   | 32.6                                                                              | 22.7                                                                              | 21.9                                                                              | 36.0                                                                              | 0.0  |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Saturation A (vph)                                                         | 120                                                                               | 120                                                                               |                                                                                   | 1809                                                                              | 1801                                                                              |      |
| Reference Time A (s)                                                           | 4.0                                                                               | 281.2                                                                             |                                                                                   | 17.9                                                                              | 32.0                                                                              |      |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |      |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |      |
| Reference Time (s)                                                             |                                                                                   |                                                                                   |                                                                                   | 281.2                                                                             | 32.0                                                                              |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   | 285.2                                                                             | 36.0                                                                              |      |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ref Time Combined (s)                                                          | 0.3                                                                               | 18.7                                                                              |                                                                                   | 17.9                                                                              | 32.0                                                                              |      |
| Ref Time Seperate (s)                                                          | 0.3                                                                               | 18.7                                                                              |                                                                                   | 17.9                                                                              | 31.1                                                                              |      |
| Reference Time (s)                                                             | 0.3                                                                               | 18.7                                                                              |                                                                                   | 18.7                                                                              | 32.0                                                                              |      |
| Adj Reference Time (s)                                                         | 8.0                                                                               | 22.7                                                                              |                                                                                   | 22.7                                                                              | 36.0                                                                              |      |
| Summary                                                                        | EB                                                                                | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |      |
| Protected Option (s)                                                           | NA                                                                                | 58.8                                                                              |                                                                                   |                                                                                   |                                                                                   |      |
| Permitted Option (s)                                                           | Err                                                                               | 285.2                                                                             |                                                                                   |                                                                                   |                                                                                   |      |
| Split Option (s)                                                               | 8.0                                                                               | 58.8                                                                              |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum (s)                                                                    | 8.0                                                                               | 58.8                                                                              |                                                                                   | 66.8                                                                              |                                                                                   |      |
| Right Turns                                                                    | EBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Reference Time (s)                                                         | 32.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Cross Thru Ref Time (s)                                                        | 36.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Oncoming Left Ref Time (s)                                                     | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Combined (s)                                                                   | 68.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Intersection Capacity Utilization                                              |                                                                                   | 57.2%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   | B    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 43                                                                                | 299                                                                               | 165                                                                               | 154                                                                               | 509                                                                               | 202                                                                               | 117                                                                                 | 590                                                                                 | 66                                                                                  | 195                                                                                 | 955                                                                                 | 101                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 43                                                                                | 464                                                                               | 0                                                                                 | 154                                                                               | 509                                                                               | 202                                                                               | 117                                                                                 | 656                                                                                 | 0                                                                                   | 195                                                                                 | 1056                                                                                | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1799                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3563                                                                                | 0                                                                                   | 1805                                                                                | 3566                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 2.9                                                                               | 31.0                                                                              | 0.0                                                                               | 10.2                                                                              | 32.1                                                                              | 15.0                                                                              | 7.8                                                                                 | 22.1                                                                                | 0.0                                                                                 | 13.0                                                                                | 35.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.0                                                                              | 0.0                                                                               | 14.2                                                                              | 36.1                                                                              | 19.0                                                                              | 11.8                                                                                | 26.1                                                                                | 0.0                                                                                 | 17.0                                                                                | 39.5                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1799                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1782                                                                                |                                                                                     | 120                                                                                 | 1783                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 42.9                                                                              | 31.0                                                                              |                                                                                   | 153.6                                                                             | 32.1                                                                              |                                                                                   | 116.7                                                                               | 22.1                                                                                |                                                                                     | 194.5                                                                               | 35.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 42.9                                                                              |                                                                                   |                                                                                   | 153.6                                                                             |                                                                                   |                                                                                     | 116.7                                                                               |                                                                                     |                                                                                     | 194.5                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 46.9                                                                              |                                                                                   |                                                                                   | 157.6                                                                             |                                                                                   |                                                                                     | 120.7                                                                               |                                                                                     |                                                                                     | 198.5                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 2.9                                                                               | 31.0                                                                              |                                                                                   | 10.2                                                                              | 32.1                                                                              |                                                                                   | 7.8                                                                                 | 22.1                                                                                |                                                                                     | 13.0                                                                                | 35.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 2.9                                                                               | 19.9                                                                              |                                                                                   | 10.2                                                                              | 32.1                                                                              |                                                                                   | 7.8                                                                                 | 19.9                                                                                |                                                                                     | 13.0                                                                                | 32.1                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.0                                                                              | 31.0                                                                              |                                                                                   | 32.1                                                                              | 32.1                                                                              |                                                                                   | 22.1                                                                                | 22.1                                                                                |                                                                                     | 35.5                                                                                | 35.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.0                                                                              | 35.0                                                                              |                                                                                   | 36.1                                                                              | 36.1                                                                              |                                                                                   | 26.1                                                                                | 26.1                                                                                |                                                                                     | 39.5                                                                                | 39.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 49.2                                                                              |                                                                                   | 51.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 157.6                                                                             |                                                                                   | 198.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 71.1                                                                              |                                                                                   | 65.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 49.2                                                                              |                                                                                   | 51.3                                                                              |                                                                                   | 100.5                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 19.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 26.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 54.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 83.8%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

05/07/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 199                                                                               | 743                                                                                                                                                                                                                                                   | 135                                                                               | 48                                                                                | 1121                                                                                                                                                                                                                                                  | 177                                                                               | 100                                                                                 | 586                                                                                                                                                                     | 72                                                                                  | 47                                                                                  | 877                                                                                                                                                                     | 211                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 199                                                                               | 743                                                                                                                                                                                                                                                   | 135                                                                               | 48                                                                                | 1121                                                                                                                                                                                                                                                  | 177                                                                               | 100                                                                                 | 658                                                                                                                                                                     | 0                                                                                   | 47                                                                                  | 1088                                                                                                                                                                    | 0                                                                                   |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.97                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3558                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3512                                                                                                                                                                    | 0                                                                                   |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                                                                                                         |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 13.2                                                                              | 17.2                                                                                                                                                                                                                                                  | 10.0                                                                              | 3.2                                                                               | 26.0                                                                                                                                                                                                                                                  | 13.2                                                                              | 6.6                                                                                 | 22.2                                                                                                                                                                    | 0.0                                                                                 | 3.1                                                                                 | 37.2                                                                                                                                                                    | 0.0                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 17.2                                                                              | 21.2                                                                                                                                                                                                                                                  | 14.0                                                                              | 9.0                                                                               | 30.0                                                                                                                                                                                                                                                  | 17.2                                                                              | 10.6                                                                                | 26.2                                                                                                                                                                    | 0.0                                                                                 | 9.0                                                                                 | 41.2                                                                                                                                                                    | 0.0                                                                                 |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1779                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1756                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 198.4                                                                             | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 47.9                                                                              | 26.0                                                                                                                                                                                                                                                  |                                                                                   | 99.7                                                                                | 22.2                                                                                                                                                                    |                                                                                     | 46.9                                                                                | 37.2                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 198.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 47.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 99.7                                                                                                                                                                    |                                                                                     |                                                                                     | 46.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 202.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 51.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 103.7                                                                                                                                                                   |                                                                                     |                                                                                     | 50.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 13.2                                                                              | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 3.2                                                                               | 26.0                                                                                                                                                                                                                                                  |                                                                                   | 6.6                                                                                 | 22.2                                                                                                                                                                    |                                                                                     | 3.1                                                                                 | 37.2                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 13.2                                                                              | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 3.2                                                                               | 26.0                                                                                                                                                                                                                                                  |                                                                                   | 6.6                                                                                 | 19.8                                                                                                                                                                    |                                                                                     | 3.1                                                                                 | 30.0                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 17.2                                                                              | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 26.0                                                                              | 26.0                                                                                                                                                                                                                                                  |                                                                                   | 22.2                                                                                | 22.2                                                                                                                                                                    |                                                                                     | 37.2                                                                                | 37.2                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 21.2                                                                              | 21.2                                                                                                                                                                                                                                                  |                                                                                   | 30.0                                                                              | 30.0                                                                                                                                                                                                                                                  |                                                                                   | 26.2                                                                                | 26.2                                                                                                                                                                    |                                                                                     | 41.2                                                                                | 41.2                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 47.2                                                                              |                                                                                                                                                                                                                                                       | 51.8                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 202.4                                                                             |                                                                                                                                                                                                                                                       | 103.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 51.2                                                                              |                                                                                                                                                                                                                                                       | 67.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 47.2                                                                              |                                                                                                                                                                                                                                                       | 51.8                                                                              |                                                                                   | 99.0                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | WBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 14.0                                                                              |                                                                                                                                                                                                                                                       | 17.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 41.2                                                                              |                                                                                                                                                                                                                                                       | 26.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                                                                                                                                                                                       | 17.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 64.2                                                                              |                                                                                                                                                                                                                                                       | 60.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 82.5%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | E                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

05/07/2019

|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |   |  |  |  |                                                                                      |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |                                                                                   |  |    |                                                                                   |  |  |  |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 36                                                                                | 842                                                                                                                                                                                                                                                   | 129                                                                               | 120                                                                               | 1477                                                                                                                                                                                                                                                  | 102                                                                               | 110                                                                                 | 172                                                                                 | 68                                                                                  | 124                                                                                 | 339                                                                                                                                                                     | 148                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 36                                                                                | 971                                                                                                                                                                                                                                                   | 0                                                                                 | 120                                                                               | 1579                                                                                                                                                                                                                                                  | 0                                                                                 | 110                                                                                 | 172                                                                                 | 68                                                                                  | 124                                                                                 | 339                                                                                                                                                                     | 148                                                                                 |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.99                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5072                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                              | 5125                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                                                                                                    | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 2.4                                                                               | 23.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 8.0                                                                               | 37.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 7.3                                                                                 | 10.9                                                                                | 5.1                                                                                 | 8.2                                                                                 | 21.4                                                                                                                                                                    | 11.0                                                                                |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 27.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 12.0                                                                              | 41.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.3                                                                                | 14.9                                                                                | 9.1                                                                                 | 12.2                                                                                | 25.4                                                                                                                                                                    | 15.0                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1691                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1708                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 35.9                                                                              | 23.0                                                                                                                                                                                                                                                  |                                                                                   | 119.7                                                                             | 37.0                                                                                                                                                                                                                                                  |                                                                                   | 109.7                                                                               | 10.9                                                                                |                                                                                     | 123.7                                                                               | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 35.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 119.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 109.7                                                                               |                                                                                     |                                                                                     | 123.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 39.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 123.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 113.7                                                                               |                                                                                     |                                                                                     | 127.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 2.4                                                                               | 23.0                                                                                                                                                                                                                                                  |                                                                                   | 8.0                                                                               | 37.0                                                                                                                                                                                                                                                  |                                                                                   | 7.3                                                                                 | 10.9                                                                                |                                                                                     | 8.2                                                                                 | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 2.4                                                                               | 19.9                                                                                                                                                                                                                                                  |                                                                                   | 8.0                                                                               | 34.6                                                                                                                                                                                                                                                  |                                                                                   | 7.3                                                                                 | 10.9                                                                                |                                                                                     | 8.2                                                                                 | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 23.0                                                                              | 23.0                                                                                                                                                                                                                                                  |                                                                                   | 37.0                                                                              | 37.0                                                                                                                                                                                                                                                  |                                                                                   | 10.9                                                                                | 10.9                                                                                |                                                                                     | 21.4                                                                                | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 27.0                                                                              | 27.0                                                                                                                                                                                                                                                  |                                                                                   | 41.0                                                                              | 41.0                                                                                                                                                                                                                                                  |                                                                                   | 14.9                                                                                | 14.9                                                                                |                                                                                     | 25.4                                                                                | 25.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 50.0                                                                              |                                                                                                                                                                                                                                                       | 36.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 123.7                                                                             |                                                                                                                                                                                                                                                       | 127.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 67.9                                                                              |                                                                                                                                                                                                                                                       | 40.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 50.0                                                                              |                                                                                                                                                                                                                                                       | 36.7                                                                              |                                                                                   | 86.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | NBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.1                                                                               |                                                                                                                                                                                                                                                       | 15.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 27.0                                                                              |                                                                                                                                                                                                                                                       | 41.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 12.2                                                                              |                                                                                                                                                                                                                                                       | 11.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 48.3                                                                              |                                                                                                                                                                                                                                                       | 67.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 72.2%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 7                                                                                 | 2                                                                                 | 5                                                                                 | 68                                                                                | 6                                                                                 | 80                                                                                | 25                                                                                  | 354                                                                                 | 26                                                                                  | 53                                                                                  | 593                                                                                 | 13                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 0                                                                                 | 14                                                                                | 0                                                                                 | 0                                                                                 | 154                                                                               | 0                                                                                 | 25                                                                                  | 380                                                                                 | 0                                                                                   | 53                                                                                  | 606                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.90                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1753                                                                              | 0                                                                                 | 0                                                                                 | 1713                                                                              | 0                                                                                 | 1805                                                                                | 1881                                                                                | 0                                                                                   | 1805                                                                                | 1894                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 1.7                                                                                 | 24.2                                                                                | 0.0                                                                                 | 3.5                                                                                 | 38.4                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 9.0                                                                                 | 28.2                                                                                | 0.0                                                                                 | 9.0                                                                                 | 42.4                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 1309                                                                              |                                                                                   | 0                                                                                 | 1429                                                                              |                                                                                   | 120                                                                                 | 1881                                                                                |                                                                                     | 120                                                                                 | 1894                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 0.0                                                                               | 1.3                                                                               |                                                                                   | 0.0                                                                               | 12.9                                                                              |                                                                                   | 24.9                                                                                | 24.2                                                                                |                                                                                     | 52.9                                                                                | 38.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | 8.5                                                                               | 9.0                                                                               |                                                                                   | 12.5                                                                              | 18.8                                                                              |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 1.3                                                                               |                                                                                   |                                                                                   | 12.9                                                                              |                                                                                   |                                                                                   | 24.9                                                                                |                                                                                     |                                                                                     | 52.9                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               |                                                                                   |                                                                                   | 16.9                                                                              |                                                                                   |                                                                                   | 28.9                                                                                |                                                                                     |                                                                                     | 56.9                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 1.0                                                                               |                                                                                   | 0.0                                                                               | 10.8                                                                              |                                                                                   | 1.7                                                                                 | 24.2                                                                                |                                                                                     | 3.5                                                                                 | 38.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 0.5                                                                               | 0.1                                                                               |                                                                                   | 4.5                                                                               | 0.4                                                                               |                                                                                   | 1.7                                                                                 | 22.6                                                                                |                                                                                     | 3.5                                                                                 | 37.6                                                                                |                                                                                     |
| Reference Time (s)                                                             | 1.0                                                                               | 1.0                                                                               |                                                                                   | 10.8                                                                              | 10.8                                                                              |                                                                                   | 24.2                                                                                | 24.2                                                                                |                                                                                     | 38.4                                                                                | 38.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   | 14.8                                                                              | 14.8                                                                              |                                                                                   | 28.2                                                                                | 28.2                                                                                |                                                                                     | 42.4                                                                                | 42.4                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 51.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 16.9                                                                              |                                                                                   | 56.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 23.8                                                                              |                                                                                   | 70.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 16.9                                                                              |                                                                                   | 51.4                                                                              |                                                                                   | 68.3                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 56.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

05/07/2019



| Movement                                                                       | WBL  | WBR  | NBT   | NBR  | SBL                  | SBT  |
|--------------------------------------------------------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations                                                            | W    | R    | T     | L    | T                    | T    |
| Volume (vph)                                                                   | 17   | 24   | 368   | 13   | 36                   | 537  |
| Pedestrians                                                                    |      |      |       |      |                      |      |
| Ped Button                                                                     |      |      |       |      |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |      |                      |      |
| Free Right                                                                     |      | No   |       | No   |                      |      |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900 | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120  | 120                  | 120  |
| Volume Combined (vph)                                                          | 41   | 0    | 381   | 0    | 36                   | 537  |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 1.00 | 1.00                 | 1.00 |
| Turning Factor (vph)                                                           | 0.89 | 0.85 | 0.99  | 0.85 | 0.95                 | 1.00 |
| Saturated Flow (vph)                                                           | 1697 | 0    | 1890  | 0    | 1805                 | 1900 |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0  | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      | 0.00  |      |                      | 0.00 |
| Protected Option Allowed                                                       | No   |      | Yes   |      |                      | Yes  |
| Reference Time (s)                                                             |      | 0.0  | 24.2  | 0.0  | 2.4                  | 33.9 |
| Adj Reference Time (s)                                                         |      | 0.0  | 28.2  | 0.0  | 8.0                  | 37.9 |
| Permitted Option                                                               |      |      |       |      |                      |      |
| Adj Saturation A (vph)                                                         | 113  |      | 1890  |      | 120                  | 1900 |
| Reference Time A (s)                                                           | 43.5 |      | 24.2  |      | 35.9                 | 33.9 |
| Adj Saturation B (vph)                                                         | NA   |      | NA    |      | NA                   | NA   |
| Reference Time B (s)                                                           | NA   |      | NA    |      | NA                   | NA   |
| Reference Time (s)                                                             |      |      | 24.2  |      |                      | 35.9 |
| Adj Reference Time (s)                                                         |      |      | 28.2  |      |                      | 39.9 |
| Split Option                                                                   |      |      |       |      |                      |      |
| Ref Time Combined (s)                                                          | 2.9  |      | 24.2  |      | 2.4                  | 33.9 |
| Ref Time Seperate (s)                                                          | 1.2  |      | 23.4  |      | 2.4                  | 33.9 |
| Reference Time (s)                                                             | 2.9  |      | 24.2  |      | 33.9                 | 33.9 |
| Adj Reference Time (s)                                                         | 8.0  |      | 28.2  |      | 37.9                 | 37.9 |
| Summary                                                                        | WB   |      | NB SB |      | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 37.9  |      |                      |      |
| Permitted Option (s)                                                           | Err  |      | 39.9  |      |                      |      |
| Split Option (s)                                                               | 8.0  |      | 66.1  |      |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 37.9  |      | 45.9                 |      |
| Right Turns                                                                    |      |      |       |      |                      |      |
| Adj Reference Time (s)                                                         |      |      |       |      |                      |      |
| Cross Thru Ref Time (s)                                                        |      |      |       |      |                      |      |
| Oncoming Left Ref Time (s)                                                     |      |      |       |      |                      |      |
| Combined (s)                                                                   |      |      |       |      |                      |      |
| Intersection Summary                                                           |      |      |       |      |                      |      |
| Intersection Capacity Utilization                                              |      |      | 38.3% |      | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |      |                      |      |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 57                                                                                | 293                                                                               | 183                                                                               | 43                                                                                | 511                                                                               | 67                                                                                | 187                                                                                 | 235                                                                                 | 29                                                                                  | 73                                                                                  | 297                                                                                 | 189                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 57                                                                                | 476                                                                               | 0                                                                                 | 43                                                                                | 578                                                                               | 0                                                                                 | 187                                                                                 | 264                                                                                 | 0                                                                                   | 73                                                                                  | 486                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.94                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1790                                                                              | 0                                                                                 | 1805                                                                              | 1867                                                                              | 0                                                                                 | 1805                                                                                | 1869                                                                                | 0                                                                                   | 1805                                                                                | 1789                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.8                                                                               | 31.9                                                                              | 0.0                                                                               | 2.9                                                                               | 37.2                                                                              | 0.0                                                                               | 12.4                                                                                | 17.0                                                                                | 0.0                                                                                 | 4.9                                                                                 | 32.6                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.9                                                                              | 0.0                                                                               | 9.0                                                                               | 41.2                                                                              | 0.0                                                                               | 16.4                                                                                | 21.0                                                                                | 0.0                                                                                 | 9.0                                                                                 | 36.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1790                                                                              |                                                                                   | 120                                                                               | 1867                                                                              |                                                                                   | 120                                                                                 | 1869                                                                                |                                                                                     | 120                                                                                 | 1789                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 56.8                                                                              | 31.9                                                                              |                                                                                   | 42.9                                                                              | 37.2                                                                              |                                                                                   | 186.5                                                                               | 17.0                                                                                |                                                                                     | 72.8                                                                                | 32.6                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 56.8                                                                              |                                                                                   |                                                                                   | 42.9                                                                              |                                                                                   |                                                                                     | 186.5                                                                               |                                                                                     |                                                                                     | 72.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 60.8                                                                              |                                                                                   |                                                                                   | 46.9                                                                              |                                                                                   |                                                                                     | 190.5                                                                               |                                                                                     |                                                                                     | 76.8                                                                                |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.8                                                                               | 31.9                                                                              |                                                                                   | 2.9                                                                               | 37.2                                                                              |                                                                                   | 12.4                                                                                | 17.0                                                                                |                                                                                     | 4.9                                                                                 | 32.6                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.8                                                                               | 19.6                                                                              |                                                                                   | 2.9                                                                               | 32.8                                                                              |                                                                                   | 12.4                                                                                | 15.1                                                                                |                                                                                     | 4.9                                                                                 | 19.9                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.9                                                                              | 31.9                                                                              |                                                                                   | 37.2                                                                              | 37.2                                                                              |                                                                                   | 17.0                                                                                | 17.0                                                                                |                                                                                     | 32.6                                                                                | 32.6                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.9                                                                              | 35.9                                                                              |                                                                                   | 41.2                                                                              | 41.2                                                                              |                                                                                   | 21.0                                                                                | 21.0                                                                                |                                                                                     | 36.6                                                                                | 36.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 50.2                                                                              |                                                                                   | 53.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 60.8                                                                              |                                                                                   | 190.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 77.1                                                                              |                                                                                   | 57.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 50.2                                                                              |                                                                                   | 53.0                                                                              |                                                                                   | 103.2                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 86.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 88                                                                                | 560                                                                               | 155                                                                               | 66                                                                                | 1170                                                                              | 36                                                                                | 152                                                                                 | 363                                                                                 | 33                                                                                  | 35                                                                                  | 429                                                                                 | 53                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 88                                                                                | 715                                                                               | 0                                                                                 | 66                                                                                | 1206                                                                              | 0                                                                                 | 152                                                                                 | 396                                                                                 | 0                                                                                   | 35                                                                                  | 482                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5007                                                                              | 0                                                                                 | 1805                                                                              | 5152                                                                              | 0                                                                                 | 1805                                                                                | 3572                                                                                | 0                                                                                   | 1805                                                                                | 3558                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 5.9                                                                               | 17.1                                                                              | 0.0                                                                               | 4.4                                                                               | 28.1                                                                              | 0.0                                                                               | 10.1                                                                                | 13.3                                                                                | 0.0                                                                                 | 2.3                                                                                 | 16.3                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.9                                                                               | 21.1                                                                              | 0.0                                                                               | 9.0                                                                               | 32.1                                                                              | 0.0                                                                               | 14.1                                                                                | 17.3                                                                                | 0.0                                                                                 | 9.0                                                                                 | 20.3                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1669                                                                              |                                                                                   | 120                                                                               | 1717                                                                              |                                                                                   | 120                                                                                 | 1786                                                                                |                                                                                     | 120                                                                                 | 1779                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 87.8                                                                              | 17.1                                                                              |                                                                                   | 65.8                                                                              | 28.1                                                                              |                                                                                   | 151.6                                                                               | 13.3                                                                                |                                                                                     | 34.9                                                                                | 16.3                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 87.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 65.8                                                                              |                                                                                   |                                                                                     |                                                                                     | 151.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 91.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 69.8                                                                              |                                                                                   |                                                                                     |                                                                                     | 155.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 5.9                                                                               | 17.1                                                                              |                                                                                   | 4.4                                                                               | 28.1                                                                              |                                                                                   | 10.1                                                                                | 13.3                                                                                |                                                                                     | 2.3                                                                                 | 16.3                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 5.9                                                                               | 13.4                                                                              |                                                                                   | 4.4                                                                               | 27.2                                                                              |                                                                                   | 10.1                                                                                | 12.2                                                                                |                                                                                     | 2.3                                                                                 | 14.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 17.1                                                                              | 17.1                                                                              |                                                                                   | 28.1                                                                              | 28.1                                                                              |                                                                                   | 13.3                                                                                | 13.3                                                                                |                                                                                     | 16.3                                                                                | 16.3                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 21.1                                                                              | 21.1                                                                              |                                                                                   | 32.1                                                                              | 32.1                                                                              |                                                                                   | 17.3                                                                                | 17.3                                                                                |                                                                                     | 20.3                                                                                | 20.3                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 41.9                                                                              |                                                                                   | 34.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 91.8                                                                              |                                                                                   | 155.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 53.2                                                                              |                                                                                   | 37.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 41.9                                                                              |                                                                                   | 34.4                                                                              |                                                                                   | 76.3                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 63.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 28                                                                                | 201                                                                               | 101                                                                               | 129                                                                               | 415                                                                               | 218                                                                               | 121                                                                                 | 742                                                                                 | 108                                                                                 | 110                                                                                 | 563                                                                                 | 74                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 28                                                                                | 302                                                                               | 0                                                                                 | 129                                                                               | 633                                                                               | 0                                                                                 | 121                                                                                 | 850                                                                                 | 0                                                                                   | 110                                                                                 | 637                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3436                                                                              | 0                                                                                 | 1805                                                                              | 3431                                                                              | 0                                                                                 | 1805                                                                                | 3549                                                                                | 0                                                                                   | 1805                                                                                | 3555                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 1.9                                                                               | 10.5                                                                              | 0.0                                                                               | 8.6                                                                               | 22.1                                                                              | 0.0                                                                               | 8.0                                                                                 | 28.7                                                                                | 0.0                                                                                 | 7.3                                                                                 | 21.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 15.0                                                                              | 0.0                                                                               | 13.1                                                                              | 26.6                                                                              | 0.0                                                                               | 12.5                                                                                | 33.2                                                                                | 0.0                                                                                 | 11.8                                                                                | 26.0                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1718                                                                              |                                                                                   | 120                                                                               | 1715                                                                              |                                                                                   | 120                                                                                 | 1774                                                                                |                                                                                     | 120                                                                                 | 1777                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 27.9                                                                              | 10.5                                                                              |                                                                                   | 128.6                                                                             | 22.1                                                                              |                                                                                   | 120.7                                                                               | 28.7                                                                                |                                                                                     | 109.7                                                                               | 21.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 27.9                                                                              |                                                                                   |                                                                                   | 128.6                                                                             |                                                                                   |                                                                                     | 120.7                                                                               |                                                                                     |                                                                                     | 109.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 32.4                                                                              |                                                                                   |                                                                                   | 133.1                                                                             |                                                                                   |                                                                                     | 125.2                                                                               |                                                                                     |                                                                                     | 114.2                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 1.9                                                                               | 10.5                                                                              |                                                                                   | 8.6                                                                               | 22.1                                                                              |                                                                                   | 8.0                                                                                 | 28.7                                                                                |                                                                                     | 7.3                                                                                 | 21.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 1.9                                                                               | 7.0                                                                               |                                                                                   | 8.6                                                                               | 14.5                                                                              |                                                                                   | 8.0                                                                                 | 25.1                                                                                |                                                                                     | 7.3                                                                                 | 19.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 10.5                                                                              | 10.5                                                                              |                                                                                   | 22.1                                                                              | 22.1                                                                              |                                                                                   | 28.7                                                                                | 28.7                                                                                |                                                                                     | 21.5                                                                                | 21.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 15.0                                                                              | 15.0                                                                              |                                                                                   | 26.6                                                                              | 26.6                                                                              |                                                                                   | 33.2                                                                                | 33.2                                                                                |                                                                                     | 26.0                                                                                | 26.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 36.1                                                                              |                                                                                   | 45.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 133.1                                                                             |                                                                                   | 125.2                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 41.7                                                                              |                                                                                   | 59.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 36.1                                                                              |                                                                                   | 45.1                                                                              |                                                                                   | 81.2                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 67.7%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

05/07/2019

|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |  |  |    |                                                                                   |  |   |                                                                                     |  |   |  |
| Volume (vph)                                                                   | 95                                                                                | 1204                                                                                                                                                                                                                                                  | 86                                                                                | 120                                                                               | 1197                                                                                                                                                                                                                                                  | 155                                                                               | 159                                                                                 | 702                                                                                                                                                                     | 280                                                                                 | 175                                                                                 | 482                                                                                                                                                                     | 101                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.5                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 95                                                                                | 1204                                                                                                                                                                                                                                                  | 86                                                                                | 120                                                                               | 1352                                                                                                                                                                                                                                                  | 0                                                                                 | 159                                                                                 | 982                                                                                                                                                                     | 0                                                                                   | 175                                                                                 | 482                                                                                                                                                                     | 101                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5087                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 3463                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3618                                                                                                                                                                    | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                                                                                                         |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 6.3                                                                               | 27.9                                                                                                                                                                                                                                                  | 6.4                                                                               | 8.0                                                                               | 31.9                                                                                                                                                                                                                                                  | 0.0                                                                               | 10.6                                                                                | 34.0                                                                                                                                                                    | 0.0                                                                                 | 11.6                                                                                | 16.0                                                                                                                                                                    | 7.5                                                                                 |
| Adj Reference Time (s)                                                         | 10.8                                                                              | 32.4                                                                                                                                                                                                                                                  | 10.9                                                                              | 12.5                                                                              | 36.4                                                                                                                                                                                                                                                  | 0.0                                                                               | 15.1                                                                                | 38.5                                                                                                                                                                    | 0.0                                                                                 | 16.1                                                                                | 20.5                                                                                                                                                                    | 12.0                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1696                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1731                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1809                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 94.7                                                                              | 27.9                                                                                                                                                                                                                                                  |                                                                                   | 119.7                                                                             | 31.9                                                                                                                                                                                                                                                  |                                                                                   | 158.6                                                                               | 34.0                                                                                                                                                                    |                                                                                     | 174.5                                                                               | 16.0                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 94.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 119.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 158.6                                                                                                                                                                   |                                                                                     |                                                                                     | 174.5                                                                                                                                                                   |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 99.2                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 124.2                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 163.1                                                                                                                                                                   |                                                                                     |                                                                                     | 179.0                                                                                                                                                                   |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 6.3                                                                               | 27.9                                                                                                                                                                                                                                                  |                                                                                   | 8.0                                                                               | 31.9                                                                                                                                                                                                                                                  |                                                                                   | 10.6                                                                                | 34.0                                                                                                                                                                    |                                                                                     | 11.6                                                                                | 16.0                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.3                                                                               | 27.9                                                                                                                                                                                                                                                  |                                                                                   | 8.0                                                                               | 28.2                                                                                                                                                                                                                                                  |                                                                                   | 10.6                                                                                | 24.3                                                                                                                                                                    |                                                                                     | 11.6                                                                                | 16.0                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 27.9                                                                              | 27.9                                                                                                                                                                                                                                                  |                                                                                   | 31.9                                                                              | 31.9                                                                                                                                                                                                                                                  |                                                                                   | 34.0                                                                                | 34.0                                                                                                                                                                    |                                                                                     | 16.0                                                                                | 16.0                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 32.4                                                                              | 32.4                                                                                                                                                                                                                                                  |                                                                                   | 36.4                                                                              | 36.4                                                                                                                                                                                                                                                  |                                                                                   | 38.5                                                                                | 38.5                                                                                                                                                                    |                                                                                     | 20.5                                                                                | 20.5                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 47.2                                                                              |                                                                                                                                                                                                                                                       | 54.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 124.2                                                                             |                                                                                                                                                                                                                                                       | 179.0                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 68.8                                                                              |                                                                                                                                                                                                                                                       | 59.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 47.2                                                                              |                                                                                                                                                                                                                                                       | 54.7                                                                              |                                                                                   | 101.9                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 10.9                                                                              |                                                                                                                                                                                                                                                       | 12.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 20.5                                                                              |                                                                                                                                                                                                                                                       | 36.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 12.5                                                                              |                                                                                                                                                                                                                                                       | 15.1                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 43.9                                                                              |                                                                                                                                                                                                                                                       | 63.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 84.9%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | E                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 157                                                                               | 1407                                                                              | 94                                                                                | 99                                                                                | 779                                                                               | 124                                                                               | 112                                                                                 | 692                                                                                 | 166                                                                                 | 112                                                                                 | 494                                                                                 | 128                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 157                                                                               | 1501                                                                              | 0                                                                                 | 99                                                                                | 903                                                                               | 0                                                                                 | 112                                                                                 | 858                                                                                 | 0                                                                                   | 112                                                                                 | 494                                                                                 | 128                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5127                                                                              | 0                                                                                 | 1805                                                                              | 5069                                                                              | 0                                                                                 | 1805                                                                                | 3513                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 10.4                                                                              | 35.1                                                                              | 0.0                                                                               | 6.6                                                                               | 21.4                                                                              | 0.0                                                                               | 7.4                                                                                 | 29.3                                                                                | 0.0                                                                                 | 7.4                                                                                 | 16.4                                                                                | 9.5                                                                                 |
| Adj Reference Time (s)                                                         | 14.4                                                                              | 39.1                                                                              | 0.0                                                                               | 10.6                                                                              | 25.4                                                                              | 0.0                                                                               | 11.4                                                                                | 33.3                                                                                | 0.0                                                                                 | 11.4                                                                                | 20.4                                                                                | 13.5                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1709                                                                              |                                                                                   | 120                                                                               | 1690                                                                              |                                                                                   | 120                                                                                 | 1756                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 156.6                                                                             | 35.1                                                                              |                                                                                   | 98.7                                                                              | 21.4                                                                              |                                                                                   | 111.7                                                                               | 29.3                                                                                |                                                                                     | 111.7                                                                               | 16.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 156.6                                                                             |                                                                                   |                                                                                   | 98.7                                                                              |                                                                                   |                                                                                     | 111.7                                                                               |                                                                                     |                                                                                     | 111.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 160.6                                                                             |                                                                                   |                                                                                   | 102.7                                                                             |                                                                                   |                                                                                     | 115.7                                                                               |                                                                                     |                                                                                     | 115.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 10.4                                                                              | 35.1                                                                              |                                                                                   | 6.6                                                                               | 21.4                                                                              |                                                                                   | 7.4                                                                                 | 29.3                                                                                |                                                                                     | 7.4                                                                                 | 16.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 10.4                                                                              | 32.9                                                                              |                                                                                   | 6.6                                                                               | 18.4                                                                              |                                                                                   | 7.4                                                                                 | 23.6                                                                                |                                                                                     | 7.4                                                                                 | 16.4                                                                                |                                                                                     |
| Reference Time (s)                                                             | 35.1                                                                              | 35.1                                                                              |                                                                                   | 21.4                                                                              | 21.4                                                                              |                                                                                   | 29.3                                                                                | 29.3                                                                                |                                                                                     | 16.4                                                                                | 16.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 39.1                                                                              | 39.1                                                                              |                                                                                   | 25.4                                                                              | 25.4                                                                              |                                                                                   | 33.3                                                                                | 33.3                                                                                |                                                                                     | 20.4                                                                                | 20.4                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 49.7                                                                              |                                                                                   | 44.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 160.6                                                                             |                                                                                   | 115.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 64.5                                                                              |                                                                                   | 53.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 49.7                                                                              |                                                                                   | 44.8                                                                              |                                                                                   | 94.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 13.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 25.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 11.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 50.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 78.7%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

05/07/2019



| Movement                                                                       | EBL  | EBR  | NBL   | NBT   | SBT                  | SBR  |
|--------------------------------------------------------------------------------|------|------|-------|-------|----------------------|------|
| Lane Configurations                                                            |      |      |       |       |                      |      |
| Volume (vph)                                                                   | 19   | 309  | 380   | 902   | 642                  | 17   |
| Pedestrians                                                                    |      |      |       |       |                      |      |
| Ped Button                                                                     |      |      |       |       |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |       |                      |      |
| Free Right                                                                     |      | No   |       |       |                      | No   |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900  | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120   | 120                  | 120  |
| Volume Combined (vph)                                                          | 19   | 309  | 380   | 902   | 659                  | 0    |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 0.95  | 0.95                 | 1.00 |
| Turning Factor (vph)                                                           | 0.95 | 0.85 | 0.95  | 1.00  | 1.00                 | 0.85 |
| Saturated Flow (vph)                                                           | 1805 | 1615 | 1805  | 3618  | 3604                 | 0    |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0   | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      |       | 0.00  | 0.00                 |      |
| Protected Option Allowed                                                       | No   |      |       | Yes   | Yes                  |      |
| Reference Time (s)                                                             |      | 23.0 | 25.3  | 29.9  | 21.9                 | 0.0  |
| Adj Reference Time (s)                                                         |      | 27.0 | 29.3  | 33.9  | 25.9                 | 0.0  |
| Permitted Option                                                               |      |      |       |       |                      |      |
| Adj Saturation A (vph)                                                         | 120  |      | 120   | 1809  | 1802                 |      |
| Reference Time A (s)                                                           | 18.9 |      | 378.9 | 29.9  | 21.9                 |      |
| Adj Saturation B (vph)                                                         | NA   |      | NA    | NA    | NA                   |      |
| Reference Time B (s)                                                           | NA   |      | NA    | NA    | NA                   |      |
| Reference Time (s)                                                             |      |      |       | 378.9 | 21.9                 |      |
| Adj Reference Time (s)                                                         |      |      |       | 382.9 | 25.9                 |      |
| Split Option                                                                   |      |      |       |       |                      |      |
| Ref Time Combined (s)                                                          | 1.3  |      | 25.3  | 29.9  | 21.9                 |      |
| Ref Time Seperate (s)                                                          | 1.3  |      | 25.3  | 29.9  | 21.4                 |      |
| Reference Time (s)                                                             | 1.3  |      | 29.9  | 29.9  | 21.9                 |      |
| Adj Reference Time (s)                                                         | 8.0  |      | 33.9  | 33.9  | 25.9                 |      |
| Summary                                                                        | EB   |      | NB SB |       | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 55.2  |       |                      |      |
| Permitted Option (s)                                                           | Err  |      | 382.9 |       |                      |      |
| Split Option (s)                                                               | 8.0  |      | 59.9  |       |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 55.2  |       | 63.2                 |      |
| Right Turns                                                                    | EBR  |      |       |       |                      |      |
| Adj Reference Time (s)                                                         | 27.0 |      |       |       |                      |      |
| Cross Thru Ref Time (s)                                                        | 25.9 |      |       |       |                      |      |
| Oncoming Left Ref Time (s)                                                     | 0.0  |      |       |       |                      |      |
| Combined (s)                                                                   | 52.9 |      |       |       |                      |      |
| Intersection Summary                                                           |      |      |       |       |                      |      |
| Intersection Capacity Utilization                                              |      |      | 52.7% |       | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |       |                      |      |

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 73                                                                                | 437                                                                               | 93                                                                                | 77                                                                                | 474                                                                               | 248                                                                               | 127                                                                                 | 937                                                                                 | 74                                                                                  | 171                                                                                 | 697                                                                                 | 90                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 73                                                                                | 530                                                                               | 0                                                                                 | 77                                                                                | 474                                                                               | 248                                                                               | 127                                                                                 | 1011                                                                                | 0                                                                                   | 171                                                                                 | 787                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1850                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3578                                                                                | 0                                                                                   | 1805                                                                                | 3556                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 4.9                                                                               | 34.4                                                                              | 0.0                                                                               | 5.1                                                                               | 29.9                                                                              | 18.4                                                                              | 8.4                                                                                 | 33.9                                                                                | 0.0                                                                                 | 11.4                                                                                | 26.6                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 38.4                                                                              | 0.0                                                                               | 9.1                                                                               | 33.9                                                                              | 22.4                                                                              | 12.4                                                                                | 37.9                                                                                | 0.0                                                                                 | 15.4                                                                                | 30.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1850                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1789                                                                                |                                                                                     | 120                                                                                 | 1778                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 72.8                                                                              | 34.4                                                                              |                                                                                   | 76.8                                                                              | 29.9                                                                              |                                                                                   | 126.6                                                                               | 33.9                                                                                |                                                                                     | 170.5                                                                               | 26.6                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 72.8                                                                              |                                                                                   |                                                                                   | 76.8                                                                              |                                                                                   |                                                                                     | 126.6                                                                               |                                                                                     |                                                                                     | 170.5                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 76.8                                                                              |                                                                                   |                                                                                   | 80.8                                                                              |                                                                                   |                                                                                     | 130.6                                                                               |                                                                                     |                                                                                     | 174.5                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 4.9                                                                               | 34.4                                                                              |                                                                                   | 5.1                                                                               | 29.9                                                                              |                                                                                   | 8.4                                                                                 | 33.9                                                                                |                                                                                     | 11.4                                                                                | 26.6                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 4.9                                                                               | 28.3                                                                              |                                                                                   | 5.1                                                                               | 29.9                                                                              |                                                                                   | 8.4                                                                                 | 31.4                                                                                |                                                                                     | 11.4                                                                                | 23.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 34.4                                                                              | 34.4                                                                              |                                                                                   | 29.9                                                                              | 29.9                                                                              |                                                                                   | 33.9                                                                                | 33.9                                                                                |                                                                                     | 26.6                                                                                | 26.6                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 38.4                                                                              | 38.4                                                                              |                                                                                   | 33.9                                                                              | 33.9                                                                              |                                                                                   | 37.9                                                                                | 37.9                                                                                |                                                                                     | 30.6                                                                                | 30.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 47.5                                                                              |                                                                                   | 53.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 80.8                                                                              |                                                                                   | 174.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 72.3                                                                              |                                                                                   | 68.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 47.5                                                                              |                                                                                   | 53.3                                                                              |                                                                                   | 100.8                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 22.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 37.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 69.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 84.0%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

05/07/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 155                                                                               | 1160                                                                                                                                                                                                                                                  | 110                                                                               | 49                                                                                | 741                                                                                                                                                                                                                                                   | 71                                                                                | 74                                                                                  | 784                                                                                                                                                                     | 76                                                                                  | 112                                                                                 | 709                                                                                                                                                                     | 228                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 155                                                                               | 1160                                                                                                                                                                                                                                                  | 110                                                                               | 49                                                                                | 741                                                                                                                                                                                                                                                   | 71                                                                                | 74                                                                                  | 860                                                                                                                                                                     | 0                                                                                   | 112                                                                                 | 937                                                                                                                                                                     | 0                                                                                   |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3570                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3486                                                                                                                                                                    | 0                                                                                   |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                   |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                     |                                                                                                                                                                         | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 10.3                                                                              | 26.9                                                                                                                                                                                                                                                  | 8.2                                                                               | 3.3                                                                               | 17.2                                                                                                                                                                                                                                                  | 5.3                                                                               | 4.9                                                                                 | 28.9                                                                                                                                                                    | 0.0                                                                                 | 7.4                                                                                 | 32.3                                                                                                                                                                    | 0.0                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 14.3                                                                              | 30.9                                                                                                                                                                                                                                                  | 12.2                                                                              | 9.0                                                                               | 21.2                                                                                                                                                                                                                                                  | 9.3                                                                               | 9.0                                                                                 | 32.9                                                                                                                                                                    | 0.0                                                                                 | 11.4                                                                                | 36.3                                                                                                                                                                    | 0.0                                                                                 |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1785                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1743                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 154.6                                                                             | 26.9                                                                                                                                                                                                                                                  |                                                                                   | 48.9                                                                              | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 73.8                                                                                | 28.9                                                                                                                                                                    |                                                                                     | 111.7                                                                               | 32.3                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 154.6                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 48.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 73.8                                                                                                                                                                    |                                                                                     |                                                                                     | 111.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 158.6                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 52.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 77.8                                                                                                                                                                    |                                                                                     |                                                                                     | 115.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 10.3                                                                              | 26.9                                                                                                                                                                                                                                                  |                                                                                   | 3.3                                                                               | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 4.9                                                                                 | 28.9                                                                                                                                                                    |                                                                                     | 7.4                                                                                 | 32.3                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 10.3                                                                              | 26.9                                                                                                                                                                                                                                                  |                                                                                   | 3.3                                                                               | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 4.9                                                                                 | 26.4                                                                                                                                                                    |                                                                                     | 7.4                                                                                 | 24.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 26.9                                                                              | 26.9                                                                                                                                                                                                                                                  |                                                                                   | 17.2                                                                              | 17.2                                                                                                                                                                                                                                                  |                                                                                   | 28.9                                                                                | 28.9                                                                                                                                                                    |                                                                                     | 32.3                                                                                | 32.3                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 30.9                                                                              | 30.9                                                                                                                                                                                                                                                  |                                                                                   | 21.2                                                                              | 21.2                                                                                                                                                                                                                                                  |                                                                                   | 32.9                                                                                | 32.9                                                                                                                                                                    |                                                                                     | 36.3                                                                                | 36.3                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 39.9                                                                              |                                                                                                                                                                                                                                                       | 45.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 158.6                                                                             |                                                                                                                                                                                                                                                       | 115.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 52.1                                                                              |                                                                                                                                                                                                                                                       | 69.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 39.9                                                                              |                                                                                                                                                                                                                                                       | 45.3                                                                              |                                                                                   | 85.2                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | WBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 12.2                                                                              |                                                                                                                                                                                                                                                       | 9.3                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 36.3                                                                              |                                                                                                                                                                                                                                                       | 32.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                                                                                                                                                                                       | 14.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 57.4                                                                              |                                                                                                                                                                                                                                                       | 56.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 71.0%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | C                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 96                                                                                | 1537                                                                              | 74                                                                                | 37                                                                                | 807                                                                               | 94                                                                                | 125                                                                                 | 314                                                                                 | 142                                                                                 | 109                                                                                 | 241                                                                                 | 75                                                                                  |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 96                                                                                | 1611                                                                              | 0                                                                                 | 37                                                                                | 901                                                                               | 0                                                                                 | 125                                                                                 | 314                                                                                 | 142                                                                                 | 109                                                                                 | 241                                                                                 | 75                                                                                  |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5140                                                                              | 0                                                                                 | 1805                                                                              | 5095                                                                              | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 6.4                                                                               | 37.6                                                                              | 0.0                                                                               | 2.5                                                                               | 21.2                                                                              | 0.0                                                                               | 8.3                                                                                 | 19.8                                                                                | 10.6                                                                                | 7.2                                                                                 | 15.2                                                                                | 5.6                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 10.4                                                                              | 41.6                                                                              | 0.0                                                                               | 9.0                                                                               | 25.2                                                                              | 0.0                                                                               | 12.3                                                                                | 23.8                                                                                | 14.6                                                                                | 11.2                                                                                | 19.2                                                                                | 9.6                                                                                 |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1713                                                                              |                                                                                   | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 95.7                                                                              | 37.6                                                                              |                                                                                   | 36.9                                                                              | 21.2                                                                              |                                                                                   | 124.7                                                                               | 19.8                                                                                |                                                                                     | 108.7                                                                               | 15.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 95.7                                                                              |                                                                                   |                                                                                   | 36.9                                                                              |                                                                                   |                                                                                     | 124.7                                                                               |                                                                                     |                                                                                     | 108.7                                                                               |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 99.7                                                                              |                                                                                   |                                                                                   | 40.9                                                                              |                                                                                   |                                                                                     | 128.7                                                                               |                                                                                     |                                                                                     | 112.7                                                                               |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 6.4                                                                               | 37.6                                                                              |                                                                                   | 2.5                                                                               | 21.2                                                                              |                                                                                   | 8.3                                                                                 | 19.8                                                                                |                                                                                     | 7.2                                                                                 | 15.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 6.4                                                                               | 35.9                                                                              |                                                                                   | 2.5                                                                               | 19.0                                                                              |                                                                                   | 8.3                                                                                 | 19.8                                                                                |                                                                                     | 7.2                                                                                 | 15.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 37.6                                                                              | 37.6                                                                              |                                                                                   | 21.2                                                                              | 21.2                                                                              |                                                                                   | 19.8                                                                                | 19.8                                                                                |                                                                                     | 15.2                                                                                | 15.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 41.6                                                                              | 41.6                                                                              |                                                                                   | 25.2                                                                              | 25.2                                                                              |                                                                                   | 23.8                                                                                | 23.8                                                                                |                                                                                     | 19.2                                                                                | 19.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 50.6                                                                              |                                                                                   | 35.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 99.7                                                                              |                                                                                   | 128.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 66.8                                                                              |                                                                                   | 43.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 50.6                                                                              |                                                                                   | 35.1                                                                              |                                                                                   | 85.7                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | NBR                                                                               |                                                                                   | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 14.6                                                                              |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 41.6                                                                              |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 11.2                                                                              |                                                                                   | 12.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 67.4                                                                              |                                                                                   | 47.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 71.4%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |      |      |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |      |      |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |      |      |
| Volume (vph)                                                                   | 17                                                                                | 5                                                                                 | 13                                                                                | 14                                                                                | 5                                                                                 | 74                                                                                | 8                                                                                   | 449                                                                                 | 25                                                                                  | 84                                                                                  | 368                                                                                 | 10                                                                                  |      |      |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |      |      |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |      |      |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |      |      |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |      |      |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |      |      |
| Volume Combined (vph)                                                          | 0                                                                                 | 35                                                                                | 0                                                                                 | 0                                                                                 | 93                                                                                | 0                                                                                 | 8                                                                                   | 474                                                                                 | 0                                                                                   | 84                                                                                  | 378                                                                                 | 0                                                                                   |      |      |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |      |      |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.87                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |      |      |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1751                                                                              | 0                                                                                 | 0                                                                                 | 1661                                                                              | 0                                                                                 | 1805                                                                                | 1885                                                                                | 0                                                                                   | 1805                                                                                | 1892                                                                                | 0                                                                                   |      |      |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |      |      |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |      |      |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |      |      |
| Reference Time (s)                                                             |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 0.0                                                                                 | 0.5                                                                                 | 30.2                                                                                | 0.0                                                                                 | 5.6                                                                                 | 24.0                                                                                | 0.0  |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 0.0                                                                                 | 9.0                                                                                 | 34.2                                                                                | 0.0                                                                                 | 9.6                                                                                 | 28.0                                                                                | 0.0  |      |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 700                                                                               |                                                                                   |                                                                                   | 0                                                                                 | 1619                                                                              |                                                                                     |                                                                                     | 120                                                                                 | 1885                                                                                |                                                                                     |                                                                                     | 120  | 1892 |
| Reference Time A (s)                                                           | 0.0                                                                               | 6.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 6.9                                                                               |                                                                                     |                                                                                     | 8.0                                                                                 | 30.2                                                                                |                                                                                     |                                                                                     | 83.8 | 24.0 |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                     |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |                                                                                     | NA   | NA   |
| Reference Time B (s)                                                           | 9.1                                                                               | 10.4                                                                              |                                                                                   |                                                                                   | 8.9                                                                               | 14.7                                                                              |                                                                                     |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |                                                                                     | NA   | NA   |
| Reference Time (s)                                                             | 6.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 6.9                                                                               |                                                                                   |                                                                                     |                                                                                     | 30.2                                                                                |                                                                                     |                                                                                     |                                                                                     | 83.8 |      |
| Adj Reference Time (s)                                                         | 10.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 34.2                                                                                |                                                                                     |                                                                                     |                                                                                     | 87.8 |      |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 2.4                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 6.7                                                                               |                                                                                     |                                                                                     | 0.5                                                                                 | 30.2                                                                                |                                                                                     |                                                                                     | 5.6  | 24.0 |
| Ref Time Seperate (s)                                                          | 1.1                                                                               | 0.4                                                                               |                                                                                   |                                                                                   | 0.9                                                                               | 0.4                                                                               |                                                                                     |                                                                                     | 0.5                                                                                 | 28.6                                                                                |                                                                                     |                                                                                     | 5.6  | 23.3 |
| Reference Time (s)                                                             | 2.4                                                                               | 2.4                                                                               |                                                                                   |                                                                                   | 6.7                                                                               | 6.7                                                                               |                                                                                     |                                                                                     | 30.2                                                                                | 30.2                                                                                |                                                                                     |                                                                                     | 24.0 | 24.0 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   |                                                                                   | 10.7                                                                              | 10.7                                                                              |                                                                                     |                                                                                     | 34.2                                                                                | 34.2                                                                                |                                                                                     |                                                                                     | 28.0 | 28.0 |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 43.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Permitted Option (s)                                                           | 10.9                                                                              |                                                                                   | 87.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Split Option (s)                                                               | 19.7                                                                              |                                                                                   | 62.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Minimum (s)                                                                    | 10.9                                                                              |                                                                                   | 43.8                                                                              |                                                                                   | 54.7                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Intersection Capacity Utilization                                              | 45.5%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |



# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

05/07/2019



| Movement                                                                       | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations                                                            |  |      |  |      |  |  |
| Volume (vph)                                                                   | 4                                                                                 | 18   | 473                                                                               | 28   | 16                                                                                | 396                                                                               |
| Pedestrians                                                                    |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Ped Button                                                                     |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Pedestrian Timing (s)                                                          |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Free Right                                                                     | No                                                                                |      | No                                                                                |      |                                                                                   |                                                                                   |
| Ideal Flow                                                                     | 1900                                                                              | 1900 | 1900                                                                              | 1900 | 1900                                                                              | 1900                                                                              |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0                                                                               |
| Minimum Green (s)                                                              | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0                                                                               |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120  | 120                                                                               | 120  | 120                                                                               | 120                                                                               |
| Volume Combined (vph)                                                          | 22                                                                                | 0    | 501                                                                               | 0    | 16                                                                                | 396                                                                               |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              |
| Turning Factor (vph)                                                           | 0.87                                                                              | 0.85 | 0.99                                                                              | 0.85 | 0.95                                                                              | 1.00                                                                              |
| Saturated Flow (vph)                                                           | 1652                                                                              | 0    | 1884                                                                              | 0    | 1805                                                                              | 1900                                                                              |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |      | 0.00                                                                              |      |                                                                                   | 0.00                                                                              |
| Protected Option Allowed                                                       | No                                                                                |      | Yes                                                                               |      |                                                                                   | Yes                                                                               |
| Reference Time (s)                                                             |                                                                                   | 0.0  | 31.9                                                                              | 0.0  | 1.1                                                                               | 25.0                                                                              |
| Adj Reference Time (s)                                                         |                                                                                   | 0.0  | 35.9                                                                              | 0.0  | 8.0                                                                               | 29.0                                                                              |
| Permitted Option                                                               |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Adj Saturation A (vph)                                                         | 110                                                                               |      | 1884                                                                              |      | 120                                                                               | 1900                                                                              |
| Reference Time A (s)                                                           | 24.0                                                                              |      | 31.9                                                                              |      | 16.0                                                                              | 25.0                                                                              |
| Adj Saturation B (vph)                                                         | NA                                                                                |      | NA                                                                                |      | NA                                                                                | NA                                                                                |
| Reference Time B (s)                                                           | NA                                                                                |      | NA                                                                                |      | NA                                                                                | NA                                                                                |
| Reference Time (s)                                                             |                                                                                   |      | 31.9                                                                              |      |                                                                                   | 25.0                                                                              |
| Adj Reference Time (s)                                                         |                                                                                   |      | 35.9                                                                              |      |                                                                                   | 29.0                                                                              |
| Split Option                                                                   |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Ref Time Combined (s)                                                          | 1.6                                                                               |      | 31.9                                                                              |      | 1.1                                                                               | 25.0                                                                              |
| Ref Time Seperate (s)                                                          | 0.3                                                                               |      | 30.1                                                                              |      | 1.1                                                                               | 25.0                                                                              |
| Reference Time (s)                                                             | 1.6                                                                               |      | 31.9                                                                              |      | 25.0                                                                              | 25.0                                                                              |
| Adj Reference Time (s)                                                         | 8.0                                                                               |      | 35.9                                                                              |      | 29.0                                                                              | 29.0                                                                              |
| Summary                                                                        | WB                                                                                |      | NB SB                                                                             |      | Combined                                                                          |                                                                                   |
| Protected Option (s)                                                           | NA                                                                                |      | 43.9                                                                              |      |                                                                                   |                                                                                   |
| Permitted Option (s)                                                           | Err                                                                               |      | 35.9                                                                              |      |                                                                                   |                                                                                   |
| Split Option (s)                                                               | 8.0                                                                               |      | 64.9                                                                              |      |                                                                                   |                                                                                   |
| Minimum (s)                                                                    | 8.0                                                                               |      | 35.9                                                                              |      | 43.9                                                                              |                                                                                   |
| Right Turns                                                                    |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Adj Reference Time (s)                                                         |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Cross Thru Ref Time (s)                                                        |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Combined (s)                                                                   |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Intersection Summary                                                           |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Intersection Capacity Utilization                                              | 36.6%                                                                             |      | ICU Level of Service                                                              |      | A                                                                                 |                                                                                   |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 95                                                                                | 417                                                                               | 200                                                                               | 30                                                                                | 455                                                                               | 108                                                                               | 240                                                                                 | 301                                                                                 | 20                                                                                  | 74                                                                                  | 243                                                                                 | 77                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 95                                                                                | 617                                                                               | 0                                                                                 | 30                                                                                | 563                                                                               | 0                                                                                 | 240                                                                                 | 321                                                                                 | 0                                                                                   | 74                                                                                  | 320                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.96                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1808                                                                              | 0                                                                                 | 1805                                                                              | 1845                                                                              | 0                                                                                 | 1805                                                                                | 1882                                                                                | 0                                                                                   | 1805                                                                                | 1831                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.3                                                                               | 41.0                                                                              | 0.0                                                                               | 2.0                                                                               | 36.6                                                                              | 0.0                                                                               | 16.0                                                                                | 20.5                                                                                | 0.0                                                                                 | 4.9                                                                                 | 21.0                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 10.3                                                                              | 45.0                                                                              | 0.0                                                                               | 9.0                                                                               | 40.6                                                                              | 0.0                                                                               | 20.0                                                                                | 24.5                                                                                | 0.0                                                                                 | 9.0                                                                                 | 25.0                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1808                                                                              |                                                                                   | 120                                                                               | 1845                                                                              |                                                                                   | 120                                                                                 | 1882                                                                                |                                                                                     | 120                                                                                 | 1831                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 94.7                                                                              | 41.0                                                                              |                                                                                   | 29.9                                                                              | 36.6                                                                              |                                                                                   | 239.3                                                                               | 20.5                                                                                |                                                                                     | 73.8                                                                                | 21.0                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 94.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 36.6                                                                              |                                                                                   |                                                                                     |                                                                                     | 239.3                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 98.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 40.6                                                                              |                                                                                   |                                                                                     |                                                                                     | 243.3                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.3                                                                               | 41.0                                                                              |                                                                                   | 2.0                                                                               | 36.6                                                                              |                                                                                   | 16.0                                                                                | 20.5                                                                                |                                                                                     | 4.9                                                                                 | 21.0                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.3                                                                               | 27.7                                                                              |                                                                                   | 2.0                                                                               | 29.6                                                                              |                                                                                   | 16.0                                                                                | 19.2                                                                                |                                                                                     | 4.9                                                                                 | 15.9                                                                                |                                                                                     |
| Reference Time (s)                                                             | 41.0                                                                              | 41.0                                                                              |                                                                                   | 36.6                                                                              | 36.6                                                                              |                                                                                   | 20.5                                                                                | 20.5                                                                                |                                                                                     | 21.0                                                                                | 21.0                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 45.0                                                                              | 45.0                                                                              |                                                                                   | 40.6                                                                              | 40.6                                                                              |                                                                                   | 24.5                                                                                | 24.5                                                                                |                                                                                     | 25.0                                                                                | 25.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 54.0                                                                              |                                                                                   | 44.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 98.7                                                                              |                                                                                   | 243.3                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 85.6                                                                              |                                                                                   | 49.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 54.0                                                                              |                                                                                   | 44.9                                                                              |                                                                                   | 98.9                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 82.4%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 61                                                                                | 1133                                                                              | 135                                                                               | 33                                                                                | 696                                                                               | 36                                                                                | 125                                                                                 | 421                                                                                 | 37                                                                                  | 45                                                                                  | 361                                                                                 | 58                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 61                                                                                | 1268                                                                              | 0                                                                                 | 33                                                                                | 732                                                                               | 0                                                                                 | 125                                                                                 | 458                                                                                 | 0                                                                                   | 45                                                                                  | 419                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5093                                                                              | 0                                                                                 | 1805                                                                              | 5137                                                                              | 0                                                                                 | 1805                                                                                | 3574                                                                                | 0                                                                                   | 1805                                                                                | 3542                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 4.1                                                                               | 29.9                                                                              | 0.0                                                                               | 2.2                                                                               | 17.1                                                                              | 0.0                                                                               | 8.3                                                                                 | 15.4                                                                                | 0.0                                                                                 | 3.0                                                                                 | 14.2                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 33.9                                                                              | 0.0                                                                               | 9.0                                                                               | 21.1                                                                              | 0.0                                                                               | 12.3                                                                                | 19.4                                                                                | 0.0                                                                                 | 9.0                                                                                 | 18.2                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                               | 1712                                                                              |                                                                                   | 120                                                                                 | 1787                                                                                |                                                                                     | 120                                                                                 | 1771                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 60.8                                                                              | 29.9                                                                              |                                                                                   | 32.9                                                                              | 17.1                                                                              |                                                                                   | 124.7                                                                               | 15.4                                                                                |                                                                                     | 44.9                                                                                | 14.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 60.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 32.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 124.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 64.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 36.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 128.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 4.1                                                                               | 29.9                                                                              |                                                                                   | 2.2                                                                               | 17.1                                                                              |                                                                                   | 8.3                                                                                 | 15.4                                                                                |                                                                                     | 3.0                                                                                 | 14.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 4.1                                                                               | 26.7                                                                              |                                                                                   | 2.2                                                                               | 16.3                                                                              |                                                                                   | 8.3                                                                                 | 14.1                                                                                |                                                                                     | 3.0                                                                                 | 12.2                                                                                |                                                                                     |
| Reference Time (s)                                                             | 29.9                                                                              | 29.9                                                                              |                                                                                   | 17.1                                                                              | 17.1                                                                              |                                                                                   | 15.4                                                                                | 15.4                                                                                |                                                                                     | 14.2                                                                                | 14.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 33.9                                                                              | 33.9                                                                              |                                                                                   | 21.1                                                                              | 21.1                                                                              |                                                                                   | 19.4                                                                                | 19.4                                                                                |                                                                                     | 18.2                                                                                | 18.2                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 42.9                                                                              |                                                                                   | 30.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 64.8                                                                              |                                                                                   | 128.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 55.0                                                                              |                                                                                   | 37.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 42.9                                                                              |                                                                                   | 30.5                                                                              |                                                                                   | 73.4                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 61.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

**Appendix C**  
Proposed Project Trip Generation Calculations

**TRIP GENERATION  
GREENLEAF BUSINESS CENTER PROJECT**

| <b>Table 1: Trip Generation Rates</b>   |              |       |              |     |       |              |     |       |
|-----------------------------------------|--------------|-------|--------------|-----|-------|--------------|-----|-------|
| Land Use                                | Rate         | Daily | AM Peak Hour |     |       | PM Peak Hour |     |       |
|                                         |              |       | In           | Out | Total | In           | Out | Total |
| General Light Industrial (ITE Code 110) | per 1,000 sf | 4.96  | 77%          | 23% | 0.70  | 27%          | 73% | 0.63  |
| Warehousing (ITE Code 150)              | per 1,000 sf | 1.74  | 77%          | 23% | 0.17  | 27%          | 73% | 0.19  |
| General Office Building (ITE Code 710)  | per 1,000 sf | 9.74  | 86%          | 14% | 1.16  | 16%          | 84% | 1.15  |

| <b>Table 2: Trip Generation Estimates</b>                         |                   |             |                    |           |            |                    |           |            |
|-------------------------------------------------------------------|-------------------|-------------|--------------------|-----------|------------|--------------------|-----------|------------|
| Land Use                                                          | Size              | Daily Trips | AM Peak Hour Trips |           |            | PM Peak Hour Trips |           |            |
|                                                                   |                   |             | In                 | Out       | Total      | In                 | Out       | Total      |
| General Light Industrial (ITE Code 110)                           | 60,150 sf         | 298         | 32                 | 10        | 42         | 10                 | 28        | 38         |
| Warehousing (ITE Code 150)                                        | 140,350 sf        | 244         | 18                 | 6         | 24         | 7                  | 20        | 27         |
| <i>Estimated Number of Passenger Vehicles (78.6%) [a]</i>         | -- --             | 426         | 40                 | 12        | 52         | 14                 | 37        | 51         |
| <i>Estimated Number of 2-Axle Trucks (8.0%) [a]</i>               | -- --             | 43          | 4                  | 1         | 5          | 1                  | 4         | 5          |
| <i>Estimated Number of 2-Axle Trucks - PCE Trips (PCE - 2.0)</i>  |                   | 86          | 8                  | 2         | 10         | 2                  | 8         | 10         |
| <i>Estimated Number of 3-Axle Trucks (3.9%) [a]</i>               | -- --             | 21          | 2                  | 1         | 3          | 1                  | 2         | 3          |
| <i>Estimated Number of 3-Axle Trucks - PCE Trips (PCE - 2.0)</i>  |                   | 42          | 4                  | 2         | 6          | 2                  | 4         | 6          |
| <i>Estimated Number of 4+-Axle Trucks (9.5%) [a]</i>              | -- --             | 51          | 5                  | 1         | 6          | 2                  | 4         | 6          |
| <i>Estimated Number of 4+-Axle Trucks - PCE Trips (PCE - 3.0)</i> |                   | 153         | 15                 | 3         | 18         | 6                  | 12        | 18         |
| General Light Industrial and Warehousing Subtotal                 |                   | 707         | 67                 | 19        | 86         | 24                 | 61        | 85         |
| Office (ITE Code 710)                                             | 16,000 sf         | 156         | 16                 | 3         | 19         | 3                  | 15        | 18         |
| <b>TOTAL</b>                                                      | <b>216,500 sf</b> | <b>863</b>  | <b>83</b>          | <b>22</b> | <b>105</b> | <b>27</b>          | <b>76</b> | <b>103</b> |

Notes:  
sf - square feet  
[a] Source: *Truck Trip Generation Study* (City of Fontana, August 2003)

**Appendix D**  
LOS Worksheets – Existing Plus Project Conditions

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 48                                                                                | 194                                                                               | 165                                                                               | 76                                                                                | 231                                                                               | 162                                                                               | 60                                                                                  | 369                                                                                 | 77                                                                                  | 127                                                                                 | 728                                                                                 | 79                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 48                                                                                | 359                                                                               | 0                                                                                 | 76                                                                                | 393                                                                               | 0                                                                                 | 60                                                                                  | 446                                                                                 | 0                                                                                   | 127                                                                                 | 807                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.93                                                                              | 0.85                                                                              | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3368                                                                              | 0                                                                                 | 1805                                                                              | 3394                                                                              | 0                                                                                 | 1805                                                                                | 3524                                                                                | 0                                                                                   | 1805                                                                                | 3564                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.2                                                                               | 12.8                                                                              | 0.0                                                                               | 5.1                                                                               | 13.9                                                                              | 0.0                                                                               | 4.0                                                                                 | 15.2                                                                                | 0.0                                                                                 | 8.4                                                                                 | 27.2                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 17.3                                                                              | 0.0                                                                               | 9.6                                                                               | 18.4                                                                              | 0.0                                                                               | 9.5                                                                                 | 19.7                                                                                | 0.0                                                                                 | 12.9                                                                                | 31.7                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1684                                                                              |                                                                                   | 120                                                                               | 1697                                                                              |                                                                                   | 120                                                                                 | 1762                                                                                |                                                                                     | 120                                                                                 | 1782                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 47.9                                                                              | 12.8                                                                              |                                                                                   | 75.8                                                                              | 13.9                                                                              |                                                                                   | 59.8                                                                                | 15.2                                                                                |                                                                                     | 126.6                                                                               | 27.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                   | 75.8                                                                              |                                                                                   |                                                                                     | 59.8                                                                                |                                                                                     |                                                                                     | 126.6                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 52.4                                                                              |                                                                                   |                                                                                   | 80.3                                                                              |                                                                                   |                                                                                     | 64.3                                                                                |                                                                                     |                                                                                     | 131.1                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.2                                                                               | 12.8                                                                              |                                                                                   | 5.1                                                                               | 13.9                                                                              |                                                                                   | 4.0                                                                                 | 15.2                                                                                |                                                                                     | 8.4                                                                                 | 27.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.2                                                                               | 6.9                                                                               |                                                                                   | 5.1                                                                               | 8.2                                                                               |                                                                                   | 4.0                                                                                 | 12.6                                                                                |                                                                                     | 8.4                                                                                 | 24.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 12.8                                                                              | 12.8                                                                              |                                                                                   | 13.9                                                                              | 13.9                                                                              |                                                                                   | 15.2                                                                                | 15.2                                                                                |                                                                                     | 27.2                                                                                | 27.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 17.3                                                                              | 17.3                                                                              |                                                                                   | 18.4                                                                              | 18.4                                                                              |                                                                                   | 19.7                                                                                | 19.7                                                                                |                                                                                     | 31.7                                                                                | 31.7                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 27.9                                                                              |                                                                                   | 41.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 80.3                                                                              |                                                                                   | 131.1                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 35.7                                                                              |                                                                                   | 51.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 27.9                                                                              |                                                                                   | 41.2                                                                              |                                                                                   | 69.1                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 57.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |  |  |    |                                                                                   |  |   |                                                                                     |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 78                                                                                | 1382                                                                                                                                                                                                                                                  | 85                                                                                | 217                                                                               | 1045                                                                                                                                                                                                                                                  | 200                                                                               | 104                                                                                 | 513                                                                                                                                                                     | 174                                                                                 | 201                                                                                 | 568                                                                                                                                                                     | 85                                                                                  |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.5                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 78                                                                                | 1382                                                                                                                                                                                                                                                  | 85                                                                                | 217                                                                               | 1245                                                                                                                                                                                                                                                  | 0                                                                                 | 104                                                                                 | 687                                                                                                                                                                     | 0                                                                                   | 201                                                                                 | 568                                                                                                                                                                     | 85                                                                                  |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5051                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 3480                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3618                                                                                                                                                                    | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                                                                                                         |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 5.2                                                                               | 32.0                                                                                                                                                                                                                                                  | 6.3                                                                               | 14.4                                                                              | 29.6                                                                                                                                                                                                                                                  | 0.0                                                                               | 6.9                                                                                 | 23.7                                                                                                                                                                    | 0.0                                                                                 | 13.4                                                                                | 18.8                                                                                                                                                                    | 6.3                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.7                                                                               | 36.5                                                                                                                                                                                                                                                  | 10.8                                                                              | 18.9                                                                              | 34.1                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.4                                                                                | 28.2                                                                                                                                                                    | 0.0                                                                                 | 17.9                                                                                | 23.3                                                                                                                                                                    | 10.8                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1684                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1740                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1809                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 77.8                                                                              | 32.0                                                                                                                                                                                                                                                  |                                                                                   | 216.4                                                                             | 29.6                                                                                                                                                                                                                                                  |                                                                                   | 103.7                                                                               | 23.7                                                                                                                                                                    |                                                                                     | 200.4                                                                               | 18.8                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 77.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 216.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 103.7                                                                                                                                                                   |                                                                                     |                                                                                     | 200.4                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 82.3                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 220.9                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 108.2                                                                                                                                                                   |                                                                                     |                                                                                     | 204.9                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 5.2                                                                               | 32.0                                                                                                                                                                                                                                                  |                                                                                   | 14.4                                                                              | 29.6                                                                                                                                                                                                                                                  |                                                                                   | 6.9                                                                                 | 23.7                                                                                                                                                                    |                                                                                     | 13.4                                                                                | 18.8                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 5.2                                                                               | 32.0                                                                                                                                                                                                                                                  |                                                                                   | 14.4                                                                              | 24.8                                                                                                                                                                                                                                                  |                                                                                   | 6.9                                                                                 | 17.7                                                                                                                                                                    |                                                                                     | 13.4                                                                                | 18.8                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 32.0                                                                              | 32.0                                                                                                                                                                                                                                                  |                                                                                   | 29.6                                                                              | 29.6                                                                                                                                                                                                                                                  |                                                                                   | 23.7                                                                                | 23.7                                                                                                                                                                    |                                                                                     | 18.8                                                                                | 18.8                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 36.5                                                                              | 36.5                                                                                                                                                                                                                                                  |                                                                                   | 34.1                                                                              | 34.1                                                                                                                                                                                                                                                  |                                                                                   | 28.2                                                                                | 28.2                                                                                                                                                                    |                                                                                     | 23.3                                                                                | 23.3                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 55.5                                                                              |                                                                                                                                                                                                                                                       | 46.1                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 220.9                                                                             |                                                                                                                                                                                                                                                       | 204.9                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 70.6                                                                              |                                                                                                                                                                                                                                                       | 51.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 55.5                                                                              |                                                                                                                                                                                                                                                       | 46.1                                                                              |                                                                                   | 101.5                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 10.8                                                                              |                                                                                                                                                                                                                                                       | 10.8                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 23.3                                                                              |                                                                                                                                                                                                                                                       | 34.1                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 18.9                                                                              |                                                                                                                                                                                                                                                       | 11.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 53.1                                                                              |                                                                                                                                                                                                                                                       | 56.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 84.6%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | E                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |



# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 104                                                                               | 867                                                                               | 150                                                                               | 165                                                                               | 1461                                                                              | 131                                                                               | 71                                                                                  | 353                                                                                 | 44                                                                                  | 111                                                                                 | 739                                                                                 | 210                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 104                                                                               | 1017                                                                              | 0                                                                                 | 165                                                                               | 1592                                                                              | 0                                                                                 | 71                                                                                  | 397                                                                                 | 0                                                                                   | 111                                                                                 | 739                                                                                 | 210                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5061                                                                              | 0                                                                                 | 1805                                                                              | 5112                                                                              | 0                                                                                 | 1805                                                                                | 3557                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.9                                                                               | 24.1                                                                              | 0.0                                                                               | 11.0                                                                              | 37.4                                                                              | 0.0                                                                               | 4.7                                                                                 | 13.4                                                                                | 0.0                                                                                 | 7.4                                                                                 | 24.5                                                                                | 15.6                                                                                |
| Adj Reference Time (s)                                                         | 10.9                                                                              | 28.1                                                                              | 0.0                                                                               | 15.0                                                                              | 41.4                                                                              | 0.0                                                                               | 9.0                                                                                 | 17.4                                                                                | 0.0                                                                                 | 11.4                                                                                | 28.5                                                                                | 19.6                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1687                                                                              |                                                                                   | 120                                                                               | 1704                                                                              |                                                                                   | 120                                                                                 | 1779                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 103.7                                                                             | 24.1                                                                              |                                                                                   | 164.5                                                                             | 37.4                                                                              |                                                                                   | 70.8                                                                                | 13.4                                                                                |                                                                                     | 110.7                                                                               | 24.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 103.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 164.5                                                                             |                                                                                   |                                                                                     |                                                                                     | 70.8                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 107.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 168.5                                                                             |                                                                                   |                                                                                     |                                                                                     | 74.8                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.9                                                                               | 24.1                                                                              |                                                                                   | 11.0                                                                              | 37.4                                                                              |                                                                                   | 4.7                                                                                 | 13.4                                                                                |                                                                                     | 7.4                                                                                 | 24.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.9                                                                               | 20.6                                                                              |                                                                                   | 11.0                                                                              | 34.3                                                                              |                                                                                   | 4.7                                                                                 | 11.9                                                                                |                                                                                     | 7.4                                                                                 | 24.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 24.1                                                                              | 24.1                                                                              |                                                                                   | 37.4                                                                              | 37.4                                                                              |                                                                                   | 13.4                                                                                | 13.4                                                                                |                                                                                     | 24.5                                                                                | 24.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 28.1                                                                              | 28.1                                                                              |                                                                                   | 41.4                                                                              | 41.4                                                                              |                                                                                   | 17.4                                                                                | 17.4                                                                                |                                                                                     | 28.5                                                                                | 28.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 52.3                                                                              |                                                                                   | 37.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 168.5                                                                             |                                                                                   | 114.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 69.5                                                                              |                                                                                   | 45.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 52.3                                                                              |                                                                                   | 37.5                                                                              |                                                                                   | 89.8                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 19.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 41.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 70.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 74.8%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

09/17/2019



| Movement                   | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations        |  |  |  |  |  |      |
| Volume (vph)               | 4                                                                                 | 385                                                                               | 282                                                                               | 542                                                                               | 945                                                                               | 27   |
| Pedestrians                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ped Button                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Pedestrian Timing (s)      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Free Right                 | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |      |
| Ideal Flow                 | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900 |
| Lost Time (s)              | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Minimum Green (s)          | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Refr Cycle Length (s)      | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120  |
| Volume Combined (vph)      | 4                                                                                 | 385                                                                               | 282                                                                               | 542                                                                               | 972                                                                               | 0    |
| Lane Utilization Factor    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              | 1.00 |
| Turning Factor (vph)       | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85 |
| Saturated Flow (vph)       | 1805                                                                              | 1615                                                                              | 1805                                                                              | 3618                                                                              | 3603                                                                              | 0    |
| Ped Intf Time (s)          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  |
| Pedestrian Frequency (%)   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              | 0.00                                                                              |      |
| Protected Option Allowed   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                               | Yes                                                                               |      |
| Reference Time (s)         |                                                                                   | 28.6                                                                              | 18.7                                                                              | 18.0                                                                              | 32.4                                                                              | 0.0  |
| Adj Reference Time (s)     |                                                                                   | 32.6                                                                              | 22.7                                                                              | 22.0                                                                              | 36.4                                                                              | 0.0  |
| Permitted Option           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Saturation A (vph)     | 120                                                                               |                                                                                   | 120                                                                               | 1809                                                                              | 1801                                                                              |      |
| Reference Time A (s)       | 4.0                                                                               |                                                                                   | 281.2                                                                             | 18.0                                                                              | 32.4                                                                              |      |
| Adj Saturation B (vph)     | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                | NA                                                                                |      |
| Reference Time B (s)       | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                | NA                                                                                |      |
| Reference Time (s)         |                                                                                   |                                                                                   |                                                                                   | 281.2                                                                             | 32.4                                                                              |      |
| Adj Reference Time (s)     |                                                                                   |                                                                                   |                                                                                   | 285.2                                                                             | 36.4                                                                              |      |
| Split Option               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ref Time Combined (s)      | 0.3                                                                               |                                                                                   | 18.7                                                                              | 18.0                                                                              | 32.4                                                                              |      |
| Ref Time Seperate (s)      | 0.3                                                                               |                                                                                   | 18.7                                                                              | 18.0                                                                              | 31.5                                                                              |      |
| Reference Time (s)         | 0.3                                                                               |                                                                                   | 18.7                                                                              | 18.7                                                                              | 32.4                                                                              |      |
| Adj Reference Time (s)     | 8.0                                                                               |                                                                                   | 22.7                                                                              | 22.7                                                                              | 36.4                                                                              |      |
| Summary                    | EB                                                                                |                                                                                   | NB SB                                                                             | Combined                                                                          |                                                                                   |      |
| Protected Option (s)       | NA                                                                                |                                                                                   | 59.1                                                                              |                                                                                   |                                                                                   |      |
| Permitted Option (s)       | Err                                                                               |                                                                                   | 285.2                                                                             |                                                                                   |                                                                                   |      |
| Split Option (s)           | 8.0                                                                               |                                                                                   | 59.1                                                                              |                                                                                   |                                                                                   |      |
| Minimum (s)                | 8.0                                                                               |                                                                                   | 59.1                                                                              | 67.1                                                                              |                                                                                   |      |
| Right Turns                | EBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Reference Time (s)     | 32.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Cross Thru Ref Time (s)    | 36.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Oncoming Left Ref Time (s) | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Combined (s)               | 69.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |

### Intersection Summary

Intersection Capacity Utilization 57.5% ICU Level of Service B  
Reference Times and Phasing Options do not represent an optimized timing plan.

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 47                                                                                | 303                                                                               | 165                                                                               | 154                                                                               | 510                                                                               | 202                                                                               | 117                                                                                 | 598                                                                                 | 66                                                                                  | 195                                                                                 | 957                                                                                 | 102                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 47                                                                                | 468                                                                               | 0                                                                                 | 154                                                                               | 510                                                                               | 202                                                                               | 117                                                                                 | 664                                                                                 | 0                                                                                   | 195                                                                                 | 1059                                                                                | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1800                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3564                                                                                | 0                                                                                   | 1805                                                                                | 3565                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.1                                                                               | 31.2                                                                              | 0.0                                                                               | 10.2                                                                              | 32.2                                                                              | 15.0                                                                              | 7.8                                                                                 | 22.4                                                                                | 0.0                                                                                 | 13.0                                                                                | 35.6                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.2                                                                              | 0.0                                                                               | 14.2                                                                              | 36.2                                                                              | 19.0                                                                              | 11.8                                                                                | 26.4                                                                                | 0.0                                                                                 | 17.0                                                                                | 39.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1800                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1782                                                                                |                                                                                     | 120                                                                                 | 1783                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 46.9                                                                              | 31.2                                                                              |                                                                                   | 153.6                                                                             | 32.2                                                                              |                                                                                   | 116.7                                                                               | 22.4                                                                                |                                                                                     | 194.5                                                                               | 35.6                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 46.9                                                                              |                                                                                   |                                                                                   | 153.6                                                                             |                                                                                   |                                                                                     | 116.7                                                                               |                                                                                     |                                                                                     | 194.5                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 50.9                                                                              |                                                                                   |                                                                                   | 157.6                                                                             |                                                                                   |                                                                                     | 120.7                                                                               |                                                                                     |                                                                                     | 198.5                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.1                                                                               | 31.2                                                                              |                                                                                   | 10.2                                                                              | 32.2                                                                              |                                                                                   | 7.8                                                                                 | 22.4                                                                                |                                                                                     | 13.0                                                                                | 35.6                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.1                                                                               | 20.2                                                                              |                                                                                   | 10.2                                                                              | 32.2                                                                              |                                                                                   | 7.8                                                                                 | 20.1                                                                                |                                                                                     | 13.0                                                                                | 32.2                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.2                                                                              | 31.2                                                                              |                                                                                   | 32.2                                                                              | 32.2                                                                              |                                                                                   | 22.4                                                                                | 22.4                                                                                |                                                                                     | 35.6                                                                                | 35.6                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.2                                                                              | 35.2                                                                              |                                                                                   | 36.2                                                                              | 36.2                                                                              |                                                                                   | 26.4                                                                                | 26.4                                                                                |                                                                                     | 39.6                                                                                | 39.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 49.4                                                                              |                                                                                   | 51.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 157.6                                                                             |                                                                                   | 198.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 71.4                                                                              |                                                                                   | 66.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 49.4                                                                              |                                                                                   | 51.4                                                                              |                                                                                   | 100.9                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 19.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 26.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 54.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 84.1%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |  |
| Volume (vph)                                                                   | 203                                                                               | 760                                                                                                                                                                                                                                                   | 135                                                                               | 48                                                                                | 1126                                                                                                                                                                                                                                                  | 177                                                                               | 100                                                                                 | 590                                                                                                                                                                     | 72                                                                                  | 47                                                                                  | 878                                                                                                                                                                     | 212                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 203                                                                               | 760                                                                                                                                                                                                                                                   | 135                                                                               | 48                                                                                | 1126                                                                                                                                                                                                                                                  | 177                                                                               | 100                                                                                 | 662                                                                                                                                                                     | 0                                                                                   | 47                                                                                  | 1090                                                                                                                                                                    | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.97                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3559                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3512                                                                                                                                                                    | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 0.00                                                                                |                                                                                                                                                                         |                                                                                     | 0.00                                                                                |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                                                                                                         |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 13.5                                                                              | 17.6                                                                                                                                                                                                                                                  | 10.0                                                                              | 3.2                                                                               | 26.1                                                                                                                                                                                                                                                  | 13.2                                                                              | 6.6                                                                                 | 22.3                                                                                                                                                                    | 0.0                                                                                 | 3.1                                                                                 | 37.2                                                                                                                                                                    | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 17.5                                                                              | 21.6                                                                                                                                                                                                                                                  | 14.0                                                                              | 9.0                                                                               | 30.1                                                                                                                                                                                                                                                  | 17.2                                                                              | 10.6                                                                                | 26.3                                                                                                                                                                    | 0.0                                                                                 | 9.0                                                                                 | 41.2                                                                                                                                                                    | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1779                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1756                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 202.4                                                                             | 17.6                                                                                                                                                                                                                                                  |                                                                                   | 47.9                                                                              | 26.1                                                                                                                                                                                                                                                  |                                                                                   | 99.7                                                                                | 22.3                                                                                                                                                                    |                                                                                     | 46.9                                                                                | 37.2                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 202.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 47.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 99.7                                                                                                                                                                    |                                                                                     |                                                                                     | 46.9                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 206.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 51.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 103.7                                                                                                                                                                   |                                                                                     |                                                                                     | 50.9                                                                                                                                                                    |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 13.5                                                                              | 17.6                                                                                                                                                                                                                                                  |                                                                                   | 3.2                                                                               | 26.1                                                                                                                                                                                                                                                  |                                                                                   | 6.6                                                                                 | 22.3                                                                                                                                                                    |                                                                                     | 3.1                                                                                 | 37.2                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 13.5                                                                              | 17.6                                                                                                                                                                                                                                                  |                                                                                   | 3.2                                                                               | 26.1                                                                                                                                                                                                                                                  |                                                                                   | 6.6                                                                                 | 19.9                                                                                                                                                                    |                                                                                     | 3.1                                                                                 | 30.0                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 17.6                                                                              | 17.6                                                                                                                                                                                                                                                  |                                                                                   | 26.1                                                                              | 26.1                                                                                                                                                                                                                                                  |                                                                                   | 22.3                                                                                | 22.3                                                                                                                                                                    |                                                                                     | 37.2                                                                                | 37.2                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 21.6                                                                              | 21.6                                                                                                                                                                                                                                                  |                                                                                   | 30.1                                                                              | 30.1                                                                                                                                                                                                                                                  |                                                                                   | 26.3                                                                                | 26.3                                                                                                                                                                    |                                                                                     | 41.2                                                                                | 41.2                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 47.6                                                                              |                                                                                                                                                                                                                                                       | 51.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 206.4                                                                             |                                                                                                                                                                                                                                                       | 103.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 51.7                                                                              |                                                                                                                                                                                                                                                       | 67.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 47.6                                                                              |                                                                                                                                                                                                                                                       | 51.9                                                                              |                                                                                   | 99.5                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | WBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 14.0                                                                              |                                                                                                                                                                                                                                                       | 17.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 41.2                                                                              |                                                                                                                                                                                                                                                       | 26.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                                                                                                                                                                                       | 17.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 64.3                                                                              |                                                                                                                                                                                                                                                       | 61.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 82.9%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | E                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |  |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |                                                                                   |  |    |                                                                                   |  |  |  |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 36                                                                                | 842                                                                                                                                                                                                                                                   | 129                                                                               | 126                                                                               | 1479                                                                                                                                                                                                                                                  | 102                                                                               | 110                                                                                 | 172                                                                                 | 70                                                                                  | 124                                                                                 | 339                                                                                                                                                                     | 148                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 36                                                                                | 971                                                                                                                                                                                                                                                   | 0                                                                                 | 126                                                                               | 1581                                                                                                                                                                                                                                                  | 0                                                                                 | 110                                                                                 | 172                                                                                 | 70                                                                                  | 124                                                                                 | 339                                                                                                                                                                     | 148                                                                                 |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.99                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5072                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                              | 5126                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                                                                                                    | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 2.4                                                                               | 23.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 8.4                                                                               | 37.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 7.3                                                                                 | 10.9                                                                                | 5.2                                                                                 | 8.2                                                                                 | 21.4                                                                                                                                                                    | 11.0                                                                                |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 27.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 12.4                                                                              | 41.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.3                                                                                | 14.9                                                                                | 9.2                                                                                 | 12.2                                                                                | 25.4                                                                                                                                                                    | 15.0                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1691                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1709                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 35.9                                                                              | 23.0                                                                                                                                                                                                                                                  |                                                                                   | 125.7                                                                             | 37.0                                                                                                                                                                                                                                                  |                                                                                   | 109.7                                                                               | 10.9                                                                                |                                                                                     | 123.7                                                                               | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 35.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 125.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 109.7                                                                               |                                                                                     |                                                                                     | 123.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 39.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 129.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 113.7                                                                               |                                                                                     |                                                                                     | 127.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 2.4                                                                               | 23.0                                                                                                                                                                                                                                                  |                                                                                   | 8.4                                                                               | 37.0                                                                                                                                                                                                                                                  |                                                                                   | 7.3                                                                                 | 10.9                                                                                |                                                                                     | 8.2                                                                                 | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 2.4                                                                               | 19.9                                                                                                                                                                                                                                                  |                                                                                   | 8.4                                                                               | 34.6                                                                                                                                                                                                                                                  |                                                                                   | 7.3                                                                                 | 10.9                                                                                |                                                                                     | 8.2                                                                                 | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 23.0                                                                              | 23.0                                                                                                                                                                                                                                                  |                                                                                   | 37.0                                                                              | 37.0                                                                                                                                                                                                                                                  |                                                                                   | 10.9                                                                                | 10.9                                                                                |                                                                                     | 21.4                                                                                | 21.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 27.0                                                                              | 27.0                                                                                                                                                                                                                                                  |                                                                                   | 41.0                                                                              | 41.0                                                                                                                                                                                                                                                  |                                                                                   | 14.9                                                                                | 14.9                                                                                |                                                                                     | 25.4                                                                                | 25.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 50.0                                                                              |                                                                                                                                                                                                                                                       | 36.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 129.7                                                                             |                                                                                                                                                                                                                                                       | 127.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 68.0                                                                              |                                                                                                                                                                                                                                                       | 40.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 50.0                                                                              |                                                                                                                                                                                                                                                       | 36.7                                                                              |                                                                                   | 86.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | NBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.2                                                                               |                                                                                                                                                                                                                                                       | 15.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 27.0                                                                              |                                                                                                                                                                                                                                                       | 41.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 12.2                                                                              |                                                                                                                                                                                                                                                       | 11.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 48.4                                                                              |                                                                                                                                                                                                                                                       | 67.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 72.3%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 7                                                                                 | 2                                                                                 | 5                                                                                 | 68                                                                                | 6                                                                                 | 80                                                                                | 25                                                                                  | 356                                                                                 | 26                                                                                  | 53                                                                                  | 599                                                                                 | 13                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 0                                                                                 | 14                                                                                | 0                                                                                 | 0                                                                                 | 154                                                                               | 0                                                                                 | 25                                                                                  | 382                                                                                 | 0                                                                                   | 53                                                                                  | 612                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.90                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1753                                                                              | 0                                                                                 | 0                                                                                 | 1713                                                                              | 0                                                                                 | 1805                                                                                | 1881                                                                                | 0                                                                                   | 1805                                                                                | 1894                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 1.7                                                                                 | 24.4                                                                                | 0.0                                                                                 | 3.5                                                                                 | 38.8                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 9.0                                                                                 | 28.4                                                                                | 0.0                                                                                 | 9.0                                                                                 | 42.8                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 1309                                                                              |                                                                                   | 0                                                                                 | 1429                                                                              |                                                                                   | 120                                                                                 | 1881                                                                                |                                                                                     | 120                                                                                 | 1894                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 0.0                                                                               | 1.3                                                                               |                                                                                   | 0.0                                                                               | 12.9                                                                              |                                                                                   | 24.9                                                                                | 24.4                                                                                |                                                                                     | 52.9                                                                                | 38.8                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | 8.5                                                                               | 9.0                                                                               |                                                                                   | 12.5                                                                              | 18.8                                                                              |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 1.3                                                                               |                                                                                   |                                                                                   | 12.9                                                                              |                                                                                   |                                                                                   | 24.9                                                                                |                                                                                     |                                                                                     | 52.9                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               |                                                                                   |                                                                                   | 16.9                                                                              |                                                                                   |                                                                                   | 28.9                                                                                |                                                                                     |                                                                                     | 56.9                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 1.0                                                                               |                                                                                   | 0.0                                                                               | 10.8                                                                              |                                                                                   | 1.7                                                                                 | 24.4                                                                                |                                                                                     | 3.5                                                                                 | 38.8                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 0.5                                                                               | 0.1                                                                               |                                                                                   | 4.5                                                                               | 0.4                                                                               |                                                                                   | 1.7                                                                                 | 22.7                                                                                |                                                                                     | 3.5                                                                                 | 38.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 1.0                                                                               | 1.0                                                                               |                                                                                   | 10.8                                                                              | 10.8                                                                              |                                                                                   | 24.4                                                                                | 24.4                                                                                |                                                                                     | 38.8                                                                                | 38.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   | 14.8                                                                              | 14.8                                                                              |                                                                                   | 28.4                                                                                | 28.4                                                                                |                                                                                     | 42.8                                                                                | 42.8                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 51.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 16.9                                                                              |                                                                                   | 56.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 23.8                                                                              |                                                                                   | 71.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 16.9                                                                              |                                                                                   | 51.8                                                                              |                                                                                   | 68.7                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 57.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

09/17/2019



| Movement                                                                       | WBL  | WBR  | NBT   | NBR  | SBL                  | SBT  |
|--------------------------------------------------------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations                                                            | W    | R    | T     | R    | L                    | R    |
| Volume (vph)                                                                   | 17   | 24   | 370   | 13   | 36                   | 543  |
| Pedestrians                                                                    |      |      |       |      |                      |      |
| Ped Button                                                                     |      |      |       |      |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |      |                      |      |
| Free Right                                                                     |      | No   |       | No   |                      |      |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900 | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120  | 120                  | 120  |
| Volume Combined (vph)                                                          | 41   | 0    | 383   | 0    | 36                   | 543  |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 1.00 | 1.00                 | 1.00 |
| Turning Factor (vph)                                                           | 0.89 | 0.85 | 0.99  | 0.85 | 0.95                 | 1.00 |
| Saturated Flow (vph)                                                           | 1697 | 0    | 1890  | 0    | 1805                 | 1900 |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0  | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      | 0.00  |      |                      | 0.00 |
| Protected Option Allowed                                                       | No   |      | Yes   |      |                      | Yes  |
| Reference Time (s)                                                             |      | 0.0  | 24.3  | 0.0  | 2.4                  | 34.3 |
| Adj Reference Time (s)                                                         |      | 0.0  | 28.3  | 0.0  | 8.0                  | 38.3 |
| Permitted Option                                                               |      |      |       |      |                      |      |
| Adj Saturation A (vph)                                                         | 113  |      | 1890  |      | 120                  | 1900 |
| Reference Time A (s)                                                           | 43.5 |      | 24.3  |      | 35.9                 | 34.3 |
| Adj Saturation B (vph)                                                         | NA   |      | NA    |      | NA                   | NA   |
| Reference Time B (s)                                                           | NA   |      | NA    |      | NA                   | NA   |
| Reference Time (s)                                                             |      |      | 24.3  |      |                      | 35.9 |
| Adj Reference Time (s)                                                         |      |      | 28.3  |      |                      | 39.9 |
| Split Option                                                                   |      |      |       |      |                      |      |
| Ref Time Combined (s)                                                          | 2.9  |      | 24.3  |      | 2.4                  | 34.3 |
| Ref Time Seperate (s)                                                          | 1.2  |      | 23.5  |      | 2.4                  | 34.3 |
| Reference Time (s)                                                             | 2.9  |      | 24.3  |      | 34.3                 | 34.3 |
| Adj Reference Time (s)                                                         | 8.0  |      | 28.3  |      | 38.3                 | 38.3 |
| Summary                                                                        | WB   |      | NB SB |      | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 38.3  |      |                      |      |
| Permitted Option (s)                                                           | Err  |      | 39.9  |      |                      |      |
| Split Option (s)                                                               | 8.0  |      | 66.6  |      |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 38.3  |      | 46.3                 |      |
| Right Turns                                                                    |      |      |       |      |                      |      |
| Adj Reference Time (s)                                                         |      |      |       |      |                      |      |
| Cross Thru Ref Time (s)                                                        |      |      |       |      |                      |      |
| Oncoming Left Ref Time (s)                                                     |      |      |       |      |                      |      |
| Combined (s)                                                                   |      |      |       |      |                      |      |
| Intersection Summary                                                           |      |      |       |      |                      |      |
| Intersection Capacity Utilization                                              |      |      | 38.6% |      | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |      |                      |      |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 57                                                                                | 294                                                                               | 189                                                                               | 43                                                                                | 515                                                                               | 67                                                                                | 208                                                                                 | 260                                                                                 | 29                                                                                  | 73                                                                                  | 304                                                                                 | 189                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 57                                                                                | 483                                                                               | 0                                                                                 | 43                                                                                | 582                                                                               | 0                                                                                 | 208                                                                                 | 289                                                                                 | 0                                                                                   | 73                                                                                  | 493                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.94                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1788                                                                              | 0                                                                                 | 1805                                                                              | 1867                                                                              | 0                                                                                 | 1805                                                                                | 1871                                                                                | 0                                                                                   | 1805                                                                                | 1791                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.8                                                                               | 32.4                                                                              | 0.0                                                                               | 2.9                                                                               | 37.4                                                                              | 0.0                                                                               | 13.8                                                                                | 18.5                                                                                | 0.0                                                                                 | 4.9                                                                                 | 33.0                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 36.4                                                                              | 0.0                                                                               | 9.0                                                                               | 41.4                                                                              | 0.0                                                                               | 17.8                                                                                | 22.5                                                                                | 0.0                                                                                 | 9.0                                                                                 | 37.0                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1788                                                                              |                                                                                   | 120                                                                               | 1867                                                                              |                                                                                   | 120                                                                                 | 1871                                                                                |                                                                                     | 120                                                                                 | 1791                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 56.8                                                                              | 32.4                                                                              |                                                                                   | 42.9                                                                              | 37.4                                                                              |                                                                                   | 207.4                                                                               | 18.5                                                                                |                                                                                     | 72.8                                                                                | 33.0                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 56.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 42.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 207.4                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 60.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 46.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 211.4                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.8                                                                               | 32.4                                                                              |                                                                                   | 2.9                                                                               | 37.4                                                                              |                                                                                   | 13.8                                                                                | 18.5                                                                                |                                                                                     | 4.9                                                                                 | 33.0                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.8                                                                               | 19.7                                                                              |                                                                                   | 2.9                                                                               | 33.1                                                                              |                                                                                   | 13.8                                                                                | 16.7                                                                                |                                                                                     | 4.9                                                                                 | 20.4                                                                                |                                                                                     |
| Reference Time (s)                                                             | 32.4                                                                              | 32.4                                                                              |                                                                                   | 37.4                                                                              | 37.4                                                                              |                                                                                   | 18.5                                                                                | 18.5                                                                                |                                                                                     | 33.0                                                                                | 33.0                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 36.4                                                                              | 36.4                                                                              |                                                                                   | 41.4                                                                              | 41.4                                                                              |                                                                                   | 22.5                                                                                | 22.5                                                                                |                                                                                     | 37.0                                                                                | 37.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 50.4                                                                              |                                                                                   | 54.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 60.8                                                                              |                                                                                   | 211.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 77.8                                                                              |                                                                                   | 59.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 50.4                                                                              |                                                                                   | 54.9                                                                              |                                                                                   | 105.3                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 87.7%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 105                                                                               | 560                                                                               | 155                                                                               | 66                                                                                | 1170                                                                              | 48                                                                                | 152                                                                                | 380                                                                                 | 33                                                                                  | 38                                                                                  | 434                                                                                 | 58                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 105                                                                               | 715                                                                               | 0                                                                                 | 66                                                                                | 1218                                                                              | 0                                                                                 | 152                                                                                | 413                                                                                 | 0                                                                                   | 38                                                                                  | 492                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                               | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                               | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5007                                                                              | 0                                                                                 | 1805                                                                              | 5145                                                                              | 0                                                                                 | 1805                                                                               | 3574                                                                                | 0                                                                                   | 1805                                                                                | 3554                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                    |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                    |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 7.0                                                                               | 17.1                                                                              | 0.0                                                                               | 4.4                                                                               | 28.4                                                                              | 0.0                                                                               | 10.1                                                                               | 13.9                                                                                | 0.0                                                                                 | 2.5                                                                                 | 16.6                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 11.0                                                                              | 21.1                                                                              | 0.0                                                                               | 9.0                                                                               | 32.4                                                                              | 0.0                                                                               | 14.1                                                                               | 17.9                                                                                | 0.0                                                                                 | 9.0                                                                                 | 20.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1669                                                                              |                                                                                   | 120                                                                               | 1715                                                                              |                                                                                   | 120                                                                                | 1787                                                                                |                                                                                     | 120                                                                                 | 1777                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 104.7                                                                             | 17.1                                                                              |                                                                                   | 65.8                                                                              | 28.4                                                                              |                                                                                   | 151.6                                                                              | 13.9                                                                                |                                                                                     | 37.9                                                                                | 16.6                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                 | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                 | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 104.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 65.8                                                                              |                                                                                   |                                                                                    |                                                                                     | 151.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 108.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 69.8                                                                              |                                                                                   |                                                                                    |                                                                                     | 155.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 7.0                                                                               | 17.1                                                                              |                                                                                   | 4.4                                                                               | 28.4                                                                              |                                                                                   | 10.1                                                                               | 13.9                                                                                |                                                                                     | 2.5                                                                                 | 16.6                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 7.0                                                                               | 13.4                                                                              |                                                                                   | 4.4                                                                               | 27.3                                                                              |                                                                                   | 10.1                                                                               | 12.8                                                                                |                                                                                     | 2.5                                                                                 | 14.7                                                                                |                                                                                     |
| Reference Time (s)                                                             | 17.1                                                                              | 17.1                                                                              |                                                                                   | 28.4                                                                              | 28.4                                                                              |                                                                                   | 13.9                                                                               | 13.9                                                                                |                                                                                     | 16.6                                                                                | 16.6                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 21.1                                                                              | 21.1                                                                              |                                                                                   | 32.4                                                                              | 32.4                                                                              |                                                                                   | 17.9                                                                               | 17.9                                                                                |                                                                                     | 20.6                                                                                | 20.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 43.4                                                                              |                                                                                   | 34.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 108.7                                                                             |                                                                                   | 155.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 53.5                                                                              |                                                                                   | 38.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 43.4                                                                              |                                                                                   | 34.7                                                                              |                                                                                   | 78.1                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 65.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 28                                                                                | 204                                                                               | 101                                                                               | 129                                                                               | 423                                                                               | 218                                                                               | 121                                                                                 | 742                                                                                 | 108                                                                                 | 110                                                                                 | 563                                                                                 | 74                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 28                                                                                | 305                                                                               | 0                                                                                 | 129                                                                               | 641                                                                               | 0                                                                                 | 121                                                                                 | 850                                                                                 | 0                                                                                   | 110                                                                                 | 637                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3438                                                                              | 0                                                                                 | 1805                                                                              | 3433                                                                              | 0                                                                                 | 1805                                                                                | 3549                                                                                | 0                                                                                   | 1805                                                                                | 3555                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 1.9                                                                               | 10.6                                                                              | 0.0                                                                               | 8.6                                                                               | 22.4                                                                              | 0.0                                                                               | 8.0                                                                                 | 28.7                                                                                | 0.0                                                                                 | 7.3                                                                                 | 21.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 15.1                                                                              | 0.0                                                                               | 13.1                                                                              | 26.9                                                                              | 0.0                                                                               | 12.5                                                                                | 33.2                                                                                | 0.0                                                                                 | 11.8                                                                                | 26.0                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1719                                                                              |                                                                                   | 120                                                                               | 1717                                                                              |                                                                                   | 120                                                                                 | 1774                                                                                |                                                                                     | 120                                                                                 | 1777                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 27.9                                                                              | 10.6                                                                              |                                                                                   | 128.6                                                                             | 22.4                                                                              |                                                                                   | 120.7                                                                               | 28.7                                                                                |                                                                                     | 109.7                                                                               | 21.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 27.9                                                                              |                                                                                   |                                                                                   | 128.6                                                                             |                                                                                   |                                                                                     | 120.7                                                                               |                                                                                     |                                                                                     | 109.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 32.4                                                                              |                                                                                   |                                                                                   | 133.1                                                                             |                                                                                   |                                                                                     | 125.2                                                                               |                                                                                     |                                                                                     | 114.2                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 1.9                                                                               | 10.6                                                                              |                                                                                   | 8.6                                                                               | 22.4                                                                              |                                                                                   | 8.0                                                                                 | 28.7                                                                                |                                                                                     | 7.3                                                                                 | 21.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 1.9                                                                               | 7.1                                                                               |                                                                                   | 8.6                                                                               | 14.8                                                                              |                                                                                   | 8.0                                                                                 | 25.1                                                                                |                                                                                     | 7.3                                                                                 | 19.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 10.6                                                                              | 10.6                                                                              |                                                                                   | 22.4                                                                              | 22.4                                                                              |                                                                                   | 28.7                                                                                | 28.7                                                                                |                                                                                     | 21.5                                                                                | 21.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 15.1                                                                              | 15.1                                                                              |                                                                                   | 26.9                                                                              | 26.9                                                                              |                                                                                   | 33.2                                                                                | 33.2                                                                                |                                                                                     | 26.0                                                                                | 26.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 36.4                                                                              |                                                                                   | 45.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 133.1                                                                             |                                                                                   | 125.2                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 42.1                                                                              |                                                                                   | 59.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 36.4                                                                              |                                                                                   | 45.1                                                                              |                                                                                   | 81.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 67.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

09/17/2019



| Movement                   | EBL   | EBT  | EBR   | WBL   | WBT      | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|----------------------------|-------|------|-------|-------|----------|------|-------|-------|------|-------|-------|------|
| Lane Configurations        | ↰     | ↑↑↑  | ↱     | ↰     | ↑↑↑      |      | ↰     | ↑↱    |      | ↰     | ↑↑    | ↱    |
| Volume (vph)               | 95    | 1211 | 86    | 120   | 1214     | 155  | 159   | 702   | 280  | 175   | 482   | 101  |
| Pedestrians                |       |      |       |       |          |      |       |       |      |       |       |      |
| Ped Button                 |       |      |       |       |          |      |       |       |      |       |       |      |
| Pedestrian Timing (s)      |       |      |       |       |          |      |       |       |      |       |       |      |
| Free Right                 | No    |      |       | No    |          |      | No    |       |      | No    |       |      |
| Ideal Flow                 | 1900  | 1900 | 1900  | 1900  | 1900     | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Lost Time (s)              | 4.5   | 4.5  | 4.5   | 4.5   | 4.5      | 4.0  | 4.5   | 4.5   | 4.0  | 4.5   | 4.5   | 4.5  |
| Minimum Green (s)          | 5.0   | 5.0  | 5.0   | 5.0   | 5.0      | 4.0  | 5.0   | 5.0   | 4.0  | 5.0   | 5.0   | 5.0  |
| Refr Cycle Length (s)      | 120   | 120  | 120   | 120   | 120      | 120  | 120   | 120   | 120  | 120   | 120   | 120  |
| Volume Combined (vph)      | 95    | 1211 | 86    | 120   | 1369     | 0    | 159   | 982   | 0    | 175   | 482   | 101  |
| Lane Utilization Factor    | 1.00  | 0.91 | 1.00  | 1.00  | 0.91     | 1.00 | 1.00  | 0.95  | 1.00 | 1.00  | 0.95  | 1.00 |
| Turning Factor (vph)       | 0.95  | 1.00 | 0.85  | 0.95  | 0.98     | 0.85 | 0.95  | 0.96  | 0.85 | 0.95  | 1.00  | 0.85 |
| Saturated Flow (vph)       | 1805  | 5176 | 1615  | 1805  | 5088     | 0    | 1805  | 3463  | 0    | 1805  | 3618  | 1615 |
| Ped Intf Time (s)          | 0.0   | 0.0  | 0.0   | 0.0   | 0.0      | 0.0  | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   | 0.0  |
| Pedestrian Frequency (%)   | 0.00  |      | 0.00  |       |          | 0.00 |       |       | 0.00 |       |       |      |
| Protected Option Allowed   | Yes   |      |       | Yes   |          |      | Yes   |       |      | Yes   |       |      |
| Reference Time (s)         | 6.3   | 28.1 | 6.4   | 8.0   | 32.3     | 0.0  | 10.6  | 34.0  | 0.0  | 11.6  | 16.0  | 7.5  |
| Adj Reference Time (s)     | 10.8  | 32.6 | 10.9  | 12.5  | 36.8     | 0.0  | 15.1  | 38.5  | 0.0  | 16.1  | 20.5  | 12.0 |
| Permitted Option           |       |      |       |       |          |      |       |       |      |       |       |      |
| Adj Saturation A (vph)     | 120   | 1725 |       | 120   | 1696     |      | 120   | 1731  |      | 120   | 1809  |      |
| Reference Time A (s)       | 94.7  | 28.1 |       | 119.7 | 32.3     |      | 158.6 | 34.0  |      | 174.5 | 16.0  |      |
| Adj Saturation B (vph)     | NA    | NA   |       | NA    | NA       |      | NA    | NA    |      | NA    | NA    |      |
| Reference Time B (s)       | NA    | NA   |       | NA    | NA       |      | NA    | NA    |      | NA    | NA    |      |
| Reference Time (s)         |       | 94.7 |       |       | 119.7    |      |       | 158.6 |      |       | 174.5 |      |
| Adj Reference Time (s)     |       | 99.2 |       |       | 124.2    |      |       | 163.1 |      |       | 179.0 |      |
| Split Option               |       |      |       |       |          |      |       |       |      |       |       |      |
| Ref Time Combined (s)      | 6.3   | 28.1 |       | 8.0   | 32.3     |      | 10.6  | 34.0  |      | 11.6  | 16.0  |      |
| Ref Time Seperate (s)      | 6.3   | 28.1 |       | 8.0   | 28.6     |      | 10.6  | 24.3  |      | 11.6  | 16.0  |      |
| Reference Time (s)         | 28.1  | 28.1 |       | 32.3  | 32.3     |      | 34.0  | 34.0  |      | 16.0  | 16.0  |      |
| Adj Reference Time (s)     | 32.6  | 32.6 |       | 36.8  | 36.8     |      | 38.5  | 38.5  |      | 20.5  | 20.5  |      |
| Summary                    | EB WB |      | NB SB |       | Combined |      |       |       |      |       |       |      |
| Protected Option (s)       | 47.6  |      | 54.7  |       |          |      |       |       |      |       |       |      |
| Permitted Option (s)       | 124.2 |      | 179.0 |       |          |      |       |       |      |       |       |      |
| Split Option (s)           | 69.4  |      | 59.0  |       |          |      |       |       |      |       |       |      |
| Minimum (s)                | 47.6  |      | 54.7  |       | 102.3    |      |       |       |      |       |       |      |
| Right Turns                | EBR   |      | SBR   |       |          |      |       |       |      |       |       |      |
| Adj Reference Time (s)     | 10.9  |      | 12.0  |       |          |      |       |       |      |       |       |      |
| Cross Thru Ref Time (s)    | 20.5  |      | 36.8  |       |          |      |       |       |      |       |       |      |
| Oncoming Left Ref Time (s) | 12.5  |      | 15.1  |       |          |      |       |       |      |       |       |      |
| Combined (s)               | 43.9  |      | 63.9  |       |          |      |       |       |      |       |       |      |

### Intersection Summary

Intersection Capacity Utilization 85.2% ICU Level of Service E  
Reference Times and Phasing Options do not represent an optimized timing plan.

# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 157                                                                               | 1407                                                                              | 97                                                                                | 100                                                                               | 779                                                                               | 124                                                                               | 120                                                                                | 692                                                                                 | 168                                                                                 | 112                                                                                 | 494                                                                                 | 128                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 157                                                                               | 1504                                                                              | 0                                                                                 | 100                                                                               | 903                                                                               | 0                                                                                 | 120                                                                                | 860                                                                                 | 0                                                                                   | 112                                                                                 | 494                                                                                 | 128                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                               | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                               | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5126                                                                              | 0                                                                                 | 1805                                                                              | 5069                                                                              | 0                                                                                 | 1805                                                                               | 3512                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                    |                                                                                     | 0.00                                                                                |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                    |                                                                                     | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 10.4                                                                              | 35.2                                                                              | 0.0                                                                               | 6.6                                                                               | 21.4                                                                              | 0.0                                                                               | 8.0                                                                                | 29.4                                                                                | 0.0                                                                                 | 7.4                                                                                 | 16.4                                                                                | 9.5                                                                                 |
| Adj Reference Time (s)                                                         | 14.4                                                                              | 39.2                                                                              | 0.0                                                                               | 10.6                                                                              | 25.4                                                                              | 0.0                                                                               | 12.0                                                                               | 33.4                                                                                | 0.0                                                                                 | 11.4                                                                                | 20.4                                                                                | 13.5                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1709                                                                              |                                                                                   | 120                                                                               | 1690                                                                              |                                                                                   | 120                                                                                | 1756                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 156.6                                                                             | 35.2                                                                              |                                                                                   | 99.7                                                                              | 21.4                                                                              |                                                                                   | 119.7                                                                              | 29.4                                                                                |                                                                                     | 111.7                                                                               | 16.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                 | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                 | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 156.6                                                                             |                                                                                   |                                                                                   | 99.7                                                                              |                                                                                   |                                                                                    | 119.7                                                                               |                                                                                     |                                                                                     | 111.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 160.6                                                                             |                                                                                   |                                                                                   | 103.7                                                                             |                                                                                   |                                                                                    | 123.7                                                                               |                                                                                     |                                                                                     | 115.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 10.4                                                                              | 35.2                                                                              |                                                                                   | 6.6                                                                               | 21.4                                                                              |                                                                                   | 8.0                                                                                | 29.4                                                                                |                                                                                     | 7.4                                                                                 | 16.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 10.4                                                                              | 32.9                                                                              |                                                                                   | 6.6                                                                               | 18.4                                                                              |                                                                                   | 8.0                                                                                | 23.6                                                                                |                                                                                     | 7.4                                                                                 | 16.4                                                                                |                                                                                     |
| Reference Time (s)                                                             | 35.2                                                                              | 35.2                                                                              |                                                                                   | 21.4                                                                              | 21.4                                                                              |                                                                                   | 29.4                                                                               | 29.4                                                                                |                                                                                     | 16.4                                                                                | 16.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 39.2                                                                              | 39.2                                                                              |                                                                                   | 25.4                                                                              | 25.4                                                                              |                                                                                   | 33.4                                                                               | 33.4                                                                                |                                                                                     | 20.4                                                                                | 20.4                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 49.9                                                                              |                                                                                   | 44.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 160.6                                                                             |                                                                                   | 123.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 64.6                                                                              |                                                                                   | 53.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 49.9                                                                              |                                                                                   | 44.8                                                                              |                                                                                   | 94.7                                                                              |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 13.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 25.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 12.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 50.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 78.9%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

09/17/2019



| Movement                   | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations        |  |  |  |  |  |      |
| Volume (vph)               | 19                                                                                | 309                                                                               | 380                                                                               | 912                                                                               | 646                                                                               | 17   |
| Pedestrians                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ped Button                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Pedestrian Timing (s)      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Free Right                 | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |      |
| Ideal Flow                 | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900 |
| Lost Time (s)              | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Minimum Green (s)          | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Refr Cycle Length (s)      | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120  |
| Volume Combined (vph)      | 19                                                                                | 309                                                                               | 380                                                                               | 912                                                                               | 663                                                                               | 0    |
| Lane Utilization Factor    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              | 1.00 |
| Turning Factor (vph)       | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85 |
| Saturated Flow (vph)       | 1805                                                                              | 1615                                                                              | 1805                                                                              | 3618                                                                              | 3604                                                                              | 0    |
| Ped Intf Time (s)          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  |
| Pedestrian Frequency (%)   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              | 0.00                                                                              |      |
| Protected Option Allowed   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                               | Yes                                                                               |      |
| Reference Time (s)         |                                                                                   | 23.0                                                                              | 25.3                                                                              | 30.3                                                                              | 22.1                                                                              | 0.0  |
| Adj Reference Time (s)     |                                                                                   | 27.0                                                                              | 29.3                                                                              | 34.3                                                                              | 26.1                                                                              | 0.0  |
| Permitted Option           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Saturation A (vph)     | 120                                                                               |                                                                                   | 120                                                                               | 1809                                                                              | 1802                                                                              |      |
| Reference Time A (s)       | 18.9                                                                              |                                                                                   | 378.9                                                                             | 30.3                                                                              | 22.1                                                                              |      |
| Adj Saturation B (vph)     | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                | NA                                                                                |      |
| Reference Time B (s)       | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                | NA                                                                                |      |
| Reference Time (s)         |                                                                                   |                                                                                   |                                                                                   | 378.9                                                                             | 22.1                                                                              |      |
| Adj Reference Time (s)     |                                                                                   |                                                                                   |                                                                                   | 382.9                                                                             | 26.1                                                                              |      |
| Split Option               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ref Time Combined (s)      | 1.3                                                                               |                                                                                   | 25.3                                                                              | 30.3                                                                              | 22.1                                                                              |      |
| Ref Time Seperate (s)      | 1.3                                                                               |                                                                                   | 25.3                                                                              | 30.3                                                                              | 21.5                                                                              |      |
| Reference Time (s)         | 1.3                                                                               |                                                                                   | 30.3                                                                              | 30.3                                                                              | 22.1                                                                              |      |
| Adj Reference Time (s)     | 8.0                                                                               |                                                                                   | 34.3                                                                              | 34.3                                                                              | 26.1                                                                              |      |
| Summary                    | EB                                                                                |                                                                                   | NB SB                                                                             | Combined                                                                          |                                                                                   |      |
| Protected Option (s)       | NA                                                                                |                                                                                   | 55.3                                                                              |                                                                                   |                                                                                   |      |
| Permitted Option (s)       | Err                                                                               |                                                                                   | 382.9                                                                             |                                                                                   |                                                                                   |      |
| Split Option (s)           | 8.0                                                                               |                                                                                   | 60.3                                                                              |                                                                                   |                                                                                   |      |
| Minimum (s)                | 8.0                                                                               |                                                                                   | 55.3                                                                              | 63.3                                                                              |                                                                                   |      |
| Right Turns                | EBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Reference Time (s)     | 27.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Cross Thru Ref Time (s)    | 26.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Oncoming Left Ref Time (s) | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Combined (s)               | 53.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |

### Intersection Summary

Intersection Capacity Utilization 52.8% ICU Level of Service  
Reference Times and Phasing Options do not represent an optimized timing plan.

A

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 75                                                                                | 439                                                                               | 93                                                                                | 77                                                                                | 478                                                                               | 248                                                                               | 127                                                                                 | 940                                                                                 | 74                                                                                  | 171                                                                                 | 704                                                                                 | 94                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 75                                                                                | 532                                                                               | 0                                                                                 | 77                                                                                | 478                                                                               | 248                                                                               | 127                                                                                 | 1014                                                                                | 0                                                                                   | 171                                                                                 | 798                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1850                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3578                                                                                | 0                                                                                   | 1805                                                                                | 3554                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 5.0                                                                               | 34.5                                                                              | 0.0                                                                               | 5.1                                                                               | 30.2                                                                              | 18.4                                                                              | 8.4                                                                                 | 34.0                                                                                | 0.0                                                                                 | 11.4                                                                                | 26.9                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 38.5                                                                              | 0.0                                                                               | 9.1                                                                               | 34.2                                                                              | 22.4                                                                              | 12.4                                                                                | 38.0                                                                                | 0.0                                                                                 | 15.4                                                                                | 30.9                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1850                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1789                                                                                |                                                                                     | 120                                                                                 | 1777                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 74.8                                                                              | 34.5                                                                              |                                                                                   | 76.8                                                                              | 30.2                                                                              |                                                                                   | 126.6                                                                               | 34.0                                                                                |                                                                                     | 170.5                                                                               | 26.9                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 74.8                                                                              |                                                                                   |                                                                                   | 76.8                                                                              |                                                                                   |                                                                                     | 126.6                                                                               |                                                                                     |                                                                                     | 170.5                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 78.8                                                                              |                                                                                   |                                                                                   | 80.8                                                                              |                                                                                   |                                                                                     | 130.6                                                                               |                                                                                     |                                                                                     | 174.5                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 5.0                                                                               | 34.5                                                                              |                                                                                   | 5.1                                                                               | 30.2                                                                              |                                                                                   | 8.4                                                                                 | 34.0                                                                                |                                                                                     | 11.4                                                                                | 26.9                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 5.0                                                                               | 28.5                                                                              |                                                                                   | 5.1                                                                               | 30.2                                                                              |                                                                                   | 8.4                                                                                 | 31.5                                                                                |                                                                                     | 11.4                                                                                | 23.8                                                                                |                                                                                     |
| Reference Time (s)                                                             | 34.5                                                                              | 34.5                                                                              |                                                                                   | 30.2                                                                              | 30.2                                                                              |                                                                                   | 34.0                                                                                | 34.0                                                                                |                                                                                     | 26.9                                                                                | 26.9                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 38.5                                                                              | 38.5                                                                              |                                                                                   | 34.2                                                                              | 34.2                                                                              |                                                                                   | 38.0                                                                                | 38.0                                                                                |                                                                                     | 30.9                                                                                | 30.9                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 47.6                                                                              |                                                                                   | 53.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 80.8                                                                              |                                                                                   | 174.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 72.7                                                                              |                                                                                   | 69.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 47.6                                                                              |                                                                                   | 53.4                                                                              |                                                                                   | 101.0                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 22.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 38.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 69.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 84.2%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |  |
| Volume (vph)                                                                   | 156                                                                               | 1166                                                                                                                                                                                                                                                  | 110                                                                               | 49                                                                                | 755                                                                                                                                                                                                                                                   | 71                                                                                | 74                                                                                  | 785                                                                                                                                                                     | 76                                                                                  | 112                                                                                 | 713                                                                                                                                                                     | 231                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 156                                                                               | 1166                                                                                                                                                                                                                                                  | 110                                                                               | 49                                                                                | 755                                                                                                                                                                                                                                                   | 71                                                                                | 74                                                                                  | 861                                                                                                                                                                     | 0                                                                                   | 112                                                                                 | 944                                                                                                                                                                     | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3570                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3485                                                                                                                                                                    | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                   |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                     |                                                                                                                                                                         | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 10.4                                                                              | 27.0                                                                                                                                                                                                                                                  | 8.2                                                                               | 3.3                                                                               | 17.5                                                                                                                                                                                                                                                  | 5.3                                                                               | 4.9                                                                                 | 28.9                                                                                                                                                                    | 0.0                                                                                 | 7.4                                                                                 | 32.5                                                                                                                                                                    | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 14.4                                                                              | 31.0                                                                                                                                                                                                                                                  | 12.2                                                                              | 9.0                                                                               | 21.5                                                                                                                                                                                                                                                  | 9.3                                                                               | 9.0                                                                                 | 32.9                                                                                                                                                                    | 0.0                                                                                 | 11.4                                                                                | 36.5                                                                                                                                                                    | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1785                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1742                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 155.6                                                                             | 27.0                                                                                                                                                                                                                                                  |                                                                                   | 48.9                                                                              | 17.5                                                                                                                                                                                                                                                  |                                                                                   | 73.8                                                                                | 28.9                                                                                                                                                                    |                                                                                     | 111.7                                                                               | 32.5                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 155.6                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 48.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 73.8                                                                                                                                                                    |                                                                                     |                                                                                     | 111.7                                                                                                                                                                   |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 159.6                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 52.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 77.8                                                                                                                                                                    |                                                                                     |                                                                                     | 115.7                                                                                                                                                                   |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 10.4                                                                              | 27.0                                                                                                                                                                                                                                                  |                                                                                   | 3.3                                                                               | 17.5                                                                                                                                                                                                                                                  |                                                                                   | 4.9                                                                                 | 28.9                                                                                                                                                                    |                                                                                     | 7.4                                                                                 | 32.5                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 10.4                                                                              | 27.0                                                                                                                                                                                                                                                  |                                                                                   | 3.3                                                                               | 17.5                                                                                                                                                                                                                                                  |                                                                                   | 4.9                                                                                 | 26.4                                                                                                                                                                    |                                                                                     | 7.4                                                                                 | 24.6                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 27.0                                                                              | 27.0                                                                                                                                                                                                                                                  |                                                                                   | 17.5                                                                              | 17.5                                                                                                                                                                                                                                                  |                                                                                   | 28.9                                                                                | 28.9                                                                                                                                                                    |                                                                                     | 32.5                                                                                | 32.5                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 31.0                                                                              | 31.0                                                                                                                                                                                                                                                  |                                                                                   | 21.5                                                                              | 21.5                                                                                                                                                                                                                                                  |                                                                                   | 32.9                                                                                | 32.9                                                                                                                                                                    |                                                                                     | 36.5                                                                                | 36.5                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 40.0                                                                              |                                                                                                                                                                                                                                                       | 45.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 159.6                                                                             |                                                                                                                                                                                                                                                       | 115.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 52.5                                                                              |                                                                                                                                                                                                                                                       | 69.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 40.0                                                                              |                                                                                                                                                                                                                                                       | 45.5                                                                              |                                                                                   | 85.5                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | EBR                                                                               | WBR                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 12.2                                                                              | 9.3                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 36.5                                                                              | 32.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               | 14.4                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 57.7                                                                              | 56.6                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   | 71.3%                                                                                                                                                                                                                                                 |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       | C                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Volume (vph)                                                                   | 96                                                                                | 1539                                                                              | 74                                                                                | 39                                                                                | 808                                                                               | 94                                                                                | 125                                                                                 | 314                                                                                 | 148                                                                                 | 109                                                                                 | 241                                                                                 | 75                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 96                                                                                | 1613                                                                              | 0                                                                                 | 39                                                                                | 902                                                                               | 0                                                                                 | 125                                                                                 | 314                                                                                 | 148                                                                                 | 109                                                                                 | 241                                                                                 | 75                                                                                  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5140                                                                              | 0                                                                                 | 1805                                                                              | 5095                                                                              | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 6.4                                                                               | 37.7                                                                              | 0.0                                                                               | 2.6                                                                               | 21.2                                                                              | 0.0                                                                               | 8.3                                                                                 | 19.8                                                                                | 11.0                                                                                | 7.2                                                                                 | 15.2                                                                                | 5.6                                                                                 |
| Adj Reference Time (s)                                                         | 10.4                                                                              | 41.7                                                                              | 0.0                                                                               | 9.0                                                                               | 25.2                                                                              | 0.0                                                                               | 12.3                                                                                | 23.8                                                                                | 15.0                                                                                | 11.2                                                                                | 19.2                                                                                | 9.6                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1713                                                                              |                                                                                   | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 95.7                                                                              | 37.7                                                                              |                                                                                   | 38.9                                                                              | 21.2                                                                              |                                                                                   | 124.7                                                                               | 19.8                                                                                |                                                                                     | 108.7                                                                               | 15.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 95.7                                                                              |                                                                                   |                                                                                   | 38.9                                                                              |                                                                                   |                                                                                     | 124.7                                                                               |                                                                                     |                                                                                     | 108.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 99.7                                                                              |                                                                                   |                                                                                   | 42.9                                                                              |                                                                                   |                                                                                     | 128.7                                                                               |                                                                                     |                                                                                     | 112.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.4                                                                               | 37.7                                                                              |                                                                                   | 2.6                                                                               | 21.2                                                                              |                                                                                   | 8.3                                                                                 | 19.8                                                                                |                                                                                     | 7.2                                                                                 | 15.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.4                                                                               | 35.9                                                                              |                                                                                   | 2.6                                                                               | 19.0                                                                              |                                                                                   | 8.3                                                                                 | 19.8                                                                                |                                                                                     | 7.2                                                                                 | 15.2                                                                                |                                                                                     |
| Reference Time (s)                                                             | 37.7                                                                              | 37.7                                                                              |                                                                                   | 21.2                                                                              | 21.2                                                                              |                                                                                   | 19.8                                                                                | 19.8                                                                                |                                                                                     | 15.2                                                                                | 15.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 41.7                                                                              | 41.7                                                                              |                                                                                   | 25.2                                                                              | 25.2                                                                              |                                                                                   | 23.8                                                                                | 23.8                                                                                |                                                                                     | 19.2                                                                                | 19.2                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 50.7                                                                              |                                                                                   | 35.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 99.7                                                                              |                                                                                   | 128.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 66.9                                                                              |                                                                                   | 43.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 50.7                                                                              |                                                                                   | 35.1                                                                              |                                                                                   | 85.7                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | NBR                                                                               |                                                                                   | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 15.0                                                                              |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 41.7                                                                              |                                                                                   | 25.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 11.2                                                                              |                                                                                   | 12.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 67.9                                                                              |                                                                                   | 47.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 71.4%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |      |      |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |      |      |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |      |      |
| Volume (vph)                                                                   | 17                                                                                | 5                                                                                 | 13                                                                                | 14                                                                                | 5                                                                                 | 74                                                                                | 8                                                                                   | 455                                                                                 | 25                                                                                  | 84                                                                                  | 370                                                                                 | 10                                                                                  |      |      |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |      |      |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |      |      |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |      |      |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |      |      |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |      |      |
| Volume Combined (vph)                                                          | 0                                                                                 | 35                                                                                | 0                                                                                 | 0                                                                                 | 93                                                                                | 0                                                                                 | 8                                                                                   | 480                                                                                 | 0                                                                                   | 84                                                                                  | 380                                                                                 | 0                                                                                   |      |      |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |      |      |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.87                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |      |      |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1751                                                                              | 0                                                                                 | 0                                                                                 | 1661                                                                              | 0                                                                                 | 1805                                                                                | 1885                                                                                | 0                                                                                   | 1805                                                                                | 1893                                                                                | 0                                                                                   |      |      |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |      |      |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |      |      |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |      |      |
| Reference Time (s)                                                             |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 0.0                                                                                 | 0.5                                                                                 | 30.6                                                                                | 0.0                                                                                 | 5.6                                                                                 | 24.1                                                                                | 0.0  |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 0.0                                                                                 | 9.0                                                                                 | 34.6                                                                                | 0.0                                                                                 | 9.6                                                                                 | 28.1                                                                                | 0.0  |      |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 700                                                                               |                                                                                   |                                                                                   | 0                                                                                 | 1619                                                                              |                                                                                     |                                                                                     | 120                                                                                 | 1885                                                                                |                                                                                     |                                                                                     | 120  | 1893 |
| Reference Time A (s)                                                           | 0.0                                                                               | 6.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 6.9                                                                               |                                                                                     |                                                                                     | 8.0                                                                                 | 30.6                                                                                |                                                                                     |                                                                                     | 83.8 | 24.1 |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                     |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |                                                                                     | NA   | NA   |
| Reference Time B (s)                                                           | 9.1                                                                               | 10.4                                                                              |                                                                                   |                                                                                   | 8.9                                                                               | 14.7                                                                              |                                                                                     |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |                                                                                     | NA   | NA   |
| Reference Time (s)                                                             | 6.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 6.9                                                                               |                                                                                   |                                                                                     |                                                                                     | 30.6                                                                                |                                                                                     |                                                                                     |                                                                                     | 83.8 |      |
| Adj Reference Time (s)                                                         | 10.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 10.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 34.6                                                                                |                                                                                     |                                                                                     |                                                                                     | 87.8 |      |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 2.4                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 6.7                                                                               |                                                                                     |                                                                                     | 0.5                                                                                 | 30.6                                                                                |                                                                                     |                                                                                     | 5.6  | 24.1 |
| Ref Time Seperate (s)                                                          | 1.1                                                                               | 0.4                                                                               |                                                                                   |                                                                                   | 0.9                                                                               | 0.4                                                                               |                                                                                     |                                                                                     | 0.5                                                                                 | 29.0                                                                                |                                                                                     |                                                                                     | 5.6  | 23.5 |
| Reference Time (s)                                                             | 2.4                                                                               | 2.4                                                                               |                                                                                   |                                                                                   | 6.7                                                                               | 6.7                                                                               |                                                                                     |                                                                                     | 30.6                                                                                | 30.6                                                                                |                                                                                     |                                                                                     | 24.1 | 24.1 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   |                                                                                   | 10.7                                                                              | 10.7                                                                              |                                                                                     |                                                                                     | 34.6                                                                                | 34.6                                                                                |                                                                                     |                                                                                     | 28.1 | 28.1 |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 44.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Permitted Option (s)                                                           | 10.9                                                                              |                                                                                   | 87.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Split Option (s)                                                               | 19.7                                                                              |                                                                                   | 62.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Minimum (s)                                                                    | 10.9                                                                              |                                                                                   | 44.1                                                                              |                                                                                   | 55.0                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Intersection Capacity Utilization                                              | 45.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

09/17/2019



| Movement                                                                       | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations                                                            |  |      |  |      |  |  |
| Volume (vph)                                                                   | 4                                                                                 | 18   | 479                                                                               | 28   | 16                                                                                | 398                                                                               |
| Pedestrians                                                                    |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Ped Button                                                                     |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Pedestrian Timing (s)                                                          |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Free Right                                                                     | No                                                                                |      | No                                                                                |      |                                                                                   |                                                                                   |
| Ideal Flow                                                                     | 1900                                                                              | 1900 | 1900                                                                              | 1900 | 1900                                                                              | 1900                                                                              |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0                                                                               |
| Minimum Green (s)                                                              | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0                                                                               |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120  | 120                                                                               | 120  | 120                                                                               | 120                                                                               |
| Volume Combined (vph)                                                          | 22                                                                                | 0    | 507                                                                               | 0    | 16                                                                                | 398                                                                               |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              |
| Turning Factor (vph)                                                           | 0.87                                                                              | 0.85 | 0.99                                                                              | 0.85 | 0.95                                                                              | 1.00                                                                              |
| Saturated Flow (vph)                                                           | 1652                                                                              | 0    | 1884                                                                              | 0    | 1805                                                                              | 1900                                                                              |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |      | 0.00                                                                              |      |                                                                                   | 0.00                                                                              |
| Protected Option Allowed                                                       | No                                                                                |      | Yes                                                                               |      |                                                                                   | Yes                                                                               |
| Reference Time (s)                                                             |                                                                                   | 0.0  | 32.3                                                                              | 0.0  | 1.1                                                                               | 25.1                                                                              |
| Adj Reference Time (s)                                                         |                                                                                   | 0.0  | 36.3                                                                              | 0.0  | 8.0                                                                               | 29.1                                                                              |
| Permitted Option                                                               |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Adj Saturation A (vph)                                                         | 110                                                                               |      | 1884                                                                              |      | 120                                                                               | 1900                                                                              |
| Reference Time A (s)                                                           | 24.0                                                                              |      | 32.3                                                                              |      | 16.0                                                                              | 25.1                                                                              |
| Adj Saturation B (vph)                                                         | NA                                                                                |      | NA                                                                                |      | NA                                                                                | NA                                                                                |
| Reference Time B (s)                                                           | NA                                                                                |      | NA                                                                                |      | NA                                                                                | NA                                                                                |
| Reference Time (s)                                                             |                                                                                   |      | 32.3                                                                              |      |                                                                                   | 25.1                                                                              |
| Adj Reference Time (s)                                                         |                                                                                   |      | 36.3                                                                              |      |                                                                                   | 29.1                                                                              |
| Split Option                                                                   |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Ref Time Combined (s)                                                          | 1.6                                                                               |      | 32.3                                                                              |      | 1.1                                                                               | 25.1                                                                              |
| Ref Time Seperate (s)                                                          | 0.3                                                                               |      | 30.5                                                                              |      | 1.1                                                                               | 25.1                                                                              |
| Reference Time (s)                                                             | 1.6                                                                               |      | 32.3                                                                              |      | 25.1                                                                              | 25.1                                                                              |
| Adj Reference Time (s)                                                         | 8.0                                                                               |      | 36.3                                                                              |      | 29.1                                                                              | 29.1                                                                              |
| Summary                                                                        | WB                                                                                |      | NB SB                                                                             |      | Combined                                                                          |                                                                                   |
| Protected Option (s)                                                           | NA                                                                                |      | 44.3                                                                              |      |                                                                                   |                                                                                   |
| Permitted Option (s)                                                           | Err                                                                               |      | 36.3                                                                              |      |                                                                                   |                                                                                   |
| Split Option (s)                                                               | 8.0                                                                               |      | 65.4                                                                              |      |                                                                                   |                                                                                   |
| Minimum (s)                                                                    | 8.0                                                                               |      | 36.3                                                                              |      | 44.3                                                                              |                                                                                   |
| Right Turns                                                                    |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Adj Reference Time (s)                                                         |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Cross Thru Ref Time (s)                                                        |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Combined (s)                                                                   |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Intersection Summary                                                           |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Intersection Capacity Utilization                                              | 36.9%                                                                             |      | ICU Level of Service                                                              |      | A                                                                                 |                                                                                   |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 95                                                                                | 421                                                                               | 218                                                                               | 30                                                                                | 457                                                                               | 108                                                                               | 247                                                                                 | 310                                                                                 | 20                                                                                  | 74                                                                                  | 265                                                                                 | 77                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 95                                                                                | 639                                                                               | 0                                                                                 | 30                                                                                | 565                                                                               | 0                                                                                 | 247                                                                                 | 330                                                                                 | 0                                                                                   | 74                                                                                  | 342                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1803                                                                              | 0                                                                                 | 1805                                                                              | 1846                                                                              | 0                                                                                 | 1805                                                                                | 1883                                                                                | 0                                                                                   | 1805                                                                                | 1836                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.3                                                                               | 42.5                                                                              | 0.0                                                                               | 2.0                                                                               | 36.7                                                                              | 0.0                                                                               | 16.4                                                                                | 21.0                                                                                | 0.0                                                                                 | 4.9                                                                                 | 22.4                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 10.3                                                                              | 46.5                                                                              | 0.0                                                                               | 9.0                                                                               | 40.7                                                                              | 0.0                                                                               | 20.4                                                                                | 25.0                                                                                | 0.0                                                                                 | 9.0                                                                                 | 26.4                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1803                                                                              |                                                                                   | 120                                                                               | 1846                                                                              |                                                                                   | 120                                                                                 | 1883                                                                                |                                                                                     | 120                                                                                 | 1836                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 94.7                                                                              | 42.5                                                                              |                                                                                   | 29.9                                                                              | 36.7                                                                              |                                                                                   | 246.3                                                                               | 21.0                                                                                |                                                                                     | 73.8                                                                                | 22.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 94.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 36.7                                                                              |                                                                                   |                                                                                     |                                                                                     | 246.3                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 98.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 40.7                                                                              |                                                                                   |                                                                                     |                                                                                     | 250.3                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.3                                                                               | 42.5                                                                              |                                                                                   | 2.0                                                                               | 36.7                                                                              |                                                                                   | 16.4                                                                                | 21.0                                                                                |                                                                                     | 4.9                                                                                 | 22.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.3                                                                               | 28.0                                                                              |                                                                                   | 2.0                                                                               | 29.7                                                                              |                                                                                   | 16.4                                                                                | 19.8                                                                                |                                                                                     | 4.9                                                                                 | 17.3                                                                                |                                                                                     |
| Reference Time (s)                                                             | 42.5                                                                              | 42.5                                                                              |                                                                                   | 36.7                                                                              | 36.7                                                                              |                                                                                   | 21.0                                                                                | 21.0                                                                                |                                                                                     | 22.4                                                                                | 22.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 46.5                                                                              | 46.5                                                                              |                                                                                   | 40.7                                                                              | 40.7                                                                              |                                                                                   | 25.0                                                                                | 25.0                                                                                |                                                                                     | 26.4                                                                                | 26.4                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 55.5                                                                              |                                                                                   | 46.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 98.7                                                                              |                                                                                   | 250.3                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 87.3                                                                              |                                                                                   | 51.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 55.5                                                                              |                                                                                   | 46.8                                                                              |                                                                                   | 102.3                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 85.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 67                                                                                | 1133                                                                              | 135                                                                               | 33                                                                                | 696                                                                               | 41                                                                                | 125                                                                                 | 427                                                                                 | 37                                                                                  | 57                                                                                  | 376                                                                                 | 72                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 67                                                                                | 1268                                                                              | 0                                                                                 | 33                                                                                | 737                                                                               | 0                                                                                 | 125                                                                                 | 464                                                                                 | 0                                                                                   | 57                                                                                  | 448                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5093                                                                              | 0                                                                                 | 1805                                                                              | 5132                                                                              | 0                                                                                 | 1805                                                                                | 3574                                                                                | 0                                                                                   | 1805                                                                                | 3530                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 4.5                                                                               | 29.9                                                                              | 0.0                                                                               | 2.2                                                                               | 17.2                                                                              | 0.0                                                                               | 8.3                                                                                 | 15.6                                                                                | 0.0                                                                                 | 3.8                                                                                 | 15.2                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 33.9                                                                              | 0.0                                                                               | 9.0                                                                               | 21.2                                                                              | 0.0                                                                               | 12.3                                                                                | 19.6                                                                                | 0.0                                                                                 | 9.0                                                                                 | 19.2                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                               | 1711                                                                              |                                                                                   | 120                                                                                 | 1787                                                                                |                                                                                     | 120                                                                                 | 1765                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 66.8                                                                              | 29.9                                                                              |                                                                                   | 32.9                                                                              | 17.2                                                                              |                                                                                   | 124.7                                                                               | 15.6                                                                                |                                                                                     | 56.8                                                                                | 15.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 66.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 32.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 124.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 70.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 36.9                                                                              |                                                                                   |                                                                                     |                                                                                     | 128.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 4.5                                                                               | 29.9                                                                              |                                                                                   | 2.2                                                                               | 17.2                                                                              |                                                                                   | 8.3                                                                                 | 15.6                                                                                |                                                                                     | 3.8                                                                                 | 15.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 4.5                                                                               | 26.7                                                                              |                                                                                   | 2.2                                                                               | 16.3                                                                              |                                                                                   | 8.3                                                                                 | 14.3                                                                                |                                                                                     | 3.8                                                                                 | 12.8                                                                                |                                                                                     |
| Reference Time (s)                                                             | 29.9                                                                              | 29.9                                                                              |                                                                                   | 17.2                                                                              | 17.2                                                                              |                                                                                   | 15.6                                                                                | 15.6                                                                                |                                                                                     | 15.2                                                                                | 15.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 33.9                                                                              | 33.9                                                                              |                                                                                   | 21.2                                                                              | 21.2                                                                              |                                                                                   | 19.6                                                                                | 19.6                                                                                |                                                                                     | 19.2                                                                                | 19.2                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 42.9                                                                              |                                                                                   | 31.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 70.8                                                                              |                                                                                   | 128.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 55.1                                                                              |                                                                                   | 38.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 42.9                                                                              |                                                                                   | 31.5                                                                              |                                                                                   | 74.4                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 62.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

**Appendix E**  
Approved/Pending Projects

**TRIP GENERATION  
APPROVED/PENDING PROJECTS**

| No.          | Land Use                        | Address                                    | Land Use     | Size       | Daily        | AM Peak Hour |            |            | PM Peak Hour |            |            |
|--------------|---------------------------------|--------------------------------------------|--------------|------------|--------------|--------------|------------|------------|--------------|------------|------------|
|              |                                 |                                            |              |            |              | In           | Out        | Total      | In           | Out        | Total      |
| 1            | 8640 Sorensen Avenue            | 8940 Sorensen Avenue                       | Industrial   | 26,250 sf  | 157          | 13           | 4          | 17         | 4            | 11         | 15         |
| 2            | Air Liquide                     | 8832 Dice Road                             | Industrial   | 15,000 sf  | 115          | 8            | 3          | 11         | 3            | 7          | 10         |
| 3            | Ayala Industrial Investors, LLC | SW/C of Dice Road & Burke Street           | Industrial   | 62,441 sf  | 295          | 24           | 7          | 31         | 7            | 20         | 27         |
| 4            | Breitburn Operating L.P.        | 12405 Telegraph Road                       | Industrial   | 318,121 sf | 1,264        | 81           | 24         | 105        | 22           | 60         | 82         |
| 5            | FLP Santa Fe Springs, LLC       | SW/C of Greenleaf Avenue & Los Nietos Road | Industrial   | 131,708 sf | 557          | 42           | 13         | 55         | 12           | 33         | 45         |
| 6            | Golden State Storage            | 13020 Telegraph Road                       | Self-Storage | 56,426 sf  | 272          | 22           | 7          | 29         | 7            | 18         | 25         |
| 7            | JSF Management, LLC             | 11212 Norwalk Boulevard                    | Industrial   | 128,896 sf | 546          | 42           | 12         | 54         | 12           | 32         | 44         |
| 8            | OC Engineering                  | 8739 Dice Road                             | Industrial   | 30,902 sf  | 175          | 15           | 4          | 19         | 4            | 12         | 16         |
| 9            | Ore International Inc           | 13360 Mollette Street                      | Industrial   | 15,098 sf  | 115          | 8            | 3          | 11         | 3            | 7          | 10         |
| 10           | PPF Industrial, LLC             | 10075-10095 Romandel Avenue                | Industrial   | 57,901 sf  | 249          | 20           | 6          | 25         | 6            | 15         | 21         |
| 11           | PPF Industrial, LLC             | 12015-12085 Telegraph Road                 | Industrial   | 57,901 sf  | 249          | 20           | 6          | 25         | 6            | 15         | 21         |
| 12           | PPF Industrial, LLC             | SE/C of Telegraph Road & Bloomfield Avenue | Industrial   | 178,627 sf | 735          | 53           | 16         | 69         | 15           | 40         | 55         |
| 13           | PPF Industrial, LLC             | 10370 Slusher Drive                        | Industrial   | 25,132 sf  | 153          | 12           | 4          | 16         | 4            | 10         | 14         |
| 14           | Rexford Industrial              | 9615 Norwalk Boulevard                     | Industrial   | 200,150 sf | 817          | 58           | 17         | 75         | 16           | 44         | 60         |
| 15           | Romandel                        | 10051 Romandel Avenue                      | Industrial   | 167,366 sf | 692          | 50           | 15         | 65         | 14           | 39         | 53         |
| 16           | SE Pipeline                     | 11908 Bloomfield Avenue                    | Industrial   | 8,022 sf   | 88           | 5            | 2          | 7          | 2            | 4          | 6          |
| 17           | Sorensen XC, LLC                | 8201 Sorensen Avenue                       | Industrial   | 233,779 sf | 944          | 65           | 19         | 84         | 18           | 48         | 66         |
| 18           | UWS                             | 9010-9016 Norwalk Boulevard                | Industrial   | 20,000 sf  | 134          | 11           | 3          | 14         | 3            | 9          | 12         |
| 19           | Storm Properties                | SW/C of Carmenita Road and Lakeland Road   | Multi-Family | 128 du     | 696          | 12           | 34         | 46         | 34           | 22         | 56         |
| <b>TOTAL</b> |                                 |                                            |              |            | <b>9,196</b> | <b>625</b>   | <b>217</b> | <b>842</b> | <b>209</b>   | <b>494</b> | <b>703</b> |

Source: City of Santa Fe Springs

**Appendix F**  
LOS Worksheets – Opening Year 2020 Conditions

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 49                                                                                | 190                                                                               | 168                                                                               | 78                                                                                | 234                                                                               | 165                                                                               | 61                                                                                  | 382                                                                                 | 79                                                                                  | 130                                                                                 | 764                                                                                 | 81                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 49                                                                                | 358                                                                               | 0                                                                                 | 78                                                                                | 399                                                                               | 0                                                                                 | 61                                                                                  | 461                                                                                 | 0                                                                                   | 130                                                                                 | 845                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.93                                                                              | 0.85                                                                              | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3363                                                                              | 0                                                                                 | 1805                                                                              | 3393                                                                              | 0                                                                                 | 1805                                                                                | 3525                                                                                | 0                                                                                   | 1805                                                                                | 3566                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.3                                                                               | 12.8                                                                              | 0.0                                                                               | 5.2                                                                               | 14.1                                                                              | 0.0                                                                               | 4.1                                                                                 | 15.7                                                                                | 0.0                                                                                 | 8.6                                                                                 | 28.4                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 17.3                                                                              | 0.0                                                                               | 9.7                                                                               | 18.6                                                                              | 0.0                                                                               | 9.5                                                                                 | 20.2                                                                                | 0.0                                                                                 | 13.1                                                                                | 32.9                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1681                                                                              |                                                                                   | 120                                                                               | 1697                                                                              |                                                                                   | 120                                                                                 | 1762                                                                                |                                                                                     | 120                                                                                 | 1783                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 48.9                                                                              | 12.8                                                                              |                                                                                   | 77.8                                                                              | 14.1                                                                              |                                                                                   | 60.8                                                                                | 15.7                                                                                |                                                                                     | 129.6                                                                               | 28.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 48.9                                                                              |                                                                                   |                                                                                   | 77.8                                                                              |                                                                                   |                                                                                     | 60.8                                                                                |                                                                                     |                                                                                     | 129.6                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 53.4                                                                              |                                                                                   |                                                                                   | 82.3                                                                              |                                                                                   |                                                                                     | 65.3                                                                                |                                                                                     |                                                                                     | 134.1                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.3                                                                               | 12.8                                                                              |                                                                                   | 5.2                                                                               | 14.1                                                                              |                                                                                   | 4.1                                                                                 | 15.7                                                                                |                                                                                     | 8.6                                                                                 | 28.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.3                                                                               | 6.8                                                                               |                                                                                   | 5.2                                                                               | 8.3                                                                               |                                                                                   | 4.1                                                                                 | 13.0                                                                                |                                                                                     | 8.6                                                                                 | 25.7                                                                                |                                                                                     |
| Reference Time (s)                                                             | 12.8                                                                              | 12.8                                                                              |                                                                                   | 14.1                                                                              | 14.1                                                                              |                                                                                   | 15.7                                                                                | 15.7                                                                                |                                                                                     | 28.4                                                                                | 28.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 17.3                                                                              | 17.3                                                                              |                                                                                   | 18.6                                                                              | 18.6                                                                              |                                                                                   | 20.2                                                                                | 20.2                                                                                |                                                                                     | 32.9                                                                                | 32.9                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 28.1                                                                              |                                                                                   | 42.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 82.3                                                                              |                                                                                   | 134.1                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 35.9                                                                              |                                                                                   | 53.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 28.1                                                                              |                                                                                   | 42.4                                                                              |                                                                                   | 70.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 58.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

05/07/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |  |  |    |                                                                                   |  |   |                                                                                     |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 104                                                                               | 1504                                                                                                                                                                                                                                                  | 88                                                                                | 221                                                                               | 1116                                                                                                                                                                                                                                                  | 212                                                                               | 108                                                                                 | 530                                                                                                                                                                     | 177                                                                                 | 215                                                                                 | 585                                                                                                                                                                     | 95                                                                                  |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.5                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 104                                                                               | 1504                                                                                                                                                                                                                                                  | 88                                                                                | 221                                                                               | 1328                                                                                                                                                                                                                                                  | 0                                                                                 | 108                                                                                 | 707                                                                                                                                                                     | 0                                                                                   | 215                                                                                 | 585                                                                                                                                                                     | 95                                                                                  |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5052                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 3482                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3618                                                                                                                                                                    | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                   |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                     |                                                                                                                                                                         | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 6.9                                                                               | 34.9                                                                                                                                                                                                                                                  | 6.5                                                                               | 14.7                                                                              | 31.5                                                                                                                                                                                                                                                  | 0.0                                                                               | 7.2                                                                                 | 24.4                                                                                                                                                                    | 0.0                                                                                 | 14.3                                                                                | 19.4                                                                                                                                                                    | 7.1                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 11.4                                                                              | 39.4                                                                                                                                                                                                                                                  | 11.0                                                                              | 19.2                                                                              | 36.0                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.7                                                                                | 28.9                                                                                                                                                                    | 0.0                                                                                 | 18.8                                                                                | 23.9                                                                                                                                                                    | 11.6                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1684                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1741                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1809                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 103.7                                                                             | 34.9                                                                                                                                                                                                                                                  |                                                                                   | 220.4                                                                             | 31.5                                                                                                                                                                                                                                                  |                                                                                   | 107.7                                                                               | 24.4                                                                                                                                                                    |                                                                                     | 214.4                                                                               | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 103.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 220.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 107.7                                                                                                                                                                   |                                                                                     |                                                                                     | 214.4                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 108.2                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 224.9                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 112.2                                                                                                                                                                   |                                                                                     |                                                                                     | 218.9                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 6.9                                                                               | 34.9                                                                                                                                                                                                                                                  |                                                                                   | 14.7                                                                              | 31.5                                                                                                                                                                                                                                                  |                                                                                   | 7.2                                                                                 | 24.4                                                                                                                                                                    |                                                                                     | 14.3                                                                                | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 6.9                                                                               | 34.9                                                                                                                                                                                                                                                  |                                                                                   | 14.7                                                                              | 26.5                                                                                                                                                                                                                                                  |                                                                                   | 7.2                                                                                 | 18.3                                                                                                                                                                    |                                                                                     | 14.3                                                                                | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 34.9                                                                              | 34.9                                                                                                                                                                                                                                                  |                                                                                   | 31.5                                                                              | 31.5                                                                                                                                                                                                                                                  |                                                                                   | 24.4                                                                                | 24.4                                                                                                                                                                    |                                                                                     | 19.4                                                                                | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 39.4                                                                              | 39.4                                                                                                                                                                                                                                                  |                                                                                   | 36.0                                                                              | 36.0                                                                                                                                                                                                                                                  |                                                                                   | 28.9                                                                                | 28.9                                                                                                                                                                    |                                                                                     | 23.9                                                                                | 23.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 58.6                                                                              |                                                                                                                                                                                                                                                       | 47.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 224.9                                                                             |                                                                                                                                                                                                                                                       | 218.9                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 75.4                                                                              |                                                                                                                                                                                                                                                       | 52.8                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 58.6                                                                              |                                                                                                                                                                                                                                                       | 47.7                                                                              |                                                                                   | 106.2                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 11.0                                                                              |                                                                                                                                                                                                                                                       | 11.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 23.9                                                                              |                                                                                                                                                                                                                                                       | 36.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 19.2                                                                              |                                                                                                                                                                                                                                                       | 11.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 54.1                                                                              |                                                                                                                                                                                                                                                       | 59.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 88.5%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | E                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 110                                                                               | 889                                                                               | 166                                                                               | 177                                                                               | 1507                                                                              | 134                                                                               | 102                                                                                 | 368                                                                                 | 48                                                                                  | 113                                                                                 | 781                                                                                 | 228                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 110                                                                               | 1055                                                                              | 0                                                                                 | 177                                                                               | 1641                                                                              | 0                                                                                 | 102                                                                                 | 416                                                                                 | 0                                                                                   | 113                                                                                 | 781                                                                                 | 228                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5053                                                                              | 0                                                                                 | 1805                                                                              | 5112                                                                              | 0                                                                                 | 1805                                                                                | 3555                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 7.3                                                                               | 25.1                                                                              | 0.0                                                                               | 11.8                                                                              | 38.5                                                                              | 0.0                                                                               | 6.8                                                                                 | 14.0                                                                                | 0.0                                                                                 | 7.5                                                                                 | 25.9                                                                                | 16.9                                                                                |
| Adj Reference Time (s)                                                         | 11.3                                                                              | 29.1                                                                              | 0.0                                                                               | 15.8                                                                              | 42.5                                                                              | 0.0                                                                               | 10.8                                                                                | 18.0                                                                                | 0.0                                                                                 | 11.5                                                                                | 29.9                                                                                | 20.9                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1684                                                                              |                                                                                   | 120                                                                               | 1704                                                                              |                                                                                   | 120                                                                                 | 1777                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 109.7                                                                             | 25.1                                                                              |                                                                                   | 176.5                                                                             | 38.5                                                                              |                                                                                   | 101.7                                                                               | 14.0                                                                                |                                                                                     | 112.7                                                                               | 25.9                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 109.7                                                                             |                                                                                   | 176.5                                                                             |                                                                                   |                                                                                   | 101.7                                                                             |                                                                                     |                                                                                     | 112.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 113.7                                                                             |                                                                                   | 180.5                                                                             |                                                                                   |                                                                                   | 105.7                                                                             |                                                                                     |                                                                                     | 116.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 7.3                                                                               | 25.1                                                                              |                                                                                   | 11.8                                                                              | 38.5                                                                              |                                                                                   | 6.8                                                                                 | 14.0                                                                                |                                                                                     | 7.5                                                                                 | 25.9                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 7.3                                                                               | 21.1                                                                              |                                                                                   | 11.8                                                                              | 35.4                                                                              |                                                                                   | 6.8                                                                                 | 12.4                                                                                |                                                                                     | 7.5                                                                                 | 25.9                                                                                |                                                                                     |
| Reference Time (s)                                                             | 25.1                                                                              | 25.1                                                                              |                                                                                   | 38.5                                                                              | 38.5                                                                              |                                                                                   | 14.0                                                                                | 14.0                                                                                |                                                                                     | 25.9                                                                                | 25.9                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 29.1                                                                              | 29.1                                                                              |                                                                                   | 42.5                                                                              | 42.5                                                                              |                                                                                   | 18.0                                                                                | 18.0                                                                                |                                                                                     | 29.9                                                                                | 29.9                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 53.8                                                                              |                                                                                   | 40.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 180.5                                                                             |                                                                                   | 116.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 71.6                                                                              |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 53.8                                                                              |                                                                                   | 40.7                                                                              |                                                                                   | 94.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 20.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 42.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 10.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 74.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 78.8%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

05/07/2019



| Movement                                                                       | EBL  | EBR  | NBL   | NBT   | SBT                  | SBR  |
|--------------------------------------------------------------------------------|------|------|-------|-------|----------------------|------|
| Lane Configurations                                                            |      |      |       |       |                      |      |
| Volume (vph)                                                                   | 4    | 393  | 288   | 594   | 1013                 | 28   |
| Pedestrians                                                                    |      |      |       |       |                      |      |
| Ped Button                                                                     |      |      |       |       |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |       |                      |      |
| Free Right                                                                     |      | No   |       |       |                      | No   |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900  | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120   | 120                  | 120  |
| Volume Combined (vph)                                                          | 4    | 393  | 288   | 594   | 1041                 | 0    |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 0.95  | 0.95                 | 1.00 |
| Turning Factor (vph)                                                           | 0.95 | 0.85 | 0.95  | 1.00  | 1.00                 | 0.85 |
| Saturated Flow (vph)                                                           | 1805 | 1615 | 1805  | 3618  | 3603                 | 0    |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0   | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      |       | 0.00  | 0.00                 |      |
| Protected Option Allowed                                                       | No   |      |       | Yes   | Yes                  |      |
| Reference Time (s)                                                             |      | 29.2 | 19.1  | 19.7  | 34.7                 | 0.0  |
| Adj Reference Time (s)                                                         |      | 33.2 | 23.1  | 23.7  | 38.7                 | 0.0  |
| Permitted Option                                                               |      |      |       |       |                      |      |
| Adj Saturation A (vph)                                                         | 120  |      | 120   | 1809  | 1802                 |      |
| Reference Time A (s)                                                           | 4.0  |      | 287.2 | 19.7  | 34.7                 |      |
| Adj Saturation B (vph)                                                         | NA   |      | NA    | NA    | NA                   |      |
| Reference Time B (s)                                                           | NA   |      | NA    | NA    | NA                   |      |
| Reference Time (s)                                                             |      |      |       | 287.2 | 34.7                 |      |
| Adj Reference Time (s)                                                         |      |      |       | 291.2 | 38.7                 |      |
| Split Option                                                                   |      |      |       |       |                      |      |
| Ref Time Combined (s)                                                          | 0.3  |      | 19.1  | 19.7  | 34.7                 |      |
| Ref Time Seperate (s)                                                          | 0.3  |      | 19.1  | 19.7  | 33.7                 |      |
| Reference Time (s)                                                             | 0.3  |      | 19.7  | 19.7  | 34.7                 |      |
| Adj Reference Time (s)                                                         | 8.0  |      | 23.7  | 23.7  | 38.7                 |      |
| Summary                                                                        | EB   |      | NB SB |       | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 61.8  |       |                      |      |
| Permitted Option (s)                                                           | Err  |      | 291.2 |       |                      |      |
| Split Option (s)                                                               | 8.0  |      | 62.4  |       |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 61.8  |       | 69.8                 |      |
| Right Turns                                                                    | EBR  |      |       |       |                      |      |
| Adj Reference Time (s)                                                         | 33.2 |      |       |       |                      |      |
| Cross Thru Ref Time (s)                                                        | 38.7 |      |       |       |                      |      |
| Oncoming Left Ref Time (s)                                                     | 0.0  |      |       |       |                      |      |
| Combined (s)                                                                   | 71.9 |      |       |       |                      |      |
| Intersection Summary                                                           |      |      |       |       |                      |      |
| Intersection Capacity Utilization                                              |      |      | 59.9% |       | ICU Level of Service | B    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |       |                      |      |

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 44                                                                                | 305                                                                               | 168                                                                               | 176                                                                               | 519                                                                               | 215                                                                               | 119                                                                                 | 636                                                                                 | 123                                                                                 | 232                                                                                 | 1000                                                                                | 103                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 44                                                                                | 473                                                                               | 0                                                                                 | 176                                                                               | 519                                                                               | 215                                                                               | 119                                                                                 | 759                                                                                 | 0                                                                                   | 232                                                                                 | 1103                                                                                | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1799                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3530                                                                                | 0                                                                                   | 1805                                                                                | 3567                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 2.9                                                                               | 31.6                                                                              | 0.0                                                                               | 11.7                                                                              | 32.8                                                                              | 16.0                                                                              | 7.9                                                                                 | 25.8                                                                                | 0.0                                                                                 | 15.4                                                                                | 37.1                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.6                                                                              | 0.0                                                                               | 15.7                                                                              | 36.8                                                                              | 20.0                                                                              | 11.9                                                                                | 29.8                                                                                | 0.0                                                                                 | 19.4                                                                                | 41.1                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1799                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1765                                                                                |                                                                                     | 120                                                                                 | 1783                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 43.9                                                                              | 31.6                                                                              |                                                                                   | 175.5                                                                             | 32.8                                                                              |                                                                                   | 118.7                                                                               | 25.8                                                                                |                                                                                     | 231.4                                                                               | 37.1                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 43.9                                                                              |                                                                                   |                                                                                   | 175.5                                                                             |                                                                                   |                                                                                     | 118.7                                                                               |                                                                                     |                                                                                     | 231.4                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                   | 179.5                                                                             |                                                                                   |                                                                                     | 122.7                                                                               |                                                                                     |                                                                                     | 235.4                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 2.9                                                                               | 31.6                                                                              |                                                                                   | 11.7                                                                              | 32.8                                                                              |                                                                                   | 7.9                                                                                 | 25.8                                                                                |                                                                                     | 15.4                                                                                | 37.1                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 2.9                                                                               | 20.3                                                                              |                                                                                   | 11.7                                                                              | 32.8                                                                              |                                                                                   | 7.9                                                                                 | 21.6                                                                                |                                                                                     | 15.4                                                                                | 33.6                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.6                                                                              | 31.6                                                                              |                                                                                   | 32.8                                                                              | 32.8                                                                              |                                                                                   | 25.8                                                                                | 25.8                                                                                |                                                                                     | 37.1                                                                                | 37.1                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.6                                                                              | 35.6                                                                              |                                                                                   | 36.8                                                                              | 36.8                                                                              |                                                                                   | 29.8                                                                                | 29.8                                                                                |                                                                                     | 41.1                                                                                | 41.1                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.3                                                                              |                                                                                   | 53.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 179.5                                                                             |                                                                                   | 235.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 72.3                                                                              |                                                                                   | 70.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.3                                                                              |                                                                                   | 53.0                                                                              |                                                                                   | 104.3                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 20.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 29.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 58.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 86.9%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

05/07/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |   |                                                                                      |  |  |                                                                                      |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |  |
| Volume (vph)                                                                   | 250                                                                               | 777                                                                                                                                                                                                                                                   | 164                                                                               | 55                                                                                | 1177                                                                                                                                                                                                                                                  | 197                                                                               | 118                                                                                 | 625                                                                                                                                                                     | 75                                                                                  | 56                                                                                  | 908                                                                                                                                                                     | 239                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 250                                                                               | 777                                                                                                                                                                                                                                                   | 164                                                                               | 55                                                                                | 1177                                                                                                                                                                                                                                                  | 197                                                                               | 118                                                                                 | 700                                                                                                                                                                     | 0                                                                                   | 56                                                                                  | 1147                                                                                                                                                                    | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.97                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3559                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3505                                                                                                                                                                    | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   | 0.00                                                                                |                                                                                                                                                                         |                                                                                     | 0.00                                                                                |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                                                                                                         |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 16.6                                                                              | 18.0                                                                                                                                                                                                                                                  | 12.2                                                                              | 3.7                                                                               | 27.3                                                                                                                                                                                                                                                  | 14.6                                                                              | 7.8                                                                                 | 23.6                                                                                                                                                                    | 0.0                                                                                 | 3.7                                                                                 | 39.3                                                                                                                                                                    | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 20.6                                                                              | 22.0                                                                                                                                                                                                                                                  | 16.2                                                                              | 9.0                                                                               | 31.3                                                                                                                                                                                                                                                  | 18.6                                                                              | 11.8                                                                                | 27.6                                                                                                                                                                    | 0.0                                                                                 | 9.0                                                                                 | 43.3                                                                                                                                                                    | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1780                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1752                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 249.3                                                                             | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 54.8                                                                              | 27.3                                                                                                                                                                                                                                                  |                                                                                   | 117.7                                                                               | 23.6                                                                                                                                                                    |                                                                                     | 55.8                                                                                | 39.3                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 249.3                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 54.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 117.7                                                                                                                                                                   |                                                                                     |                                                                                     | 55.8                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 253.3                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 58.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 121.7                                                                                                                                                                   |                                                                                     |                                                                                     | 59.8                                                                                                                                                                    |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 16.6                                                                              | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 3.7                                                                               | 27.3                                                                                                                                                                                                                                                  |                                                                                   | 7.8                                                                                 | 23.6                                                                                                                                                                    |                                                                                     | 3.7                                                                                 | 39.3                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 16.6                                                                              | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 3.7                                                                               | 27.3                                                                                                                                                                                                                                                  |                                                                                   | 7.8                                                                                 | 21.1                                                                                                                                                                    |                                                                                     | 3.7                                                                                 | 31.1                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 18.0                                                                              | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 27.3                                                                              | 27.3                                                                                                                                                                                                                                                  |                                                                                   | 23.6                                                                                | 23.6                                                                                                                                                                    |                                                                                     | 39.3                                                                                | 39.3                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 22.0                                                                              | 22.0                                                                                                                                                                                                                                                  |                                                                                   | 31.3                                                                              | 31.3                                                                                                                                                                                                                                                  |                                                                                   | 27.6                                                                                | 27.6                                                                                                                                                                    |                                                                                     | 43.3                                                                                | 43.3                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 51.9                                                                              |                                                                                                                                                                                                                                                       | 55.1                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 253.3                                                                             |                                                                                                                                                                                                                                                       | 121.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 53.3                                                                              |                                                                                                                                                                                                                                                       | 70.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 51.9                                                                              |                                                                                                                                                                                                                                                       | 55.1                                                                              |                                                                                   | 107.0                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | WBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 16.2                                                                              |                                                                                                                                                                                                                                                       | 18.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 43.3                                                                              |                                                                                                                                                                                                                                                       | 27.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                                                                                                                                                                                       | 20.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 68.5                                                                              |                                                                                                                                                                                                                                                       | 66.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 89.2%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | E                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

05/07/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |  |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |                                                                                   |  |    |                                                                                   |  |  |  |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 37                                                                                | 867                                                                                                                                                                                                                                                   | 132                                                                               | 122                                                                               | 1535                                                                                                                                                                                                                                                  | 104                                                                               | 112                                                                                 | 175                                                                                 | 69                                                                                  | 126                                                                                 | 346                                                                                                                                                                     | 151                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 37                                                                                | 999                                                                                                                                                                                                                                                   | 0                                                                                 | 122                                                                               | 1639                                                                                                                                                                                                                                                  | 0                                                                                 | 112                                                                                 | 175                                                                                 | 69                                                                                  | 126                                                                                 | 346                                                                                                                                                                     | 151                                                                                 |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.99                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5073                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                              | 5126                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                                                                                                    | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 2.5                                                                               | 23.6                                                                                                                                                                                                                                                  | 0.0                                                                               | 8.1                                                                               | 38.4                                                                                                                                                                                                                                                  | 0.0                                                                               | 7.4                                                                                 | 11.1                                                                                | 5.1                                                                                 | 8.4                                                                                 | 21.9                                                                                                                                                                    | 11.2                                                                                |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 27.6                                                                                                                                                                                                                                                  | 0.0                                                                               | 12.1                                                                              | 42.4                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.4                                                                                | 15.1                                                                                | 9.1                                                                                 | 12.4                                                                                | 25.9                                                                                                                                                                    | 15.2                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1691                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1709                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 36.9                                                                              | 23.6                                                                                                                                                                                                                                                  |                                                                                   | 121.7                                                                             | 38.4                                                                                                                                                                                                                                                  |                                                                                   | 111.7                                                                               | 11.1                                                                                |                                                                                     | 125.7                                                                               | 21.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 36.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 121.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 111.7                                                                               |                                                                                     |                                                                                     | 125.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 40.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 125.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 115.7                                                                               |                                                                                     |                                                                                     | 129.7                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 2.5                                                                               | 23.6                                                                                                                                                                                                                                                  |                                                                                   | 8.1                                                                               | 38.4                                                                                                                                                                                                                                                  |                                                                                   | 7.4                                                                                 | 11.1                                                                                |                                                                                     | 8.4                                                                                 | 21.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 2.5                                                                               | 20.5                                                                                                                                                                                                                                                  |                                                                                   | 8.1                                                                               | 35.9                                                                                                                                                                                                                                                  |                                                                                   | 7.4                                                                                 | 11.1                                                                                |                                                                                     | 8.4                                                                                 | 21.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 23.6                                                                              | 23.6                                                                                                                                                                                                                                                  |                                                                                   | 38.4                                                                              | 38.4                                                                                                                                                                                                                                                  |                                                                                   | 11.1                                                                                | 11.1                                                                                |                                                                                     | 21.9                                                                                | 21.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 27.6                                                                              | 27.6                                                                                                                                                                                                                                                  |                                                                                   | 42.4                                                                              | 42.4                                                                                                                                                                                                                                                  |                                                                                   | 15.1                                                                                | 15.1                                                                                |                                                                                     | 25.9                                                                                | 25.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 51.4                                                                              |                                                                                                                                                                                                                                                       | 37.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 125.7                                                                             |                                                                                                                                                                                                                                                       | 129.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 70.0                                                                              |                                                                                                                                                                                                                                                       | 40.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 51.4                                                                              |                                                                                                                                                                                                                                                       | 37.3                                                                              |                                                                                   | 88.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | NBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 9.1                                                                               |                                                                                                                                                                                                                                                       | 15.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 27.6                                                                              |                                                                                                                                                                                                                                                       | 42.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 12.4                                                                              |                                                                                                                                                                                                                                                       | 11.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 49.1                                                                              |                                                                                                                                                                                                                                                       | 69.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 73.9%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 7                                                                                 | 2                                                                                 | 5                                                                                 | 69                                                                                | 6                                                                                 | 82                                                                                | 26                                                                                  | 361                                                                                 | 27                                                                                  | 54                                                                                  | 605                                                                                 | 13                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 0                                                                                 | 14                                                                                | 0                                                                                 | 0                                                                                 | 157                                                                               | 0                                                                                 | 26                                                                                  | 388                                                                                 | 0                                                                                   | 54                                                                                  | 618                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.90                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1753                                                                              | 0                                                                                 | 0                                                                                 | 1713                                                                              | 0                                                                                 | 1805                                                                                | 1880                                                                                | 0                                                                                   | 1805                                                                                | 1894                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 1.7                                                                                 | 24.8                                                                                | 0.0                                                                                 | 3.6                                                                                 | 39.2                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 9.0                                                                                 | 28.8                                                                                | 0.0                                                                                 | 9.0                                                                                 | 43.2                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 1306                                                                              |                                                                                   | 0                                                                                 | 1431                                                                              |                                                                                   | 120                                                                                 | 1880                                                                                |                                                                                     | 120                                                                                 | 1894                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 0.0                                                                               | 1.3                                                                               |                                                                                   | 0.0                                                                               | 13.2                                                                              |                                                                                   | 25.9                                                                                | 24.8                                                                                |                                                                                     | 53.9                                                                                | 39.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | 8.5                                                                               | 9.0                                                                               |                                                                                   | 12.6                                                                              | 19.0                                                                              |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 1.3                                                                               |                                                                                   |                                                                                   | 13.2                                                                              |                                                                                   |                                                                                   | 25.9                                                                                |                                                                                     |                                                                                     | 53.9                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               |                                                                                   |                                                                                   | 17.2                                                                              |                                                                                   |                                                                                   | 29.9                                                                                |                                                                                     |                                                                                     | 57.9                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 1.0                                                                               |                                                                                   | 0.0                                                                               | 11.0                                                                              |                                                                                   | 1.7                                                                                 | 24.8                                                                                |                                                                                     | 3.6                                                                                 | 39.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 0.5                                                                               | 0.1                                                                               |                                                                                   | 4.6                                                                               | 0.4                                                                               |                                                                                   | 1.7                                                                                 | 23.0                                                                                |                                                                                     | 3.6                                                                                 | 38.3                                                                                |                                                                                     |
| Reference Time (s)                                                             | 1.0                                                                               | 1.0                                                                               |                                                                                   | 11.0                                                                              | 11.0                                                                              |                                                                                   | 24.8                                                                                | 24.8                                                                                |                                                                                     | 39.2                                                                                | 39.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   | 15.0                                                                              | 15.0                                                                              |                                                                                   | 28.8                                                                                | 28.8                                                                                |                                                                                     | 43.2                                                                                | 43.2                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 52.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 17.2                                                                              |                                                                                   | 57.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 24.0                                                                              |                                                                                   | 71.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 17.2                                                                              |                                                                                   | 52.2                                                                              |                                                                                   | 69.3                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 57.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

05/07/2019



| Movement                                                                       | WBL  | WBR  | NBT   | NBR  | SBL                  | SBT  |
|--------------------------------------------------------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations                                                            | WT   | WT   | WT    | WT   | WT                   | WT   |
| Volume (vph)                                                                   | 17   | 24   | 375   | 13   | 37                   | 548  |
| Pedestrians                                                                    |      |      |       |      |                      |      |
| Ped Button                                                                     |      |      |       |      |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |      |                      |      |
| Free Right                                                                     |      | No   |       | No   |                      |      |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900 | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120  | 120                  | 120  |
| Volume Combined (vph)                                                          | 41   | 0    | 388   | 0    | 37                   | 548  |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 1.00 | 1.00                 | 1.00 |
| Turning Factor (vph)                                                           | 0.89 | 0.85 | 0.99  | 0.85 | 0.95                 | 1.00 |
| Saturated Flow (vph)                                                           | 1697 | 0    | 1890  | 0    | 1805                 | 1900 |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0  | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      | 0.00  |      |                      | 0.00 |
| Protected Option Allowed                                                       | No   |      | Yes   |      |                      | Yes  |
| Reference Time (s)                                                             |      | 0.0  | 24.6  | 0.0  | 2.5                  | 34.6 |
| Adj Reference Time (s)                                                         |      | 0.0  | 28.6  | 0.0  | 8.0                  | 38.6 |
| Permitted Option                                                               |      |      |       |      |                      |      |
| Adj Saturation A (vph)                                                         | 113  |      | 1890  |      | 120                  | 1900 |
| Reference Time A (s)                                                           | 43.5 |      | 24.6  |      | 36.9                 | 34.6 |
| Adj Saturation B (vph)                                                         | NA   |      | NA    |      | NA                   | NA   |
| Reference Time B (s)                                                           | NA   |      | NA    |      | NA                   | NA   |
| Reference Time (s)                                                             |      |      | 24.6  |      |                      | 36.9 |
| Adj Reference Time (s)                                                         |      |      | 28.6  |      |                      | 40.9 |
| Split Option                                                                   |      |      |       |      |                      |      |
| Ref Time Combined (s)                                                          | 2.9  |      | 24.6  |      | 2.5                  | 34.6 |
| Ref Time Seperate (s)                                                          | 1.2  |      | 23.8  |      | 2.5                  | 34.6 |
| Reference Time (s)                                                             | 2.9  |      | 24.6  |      | 34.6                 | 34.6 |
| Adj Reference Time (s)                                                         | 8.0  |      | 28.6  |      | 38.6                 | 38.6 |
| Summary                                                                        | WB   |      | NB SB |      | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 38.6  |      |                      |      |
| Permitted Option (s)                                                           | Err  |      | 40.9  |      |                      |      |
| Split Option (s)                                                               | 8.0  |      | 67.2  |      |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 38.6  |      | 46.6                 |      |
| Right Turns                                                                    |      |      |       |      |                      |      |
| Adj Reference Time (s)                                                         |      |      |       |      |                      |      |
| Cross Thru Ref Time (s)                                                        |      |      |       |      |                      |      |
| Oncoming Left Ref Time (s)                                                     |      |      |       |      |                      |      |
| Combined (s)                                                                   |      |      |       |      |                      |      |
| Intersection Summary                                                           |      |      |       |      |                      |      |
| Intersection Capacity Utilization                                              |      |      | 38.8% |      | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |      |                      |      |



# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 58                                                                                | 299                                                                               | 193                                                                               | 44                                                                                | 521                                                                               | 68                                                                                | 213                                                                                 | 240                                                                                 | 30                                                                                  | 74                                                                                  | 303                                                                                 | 193                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 58                                                                                | 492                                                                               | 0                                                                                 | 44                                                                                | 589                                                                               | 0                                                                                 | 213                                                                                 | 270                                                                                 | 0                                                                                   | 74                                                                                  | 496                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.94                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1788                                                                              | 0                                                                                 | 1805                                                                              | 1867                                                                              | 0                                                                                 | 1805                                                                                | 1868                                                                                | 0                                                                                   | 1805                                                                                | 1789                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.9                                                                               | 33.0                                                                              | 0.0                                                                               | 2.9                                                                               | 37.9                                                                              | 0.0                                                                               | 14.2                                                                                | 17.3                                                                                | 0.0                                                                                 | 4.9                                                                                 | 33.3                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 37.0                                                                              | 0.0                                                                               | 9.0                                                                               | 41.9                                                                              | 0.0                                                                               | 18.2                                                                                | 21.3                                                                                | 0.0                                                                                 | 9.0                                                                                 | 37.3                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1788                                                                              |                                                                                   | 120                                                                               | 1867                                                                              |                                                                                   | 120                                                                                 | 1868                                                                                |                                                                                     | 120                                                                                 | 1789                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 57.8                                                                              | 33.0                                                                              |                                                                                   | 43.9                                                                              | 37.9                                                                              |                                                                                   | 212.4                                                                               | 17.3                                                                                |                                                                                     | 73.8                                                                                | 33.3                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 57.8                                                                              |                                                                                   |                                                                                   | 43.9                                                                              |                                                                                   |                                                                                     | 212.4                                                                               |                                                                                     |                                                                                     | 73.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 61.8                                                                              |                                                                                   |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                     | 216.4                                                                               |                                                                                     |                                                                                     | 77.8                                                                                |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.9                                                                               | 33.0                                                                              |                                                                                   | 2.9                                                                               | 37.9                                                                              |                                                                                   | 14.2                                                                                | 17.3                                                                                |                                                                                     | 4.9                                                                                 | 33.3                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.9                                                                               | 20.1                                                                              |                                                                                   | 2.9                                                                               | 33.5                                                                              |                                                                                   | 14.2                                                                                | 15.4                                                                                |                                                                                     | 4.9                                                                                 | 20.3                                                                                |                                                                                     |
| Reference Time (s)                                                             | 33.0                                                                              | 33.0                                                                              |                                                                                   | 37.9                                                                              | 37.9                                                                              |                                                                                   | 17.3                                                                                | 17.3                                                                                |                                                                                     | 33.3                                                                                | 33.3                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 37.0                                                                              | 37.0                                                                              |                                                                                   | 41.9                                                                              | 41.9                                                                              |                                                                                   | 21.3                                                                                | 21.3                                                                                |                                                                                     | 37.3                                                                                | 37.3                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 50.9                                                                              |                                                                                   | 55.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 61.8                                                                              |                                                                                   | 216.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 78.9                                                                              |                                                                                   | 58.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 50.9                                                                              |                                                                                   | 55.4                                                                              |                                                                                   | 106.3                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 88.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 90                                                                                | 587                                                                               | 171                                                                               | 69                                                                                | 1246                                                                              | 59                                                                                | 158                                                                                 | 370                                                                                 | 35                                                                                  | 42                                                                                  | 438                                                                                 | 54                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 90                                                                                | 758                                                                               | 0                                                                                 | 69                                                                                | 1305                                                                              | 0                                                                                 | 158                                                                                 | 405                                                                                 | 0                                                                                   | 42                                                                                  | 492                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5000                                                                              | 0                                                                                 | 1805                                                                              | 5141                                                                              | 0                                                                                 | 1805                                                                                | 3571                                                                                | 0                                                                                   | 1805                                                                                | 3558                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.0                                                                               | 18.2                                                                              | 0.0                                                                               | 4.6                                                                               | 30.5                                                                              | 0.0                                                                               | 10.5                                                                                | 13.6                                                                                | 0.0                                                                                 | 2.8                                                                                 | 16.6                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 10.0                                                                              | 22.2                                                                              | 0.0                                                                               | 9.0                                                                               | 34.5                                                                              | 0.0                                                                               | 14.5                                                                                | 17.6                                                                                | 0.0                                                                                 | 9.0                                                                                 | 20.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1667                                                                              |                                                                                   | 120                                                                               | 1714                                                                              |                                                                                   | 120                                                                                 | 1785                                                                                |                                                                                     | 120                                                                                 | 1779                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 89.8                                                                              | 18.2                                                                              |                                                                                   | 68.8                                                                              | 30.5                                                                              |                                                                                   | 157.6                                                                               | 13.6                                                                                |                                                                                     | 41.9                                                                                | 16.6                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 89.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 68.8                                                                              |                                                                                   |                                                                                     |                                                                                     | 157.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 93.8                                                                              |                                                                                   |                                                                                   |                                                                                   | 72.8                                                                              |                                                                                   |                                                                                     |                                                                                     | 161.6                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.0                                                                               | 18.2                                                                              |                                                                                   | 4.6                                                                               | 30.5                                                                              |                                                                                   | 10.5                                                                                | 13.6                                                                                |                                                                                     | 2.8                                                                                 | 16.6                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.0                                                                               | 14.1                                                                              |                                                                                   | 4.6                                                                               | 29.1                                                                              |                                                                                   | 10.5                                                                                | 12.4                                                                                |                                                                                     | 2.8                                                                                 | 14.8                                                                                |                                                                                     |
| Reference Time (s)                                                             | 18.2                                                                              | 18.2                                                                              |                                                                                   | 30.5                                                                              | 30.5                                                                              |                                                                                   | 13.6                                                                                | 13.6                                                                                |                                                                                     | 16.6                                                                                | 16.6                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 22.2                                                                              | 22.2                                                                              |                                                                                   | 34.5                                                                              | 34.5                                                                              |                                                                                   | 17.6                                                                                | 17.6                                                                                |                                                                                     | 20.6                                                                                | 20.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 44.4                                                                              |                                                                                   | 35.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 93.8                                                                              |                                                                                   | 161.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 56.7                                                                              |                                                                                   | 38.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 44.4                                                                              |                                                                                   | 35.1                                                                              |                                                                                   | 79.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 66.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 29                                                                                | 205                                                                               | 103                                                                               | 132                                                                               | 423                                                                               | 222                                                                               | 123                                                                                 | 773                                                                                 | 110                                                                                 | 112                                                                                 | 580                                                                                 | 75                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 29                                                                                | 308                                                                               | 0                                                                                 | 132                                                                               | 645                                                                               | 0                                                                                 | 123                                                                                 | 883                                                                                 | 0                                                                                   | 112                                                                                 | 655                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3436                                                                              | 0                                                                                 | 1805                                                                              | 3431                                                                              | 0                                                                                 | 1805                                                                                | 3550                                                                                | 0                                                                                   | 1805                                                                                | 3555                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 1.9                                                                               | 10.8                                                                              | 0.0                                                                               | 8.8                                                                               | 22.6                                                                              | 0.0                                                                               | 8.2                                                                                 | 29.8                                                                                | 0.0                                                                                 | 7.4                                                                                 | 22.1                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 15.3                                                                              | 0.0                                                                               | 13.3                                                                              | 27.1                                                                              | 0.0                                                                               | 12.7                                                                                | 34.3                                                                                | 0.0                                                                                 | 11.9                                                                                | 26.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1718                                                                              |                                                                                   | 120                                                                               | 1715                                                                              |                                                                                   | 120                                                                                 | 1775                                                                                |                                                                                     | 120                                                                                 | 1778                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 28.9                                                                              | 10.8                                                                              |                                                                                   | 131.6                                                                             | 22.6                                                                              |                                                                                   | 122.7                                                                               | 29.8                                                                                |                                                                                     | 111.7                                                                               | 22.1                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 28.9                                                                              |                                                                                   |                                                                                   | 131.6                                                                             |                                                                                   |                                                                                     | 122.7                                                                               |                                                                                     |                                                                                     | 111.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 33.4                                                                              |                                                                                   |                                                                                   | 136.1                                                                             |                                                                                   |                                                                                     | 127.2                                                                               |                                                                                     |                                                                                     | 116.2                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 1.9                                                                               | 10.8                                                                              |                                                                                   | 8.8                                                                               | 22.6                                                                              |                                                                                   | 8.2                                                                                 | 29.8                                                                                |                                                                                     | 7.4                                                                                 | 22.1                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 1.9                                                                               | 7.2                                                                               |                                                                                   | 8.8                                                                               | 14.8                                                                              |                                                                                   | 8.2                                                                                 | 26.1                                                                                |                                                                                     | 7.4                                                                                 | 19.6                                                                                |                                                                                     |
| Reference Time (s)                                                             | 10.8                                                                              | 10.8                                                                              |                                                                                   | 22.6                                                                              | 22.6                                                                              |                                                                                   | 29.8                                                                                | 29.8                                                                                |                                                                                     | 22.1                                                                                | 22.1                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 15.3                                                                              | 15.3                                                                              |                                                                                   | 27.1                                                                              | 27.1                                                                              |                                                                                   | 34.3                                                                                | 34.3                                                                                |                                                                                     | 26.6                                                                                | 26.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 36.6                                                                              |                                                                                   | 46.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 136.1                                                                             |                                                                                   | 127.2                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 42.3                                                                              |                                                                                   | 61.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 36.6                                                                              |                                                                                   | 46.3                                                                              |                                                                                   | 82.9                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 69.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

05/07/2019



| Movement                   | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR  | NBL                                                                               | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                                | SBR                                                                                 |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Configurations        |  |  |  |  |  |      |  |  |      |  |  |  |
| Volume (vph)               | 106                                                                               | 1279                                                                              | 90                                                                                | 122                                                                               | 1316                                                                              | 166  | 163                                                                               | 721                                                                               | 286  | 185                                                                               | 497                                                                                | 124                                                                                 |
| Pedestrians                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Ped Button                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Pedestrian Timing (s)      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Free Right                 | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |      | No                                                                                |                                                                                   |      | No                                                                                |                                                                                    |                                                                                     |
| Ideal Flow                 | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900 | 1900                                                                              | 1900                                                                              | 1900 | 1900                                                                              | 1900                                                                               | 1900                                                                                |
| Lost Time (s)              | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0  | 4.5                                                                               | 4.5                                                                               | 4.0  | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                 |
| Minimum Green (s)          | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0  | 5.0                                                                               | 5.0                                                                               | 4.0  | 5.0                                                                               | 5.0                                                                                | 5.0                                                                                 |
| Refr Cycle Length (s)      | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120  | 120                                                                               | 120                                                                               | 120  | 120                                                                               | 120                                                                                | 120                                                                                 |
| Volume Combined (vph)      | 106                                                                               | 1279                                                                              | 90                                                                                | 122                                                                               | 1482                                                                              | 0    | 163                                                                               | 1007                                                                              | 0    | 185                                                                               | 497                                                                                | 124                                                                                 |
| Lane Utilization Factor    | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00 | 1.00                                                                              | 0.95                                                                              | 1.00 | 1.00                                                                              | 0.95                                                                               | 1.00                                                                                |
| Turning Factor (vph)       | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85 | 0.95                                                                              | 0.96                                                                              | 0.85 | 0.95                                                                              | 1.00                                                                               | 0.85                                                                                |
| Saturated Flow (vph)       | 1805                                                                              | 5176                                                                              | 1615                                                                              | 1805                                                                              | 5089                                                                              | 0    | 1805                                                                              | 3463                                                                              | 0    | 1805                                                                              | 3618                                                                               | 1615                                                                                |
| Ped Intf Time (s)          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 |
| Pedestrian Frequency (%)   | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00 |                                                                                   |                                                                                   | 0.00 |                                                                                   |                                                                                    |                                                                                     |
| Protected Option Allowed   | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes  |                                                                                   |                                                                                   | Yes  |                                                                                   |                                                                                    |                                                                                     |
| Reference Time (s)         | 7.0                                                                               | 29.7                                                                              | 6.7                                                                               | 8.1                                                                               | 34.9                                                                              | 0.0  | 10.8                                                                              | 34.9                                                                              | 0.0  | 12.3                                                                              | 16.5                                                                               | 9.2                                                                                 |
| Adj Reference Time (s)     | 11.5                                                                              | 34.2                                                                              | 11.2                                                                              | 12.6                                                                              | 39.4                                                                              | 0.0  | 15.3                                                                              | 39.4                                                                              | 0.0  | 16.8                                                                              | 21.0                                                                               | 13.7                                                                                |
| Permitted Option           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Adj Saturation A (vph)     | 120                                                                               | 1725                                                                              |                                                                                   | 120                                                                               | 1696                                                                              |      | 120                                                                               | 1732                                                                              |      | 120                                                                               | 1809                                                                               |                                                                                     |
| Reference Time A (s)       | 105.7                                                                             | 29.7                                                                              |                                                                                   | 121.7                                                                             | 34.9                                                                              |      | 162.5                                                                             | 34.9                                                                              |      | 184.5                                                                             | 16.5                                                                               |                                                                                     |
| Adj Saturation B (vph)     | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |      | NA                                                                                | NA                                                                                |      | NA                                                                                | NA                                                                                 |                                                                                     |
| Reference Time B (s)       | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |      | NA                                                                                | NA                                                                                |      | NA                                                                                | NA                                                                                 |                                                                                     |
| Reference Time (s)         |                                                                                   | 105.7                                                                             |                                                                                   |                                                                                   | 121.7                                                                             |      |                                                                                   | 162.5                                                                             |      |                                                                                   | 184.5                                                                              |                                                                                     |
| Adj Reference Time (s)     |                                                                                   | 110.2                                                                             |                                                                                   |                                                                                   | 126.2                                                                             |      |                                                                                   | 167.0                                                                             |      |                                                                                   | 189.0                                                                              |                                                                                     |
| Split Option               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Ref Time Combined (s)      | 7.0                                                                               | 29.7                                                                              |                                                                                   | 8.1                                                                               | 34.9                                                                              |      | 10.8                                                                              | 34.9                                                                              |      | 12.3                                                                              | 16.5                                                                               |                                                                                     |
| Ref Time Seperate (s)      | 7.0                                                                               | 29.7                                                                              |                                                                                   | 8.1                                                                               | 31.0                                                                              |      | 10.8                                                                              | 25.0                                                                              |      | 12.3                                                                              | 16.5                                                                               |                                                                                     |
| Reference Time (s)         | 29.7                                                                              | 29.7                                                                              |                                                                                   | 34.9                                                                              | 34.9                                                                              |      | 34.9                                                                              | 34.9                                                                              |      | 16.5                                                                              | 16.5                                                                               |                                                                                     |
| Adj Reference Time (s)     | 34.2                                                                              | 34.2                                                                              |                                                                                   | 39.4                                                                              | 39.4                                                                              |      | 39.4                                                                              | 39.4                                                                              |      | 21.0                                                                              | 21.0                                                                               |                                                                                     |
| Summary                    | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Protected Option (s)       | 51.0                                                                              |                                                                                   | 56.2                                                                              |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Permitted Option (s)       | 126.2                                                                             |                                                                                   | 189.0                                                                             |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Split Option (s)           | 73.6                                                                              |                                                                                   | 60.4                                                                              |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Minimum (s)                | 51.0                                                                              |                                                                                   | 56.2                                                                              |                                                                                   | 107.2                                                                             |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Right Turns                | EBR                                                                               | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Adj Reference Time (s)     | 11.2                                                                              | 13.7                                                                              |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Cross Thru Ref Time (s)    | 21.0                                                                              | 39.4                                                                              |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Oncoming Left Ref Time (s) | 12.6                                                                              | 15.3                                                                              |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |
| Combined (s)               | 44.8                                                                              | 68.5                                                                              |                                                                                   |                                                                                   |                                                                                   |      |                                                                                   |                                                                                   |      |                                                                                   |                                                                                    |                                                                                     |

### Intersection Summary

Intersection Capacity Utilization 89.3% ICU Level of Service E  
Reference Times and Phasing Options do not represent an optimized timing plan.

# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

05/07/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 171                                                                               | 1449                                                                              | 122                                                                               | 104                                                                               | 801                                                                               | 126                                                                               | 133                                                                                 | 727                                                                                 | 178                                                                                 | 114                                                                                 | 512                                                                                 | 135                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 171                                                                               | 1571                                                                              | 0                                                                                 | 104                                                                               | 927                                                                               | 0                                                                                 | 133                                                                                 | 905                                                                                 | 0                                                                                   | 114                                                                                 | 512                                                                                 | 135                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5115                                                                              | 0                                                                                 | 1805                                                                              | 5070                                                                              | 0                                                                                 | 1805                                                                                | 3511                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 11.4                                                                              | 36.9                                                                              | 0.0                                                                               | 6.9                                                                               | 21.9                                                                              | 0.0                                                                               | 8.8                                                                                 | 30.9                                                                                | 0.0                                                                                 | 7.6                                                                                 | 17.0                                                                                | 10.0                                                                                |
| Adj Reference Time (s)                                                         | 15.4                                                                              | 40.9                                                                              | 0.0                                                                               | 10.9                                                                              | 25.9                                                                              | 0.0                                                                               | 12.8                                                                                | 34.9                                                                                | 0.0                                                                                 | 11.6                                                                                | 21.0                                                                                | 14.0                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1705                                                                              |                                                                                   | 120                                                                               | 1690                                                                              |                                                                                   | 120                                                                                 | 1755                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 170.5                                                                             | 36.9                                                                              |                                                                                   | 103.7                                                                             | 21.9                                                                              |                                                                                   | 132.6                                                                               | 30.9                                                                                |                                                                                     | 113.7                                                                               | 17.0                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 170.5                                                                             |                                                                                   |                                                                                   | 103.7                                                                             |                                                                                   |                                                                                     | 132.6                                                                               |                                                                                     |                                                                                     | 113.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 174.5                                                                             |                                                                                   |                                                                                   | 107.7                                                                             |                                                                                   |                                                                                     | 136.6                                                                               |                                                                                     |                                                                                     | 117.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 11.4                                                                              | 36.9                                                                              |                                                                                   | 6.9                                                                               | 21.9                                                                              |                                                                                   | 8.8                                                                                 | 30.9                                                                                |                                                                                     | 7.6                                                                                 | 17.0                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 11.4                                                                              | 34.0                                                                              |                                                                                   | 6.9                                                                               | 19.0                                                                              |                                                                                   | 8.8                                                                                 | 24.8                                                                                |                                                                                     | 7.6                                                                                 | 17.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 36.9                                                                              | 36.9                                                                              |                                                                                   | 21.9                                                                              | 21.9                                                                              |                                                                                   | 30.9                                                                                | 30.9                                                                                |                                                                                     | 17.0                                                                                | 17.0                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 40.9                                                                              | 40.9                                                                              |                                                                                   | 25.9                                                                              | 25.9                                                                              |                                                                                   | 34.9                                                                                | 34.9                                                                                |                                                                                     | 21.0                                                                                | 21.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.8                                                                              |                                                                                   | 46.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 174.5                                                                             |                                                                                   | 136.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 66.8                                                                              |                                                                                   | 55.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.8                                                                              |                                                                                   | 46.5                                                                              |                                                                                   | 98.3                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 14.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 25.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 12.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 52.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 81.9%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

05/07/2019



| Movement                   | EBL                                                                               | EBR                                                                               | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
|----------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations        |  |  |  |  |  |      |
| Volume (vph)               | 19                                                                                | 315                                                                               | 388                                                                               | 969                                                                               | 692                                                                               | 17   |
| Pedestrians                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ped Button                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Pedestrian Timing (s)      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Free Right                 | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |      |
| Ideal Flow                 | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900 |
| Lost Time (s)              | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Minimum Green (s)          | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0  |
| Refr Cycle Length (s)      | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120  |
| Volume Combined (vph)      | 19                                                                                | 315                                                                               | 388                                                                               | 969                                                                               | 709                                                                               | 0    |
| Lane Utilization Factor    | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              | 1.00 |
| Turning Factor (vph)       | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85 |
| Saturated Flow (vph)       | 1805                                                                              | 1615                                                                              | 1805                                                                              | 3618                                                                              | 3605                                                                              | 0    |
| Ped Intf Time (s)          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0  |
| Pedestrian Frequency (%)   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              | 0.00                                                                              |      |
| Protected Option Allowed   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                               | Yes                                                                               |      |
| Reference Time (s)         |                                                                                   | 23.4                                                                              | 25.8                                                                              | 32.1                                                                              | 23.6                                                                              | 0.0  |
| Adj Reference Time (s)     |                                                                                   | 27.4                                                                              | 29.8                                                                              | 36.1                                                                              | 27.6                                                                              | 0.0  |
| Permitted Option           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Saturation A (vph)     | 120                                                                               |                                                                                   | 120                                                                               | 1809                                                                              | 1802                                                                              |      |
| Reference Time A (s)       | 18.9                                                                              |                                                                                   | 386.9                                                                             | 32.1                                                                              | 23.6                                                                              |      |
| Adj Saturation B (vph)     | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                | NA                                                                                |      |
| Reference Time B (s)       | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                | NA                                                                                |      |
| Reference Time (s)         |                                                                                   |                                                                                   |                                                                                   | 386.9                                                                             | 23.6                                                                              |      |
| Adj Reference Time (s)     |                                                                                   |                                                                                   |                                                                                   | 390.9                                                                             | 27.6                                                                              |      |
| Split Option               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Ref Time Combined (s)      | 1.3                                                                               |                                                                                   | 25.8                                                                              | 32.1                                                                              | 23.6                                                                              |      |
| Ref Time Seperate (s)      | 1.3                                                                               |                                                                                   | 25.8                                                                              | 32.1                                                                              | 23.0                                                                              |      |
| Reference Time (s)         | 1.3                                                                               |                                                                                   | 32.1                                                                              | 32.1                                                                              | 23.6                                                                              |      |
| Adj Reference Time (s)     | 8.0                                                                               |                                                                                   | 36.1                                                                              | 36.1                                                                              | 27.6                                                                              |      |
| Summary                    | EB                                                                                |                                                                                   | NB SB                                                                             | Combined                                                                          |                                                                                   |      |
| Protected Option (s)       | NA                                                                                |                                                                                   | 57.4                                                                              |                                                                                   |                                                                                   |      |
| Permitted Option (s)       | Err                                                                               |                                                                                   | 390.9                                                                             |                                                                                   |                                                                                   |      |
| Split Option (s)           | 8.0                                                                               |                                                                                   | 63.7                                                                              |                                                                                   |                                                                                   |      |
| Minimum (s)                | 8.0                                                                               |                                                                                   | 57.4                                                                              | 65.4                                                                              |                                                                                   |      |
| Right Turns                | EBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Adj Reference Time (s)     | 27.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Cross Thru Ref Time (s)    | 27.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Oncoming Left Ref Time (s) | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Combined (s)               | 55.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |

### Intersection Summary

Intersection Capacity Utilization 54.5% ICU Level of Service  
Reference Times and Phasing Options do not represent an optimized timing plan.

A

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 74                                                                                | 446                                                                               | 95                                                                                | 121                                                                               | 483                                                                               | 280                                                                               | 130                                                                                 | 978                                                                                 | 91                                                                                  | 183                                                                                 | 739                                                                                 | 92                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 74                                                                                | 541                                                                               | 0                                                                                 | 121                                                                               | 483                                                                               | 280                                                                               | 130                                                                                 | 1069                                                                                | 0                                                                                   | 183                                                                                 | 831                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1850                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3571                                                                                | 0                                                                                   | 1805                                                                                | 3558                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 4.9                                                                               | 35.1                                                                              | 0.0                                                                               | 8.0                                                                               | 30.5                                                                              | 20.8                                                                              | 8.6                                                                                 | 35.9                                                                                | 0.0                                                                                 | 12.2                                                                                | 28.0                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 39.1                                                                              | 0.0                                                                               | 12.0                                                                              | 34.5                                                                              | 24.8                                                                              | 12.6                                                                                | 39.9                                                                                | 0.0                                                                                 | 16.2                                                                                | 32.0                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1850                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1786                                                                                |                                                                                     | 120                                                                                 | 1779                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 73.8                                                                              | 35.1                                                                              |                                                                                   | 120.7                                                                             | 30.5                                                                              |                                                                                   | 129.6                                                                               | 35.9                                                                                |                                                                                     | 182.5                                                                               | 28.0                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 73.8                                                                              |                                                                                   |                                                                                   | 120.7                                                                             |                                                                                   |                                                                                     | 129.6                                                                               |                                                                                     |                                                                                     | 182.5                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 77.8                                                                              |                                                                                   |                                                                                   | 124.7                                                                             |                                                                                   |                                                                                     | 133.6                                                                               |                                                                                     |                                                                                     | 186.5                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 4.9                                                                               | 35.1                                                                              |                                                                                   | 8.0                                                                               | 30.5                                                                              |                                                                                   | 8.6                                                                                 | 35.9                                                                                |                                                                                     | 12.2                                                                                | 28.0                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 4.9                                                                               | 28.9                                                                              |                                                                                   | 8.0                                                                               | 30.5                                                                              |                                                                                   | 8.6                                                                                 | 32.9                                                                                |                                                                                     | 12.2                                                                                | 24.9                                                                                |                                                                                     |
| Reference Time (s)                                                             | 35.1                                                                              | 35.1                                                                              |                                                                                   | 30.5                                                                              | 30.5                                                                              |                                                                                   | 35.9                                                                                | 35.9                                                                                |                                                                                     | 28.0                                                                                | 28.0                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 39.1                                                                              | 39.1                                                                              |                                                                                   | 34.5                                                                              | 34.5                                                                              |                                                                                   | 39.9                                                                                | 39.9                                                                                |                                                                                     | 32.0                                                                                | 32.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.1                                                                              |                                                                                   | 56.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 124.7                                                                             |                                                                                   | 186.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 73.6                                                                              |                                                                                   | 71.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.1                                                                              |                                                                                   | 56.1                                                                              |                                                                                   | 107.2                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 24.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 39.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 73.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 89.4%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

05/07/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |                                                                                     |
| Volume (vph)                                                                   | 177                                                                               | 1213                                                                                                                                                                                                                                                  | 127                                                                               | 52                                                                                | 777                                                                                                                                                                                                                                                   | 80                                                                                | 98                                                                                  | 811                                                                                                                                                                     | 82                                                                                  | 127                                                                                 | 745                                                                                                                                                                     | 268                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 177                                                                               | 1213                                                                                                                                                                                                                                                  | 127                                                                               | 52                                                                                | 777                                                                                                                                                                                                                                                   | 80                                                                                | 98                                                                                  | 893                                                                                                                                                                     | 0                                                                                   | 127                                                                                 | 1013                                                                                                                                                                    | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3568                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3474                                                                                                                                                                    | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   | 0.00                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   | Yes                                                                                                                                                                                                                                                   |                                                                                   |                                                                                     |                                                                                                                                                                         | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 11.8                                                                              | 28.1                                                                                                                                                                                                                                                  | 9.4                                                                               | 3.5                                                                               | 18.0                                                                                                                                                                                                                                                  | 5.9                                                                               | 6.5                                                                                 | 30.0                                                                                                                                                                    | 0.0                                                                                 | 8.4                                                                                 | 35.0                                                                                                                                                                    | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 15.8                                                                              | 32.1                                                                                                                                                                                                                                                  | 13.4                                                                              | 9.0                                                                               | 22.0                                                                                                                                                                                                                                                  | 9.9                                                                               | 10.5                                                                                | 34.0                                                                                                                                                                    | 0.0                                                                                 | 12.4                                                                                | 39.0                                                                                                                                                                    | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1784                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1737                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 176.5                                                                             | 28.1                                                                                                                                                                                                                                                  |                                                                                   | 51.9                                                                              | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 97.7                                                                                | 30.0                                                                                                                                                                    |                                                                                     | 126.6                                                                               | 35.0                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 176.5                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 51.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 97.7                                                                                                                                                                    |                                                                                     |                                                                                     | 126.6                                                                                                                                                                   |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 180.5                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 55.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 101.7                                                                                                                                                                   |                                                                                     |                                                                                     | 130.6                                                                                                                                                                   |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 11.8                                                                              | 28.1                                                                                                                                                                                                                                                  |                                                                                   | 3.5                                                                               | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 6.5                                                                                 | 30.0                                                                                                                                                                    |                                                                                     | 8.4                                                                                 | 35.0                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 11.8                                                                              | 28.1                                                                                                                                                                                                                                                  |                                                                                   | 3.5                                                                               | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 6.5                                                                                 | 27.3                                                                                                                                                                    |                                                                                     | 8.4                                                                                 | 25.7                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 28.1                                                                              | 28.1                                                                                                                                                                                                                                                  |                                                                                   | 18.0                                                                              | 18.0                                                                                                                                                                                                                                                  |                                                                                   | 30.0                                                                                | 30.0                                                                                                                                                                    |                                                                                     | 35.0                                                                                | 35.0                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 32.1                                                                              | 32.1                                                                                                                                                                                                                                                  |                                                                                   | 22.0                                                                              | 22.0                                                                                                                                                                                                                                                  |                                                                                   | 34.0                                                                                | 34.0                                                                                                                                                                    |                                                                                     | 39.0                                                                                | 39.0                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 41.1                                                                              |                                                                                                                                                                                                                                                       | 49.5                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 180.5                                                                             |                                                                                                                                                                                                                                                       | 130.6                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 54.1                                                                              |                                                                                                                                                                                                                                                       | 73.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 41.1                                                                              |                                                                                                                                                                                                                                                       | 49.5                                                                              |                                                                                   | 90.6                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | WBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 13.4                                                                              |                                                                                                                                                                                                                                                       | 9.9                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 39.0                                                                              |                                                                                                                                                                                                                                                       | 34.0                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                                                                                                                                                                                       | 15.8                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 61.4                                                                              |                                                                                                                                                                                                                                                       | 59.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 75.5%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | D                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |



# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Volume (vph)                                                                   | 98                                                                                | 1591                                                                              | 75                                                                                | 38                                                                                | 832                                                                               | 96                                                                                | 128                                                                                 | 320                                                                                 | 145                                                                                 | 111                                                                                 | 246                                                                                 | 77                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 98                                                                                | 1666                                                                              | 0                                                                                 | 38                                                                                | 928                                                                               | 0                                                                                 | 128                                                                                 | 320                                                                                 | 145                                                                                 | 111                                                                                 | 246                                                                                 | 77                                                                                  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5141                                                                              | 0                                                                                 | 1805                                                                              | 5095                                                                              | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 6.5                                                                               | 38.9                                                                              | 0.0                                                                               | 2.5                                                                               | 21.9                                                                              | 0.0                                                                               | 8.5                                                                                 | 20.2                                                                                | 10.8                                                                                | 7.4                                                                                 | 15.5                                                                                | 5.7                                                                                 |
| Adj Reference Time (s)                                                         | 10.5                                                                              | 42.9                                                                              | 0.0                                                                               | 9.0                                                                               | 25.9                                                                              | 0.0                                                                               | 12.5                                                                                | 24.2                                                                                | 14.8                                                                                | 11.4                                                                                | 19.5                                                                                | 9.7                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1714                                                                              |                                                                                   | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 97.7                                                                              | 38.9                                                                              |                                                                                   | 37.9                                                                              | 21.9                                                                              |                                                                                   | 127.6                                                                               | 20.2                                                                                |                                                                                     | 110.7                                                                               | 15.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 97.7                                                                              |                                                                                   |                                                                                   | 37.9                                                                              |                                                                                   |                                                                                     | 127.6                                                                               |                                                                                     |                                                                                     | 110.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 101.7                                                                             |                                                                                   |                                                                                   | 41.9                                                                              |                                                                                   |                                                                                     | 131.6                                                                               |                                                                                     |                                                                                     | 114.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.5                                                                               | 38.9                                                                              |                                                                                   | 2.5                                                                               | 21.9                                                                              |                                                                                   | 8.5                                                                                 | 20.2                                                                                |                                                                                     | 7.4                                                                                 | 15.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.5                                                                               | 37.1                                                                              |                                                                                   | 2.5                                                                               | 19.6                                                                              |                                                                                   | 8.5                                                                                 | 20.2                                                                                |                                                                                     | 7.4                                                                                 | 15.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 38.9                                                                              | 38.9                                                                              |                                                                                   | 21.9                                                                              | 21.9                                                                              |                                                                                   | 20.2                                                                                | 20.2                                                                                |                                                                                     | 15.5                                                                                | 15.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 42.9                                                                              | 42.9                                                                              |                                                                                   | 25.9                                                                              | 25.9                                                                              |                                                                                   | 24.2                                                                                | 24.2                                                                                |                                                                                     | 19.5                                                                                | 19.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.9                                                                              |                                                                                   | 35.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 101.7                                                                             |                                                                                   | 131.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 68.7                                                                              |                                                                                   | 43.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.9                                                                              |                                                                                   | 35.6                                                                              |                                                                                   | 87.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | NBR                                                                               |                                                                                   | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 14.8                                                                              |                                                                                   | 9.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 42.9                                                                              |                                                                                   | 25.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 11.4                                                                              |                                                                                   | 12.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 69.0                                                                              |                                                                                   | 48.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 72.9%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |      |      |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------|------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |      |      |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |      |      |
| Volume (vph)                                                                   | 17                                                                                | 5                                                                                 | 13                                                                                | 14                                                                                | 5                                                                                 | 75                                                                                | 8                                                                                   | 458                                                                                 | 26                                                                                  | 86                                                                                  | 375                                                                                 | 10                                                                                  |      |      |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |      |      |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |      |      |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |      |      |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |      |      |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |      |      |
| Volume Combined (vph)                                                          | 0                                                                                 | 35                                                                                | 0                                                                                 | 0                                                                                 | 94                                                                                | 0                                                                                 | 8                                                                                   | 484                                                                                 | 0                                                                                   | 86                                                                                  | 385                                                                                 | 0                                                                                   |      |      |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |      |      |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.87                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |      |      |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1751                                                                              | 0                                                                                 | 0                                                                                 | 1660                                                                              | 0                                                                                 | 1805                                                                                | 1885                                                                                | 0                                                                                   | 1805                                                                                | 1893                                                                                | 0                                                                                   |      |      |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |      |      |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |      |      |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   | No                                                                                |                                                                                   |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |      |      |
| Reference Time (s)                                                             |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 0.0                                                                                 | 0.5                                                                                 | 30.8                                                                                | 0.0                                                                                 | 5.7                                                                                 | 24.4                                                                                | 0.0  |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 0.0                                                                                 | 9.0                                                                                 | 34.8                                                                                | 0.0                                                                                 | 9.7                                                                                 | 28.4                                                                                | 0.0  |      |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 696                                                                               |                                                                                   |                                                                                   | 0                                                                                 | 1619                                                                              |                                                                                     |                                                                                     | 120                                                                                 | 1885                                                                                |                                                                                     |                                                                                     | 120  | 1893 |
| Reference Time A (s)                                                           | 0.0                                                                               | 6.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 7.0                                                                               |                                                                                     |                                                                                     | 8.0                                                                                 | 30.8                                                                                |                                                                                     |                                                                                     | 85.8 | 24.4 |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                     |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |                                                                                     | NA   | NA   |
| Reference Time B (s)                                                           | 9.1                                                                               | 10.4                                                                              |                                                                                   |                                                                                   | 8.9                                                                               | 14.8                                                                              |                                                                                     |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |                                                                                     | NA   | NA   |
| Reference Time (s)                                                             | 6.0                                                                               |                                                                                   |                                                                                   |                                                                                   | 7.0                                                                               |                                                                                   |                                                                                     |                                                                                     | 30.8                                                                                |                                                                                     |                                                                                     |                                                                                     | 85.8 |      |
| Adj Reference Time (s)                                                         | 10.0                                                                              |                                                                                   |                                                                                   |                                                                                   | 11.0                                                                              |                                                                                   |                                                                                     |                                                                                     | 34.8                                                                                |                                                                                     |                                                                                     |                                                                                     | 89.8 |      |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 2.4                                                                               |                                                                                   |                                                                                   | 0.0                                                                               | 6.8                                                                               |                                                                                     |                                                                                     | 0.5                                                                                 | 30.8                                                                                |                                                                                     |                                                                                     | 5.7  | 24.4 |
| Ref Time Seperate (s)                                                          | 1.1                                                                               | 0.4                                                                               |                                                                                   |                                                                                   | 0.9                                                                               | 0.4                                                                               |                                                                                     |                                                                                     | 0.5                                                                                 | 29.2                                                                                |                                                                                     |                                                                                     | 5.7  | 23.8 |
| Reference Time (s)                                                             | 2.4                                                                               | 2.4                                                                               |                                                                                   |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                     |                                                                                     | 30.8                                                                                | 30.8                                                                                |                                                                                     |                                                                                     | 24.4 | 24.4 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   |                                                                                   | 10.8                                                                              | 10.8                                                                              |                                                                                     |                                                                                     | 34.8                                                                                | 34.8                                                                                |                                                                                     |                                                                                     | 28.4 | 28.4 |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 44.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Permitted Option (s)                                                           | 11.0                                                                              |                                                                                   | 89.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Split Option (s)                                                               | 19.8                                                                              |                                                                                   | 63.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Minimum (s)                                                                    | 11.0                                                                              |                                                                                   | 44.5                                                                              |                                                                                   | 55.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Intersection Capacity Utilization                                              | 46.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |      |      |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

05/07/2019



| Movement                                                                       | WBL                                                                               | WBR  | NBT                                                                               | NBR  | SBL                                                                               | SBT                                                                               |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Lane Configurations                                                            |  |      |  |      |  |  |
| Volume (vph)                                                                   | 4                                                                                 | 18   | 482                                                                               | 29   | 16                                                                                | 404                                                                               |
| Pedestrians                                                                    |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Ped Button                                                                     |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Pedestrian Timing (s)                                                          |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Free Right                                                                     | No                                                                                |      | No                                                                                |      |                                                                                   |                                                                                   |
| Ideal Flow                                                                     | 1900                                                                              | 1900 | 1900                                                                              | 1900 | 1900                                                                              | 1900                                                                              |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0                                                                               |
| Minimum Green (s)                                                              | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0  | 4.0                                                                               | 4.0                                                                               |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120  | 120                                                                               | 120  | 120                                                                               | 120                                                                               |
| Volume Combined (vph)                                                          | 22                                                                                | 0    | 511                                                                               | 0    | 16                                                                                | 404                                                                               |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00 | 1.00                                                                              | 1.00                                                                              |
| Turning Factor (vph)                                                           | 0.87                                                                              | 0.85 | 0.99                                                                              | 0.85 | 0.95                                                                              | 1.00                                                                              |
| Saturated Flow (vph)                                                           | 1652                                                                              | 0    | 1884                                                                              | 0    | 1805                                                                              | 1900                                                                              |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |      | 0.00                                                                              |      |                                                                                   | 0.00                                                                              |
| Protected Option Allowed                                                       | No                                                                                |      | Yes                                                                               |      |                                                                                   | Yes                                                                               |
| Reference Time (s)                                                             |                                                                                   | 0.0  | 32.6                                                                              | 0.0  | 1.1                                                                               | 25.5                                                                              |
| Adj Reference Time (s)                                                         |                                                                                   | 0.0  | 36.6                                                                              | 0.0  | 8.0                                                                               | 29.5                                                                              |
| Permitted Option                                                               |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Adj Saturation A (vph)                                                         | 110                                                                               |      | 1884                                                                              |      | 120                                                                               | 1900                                                                              |
| Reference Time A (s)                                                           | 24.0                                                                              |      | 32.6                                                                              |      | 16.0                                                                              | 25.5                                                                              |
| Adj Saturation B (vph)                                                         | NA                                                                                |      | NA                                                                                |      | NA                                                                                | NA                                                                                |
| Reference Time B (s)                                                           | NA                                                                                |      | NA                                                                                |      | NA                                                                                | NA                                                                                |
| Reference Time (s)                                                             |                                                                                   |      | 32.6                                                                              |      |                                                                                   | 25.5                                                                              |
| Adj Reference Time (s)                                                         |                                                                                   |      | 36.6                                                                              |      |                                                                                   | 29.5                                                                              |
| Split Option                                                                   |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Ref Time Combined (s)                                                          | 1.6                                                                               |      | 32.6                                                                              |      | 1.1                                                                               | 25.5                                                                              |
| Ref Time Seperate (s)                                                          | 0.3                                                                               |      | 30.7                                                                              |      | 1.1                                                                               | 25.5                                                                              |
| Reference Time (s)                                                             | 1.6                                                                               |      | 32.6                                                                              |      | 25.5                                                                              | 25.5                                                                              |
| Adj Reference Time (s)                                                         | 8.0                                                                               |      | 36.6                                                                              |      | 29.5                                                                              | 29.5                                                                              |
| Summary                                                                        | WB                                                                                |      | NB SB                                                                             |      | Combined                                                                          |                                                                                   |
| Protected Option (s)                                                           | NA                                                                                |      | 44.6                                                                              |      |                                                                                   |                                                                                   |
| Permitted Option (s)                                                           | Err                                                                               |      | 36.6                                                                              |      |                                                                                   |                                                                                   |
| Split Option (s)                                                               | 8.0                                                                               |      | 66.1                                                                              |      |                                                                                   |                                                                                   |
| Minimum (s)                                                                    | 8.0                                                                               |      | 36.6                                                                              |      | 44.6                                                                              |                                                                                   |
| Right Turns                                                                    |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Adj Reference Time (s)                                                         |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Cross Thru Ref Time (s)                                                        |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Combined (s)                                                                   |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Intersection Summary                                                           |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |
| Intersection Capacity Utilization                                              | 37.1%                                                                             |      | ICU Level of Service                                                              |      | A                                                                                 |                                                                                   |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |      |                                                                                   |      |                                                                                   |                                                                                   |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 97                                                                                | 425                                                                               | 222                                                                               | 31                                                                                | 464                                                                               | 110                                                                               | 251                                                                                 | 307                                                                                 | 20                                                                                  | 75                                                                                  | 248                                                                                 | 79                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 97                                                                                | 647                                                                               | 0                                                                                 | 31                                                                                | 574                                                                               | 0                                                                                 | 251                                                                                 | 327                                                                                 | 0                                                                                   | 75                                                                                  | 327                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.96                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1802                                                                              | 0                                                                                 | 1805                                                                              | 1845                                                                              | 0                                                                                 | 1805                                                                                | 1883                                                                                | 0                                                                                   | 1805                                                                                | 1831                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.4                                                                               | 43.1                                                                              | 0.0                                                                               | 2.1                                                                               | 37.3                                                                              | 0.0                                                                               | 16.7                                                                                | 20.8                                                                                | 0.0                                                                                 | 5.0                                                                                 | 21.4                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 10.4                                                                              | 47.1                                                                              | 0.0                                                                               | 9.0                                                                               | 41.3                                                                              | 0.0                                                                               | 20.7                                                                                | 24.8                                                                                | 0.0                                                                                 | 9.0                                                                                 | 25.4                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1802                                                                              |                                                                                   | 120                                                                               | 1845                                                                              |                                                                                   | 120                                                                                 | 1883                                                                                |                                                                                     | 120                                                                                 | 1831                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 96.7                                                                              | 43.1                                                                              |                                                                                   | 30.9                                                                              | 37.3                                                                              |                                                                                   | 250.3                                                                               | 20.8                                                                                |                                                                                     | 74.8                                                                                | 21.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 96.7                                                                              |                                                                                   |                                                                                   | 37.3                                                                              |                                                                                   |                                                                                   | 250.3                                                                               |                                                                                     |                                                                                     | 74.8                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 100.7                                                                             |                                                                                   |                                                                                   | 41.3                                                                              |                                                                                   |                                                                                   | 254.3                                                                               |                                                                                     |                                                                                     | 78.8                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.4                                                                               | 43.1                                                                              |                                                                                   | 2.1                                                                               | 37.3                                                                              |                                                                                   | 16.7                                                                                | 20.8                                                                                |                                                                                     | 5.0                                                                                 | 21.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.4                                                                               | 28.3                                                                              |                                                                                   | 2.1                                                                               | 30.2                                                                              |                                                                                   | 16.7                                                                                | 19.6                                                                                |                                                                                     | 5.0                                                                                 | 16.3                                                                                |                                                                                     |
| Reference Time (s)                                                             | 43.1                                                                              | 43.1                                                                              |                                                                                   | 37.3                                                                              | 37.3                                                                              |                                                                                   | 20.8                                                                                | 20.8                                                                                |                                                                                     | 21.4                                                                                | 21.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 47.1                                                                              | 47.1                                                                              |                                                                                   | 41.3                                                                              | 41.3                                                                              |                                                                                   | 24.8                                                                                | 24.8                                                                                |                                                                                     | 25.4                                                                                | 25.4                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 56.1                                                                              |                                                                                   | 46.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 100.7                                                                             |                                                                                   | 254.3                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 88.4                                                                              |                                                                                   | 50.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 56.1                                                                              |                                                                                   | 46.1                                                                              |                                                                                   | 102.2                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 85.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

05/07/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 62                                                                                | 1198                                                                              | 143                                                                               | 35                                                                                | 731                                                                               | 43                                                                                | 138                                                                                 | 429                                                                                 | 40                                                                                  | 64                                                                                  | 368                                                                                 | 59                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 62                                                                                | 1341                                                                              | 0                                                                                 | 35                                                                                | 774                                                                               | 0                                                                                 | 138                                                                                 | 469                                                                                 | 0                                                                                   | 64                                                                                  | 427                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5093                                                                              | 0                                                                                 | 1805                                                                              | 5132                                                                              | 0                                                                                 | 1805                                                                                | 3571                                                                                | 0                                                                                   | 1805                                                                                | 3543                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 4.1                                                                               | 31.6                                                                              | 0.0                                                                               | 2.3                                                                               | 18.1                                                                              | 0.0                                                                               | 9.2                                                                                 | 15.8                                                                                | 0.0                                                                                 | 4.3                                                                                 | 14.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.6                                                                              | 0.0                                                                               | 9.0                                                                               | 22.1                                                                              | 0.0                                                                               | 13.2                                                                                | 19.8                                                                                | 0.0                                                                                 | 9.0                                                                                 | 18.5                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                               | 1711                                                                              |                                                                                   | 120                                                                                 | 1786                                                                                |                                                                                     | 120                                                                                 | 1771                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 61.8                                                                              | 31.6                                                                              |                                                                                   | 34.9                                                                              | 18.1                                                                              |                                                                                   | 137.6                                                                               | 15.8                                                                                |                                                                                     | 63.8                                                                                | 14.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 61.8                                                                              |                                                                                   |                                                                                   | 34.9                                                                              |                                                                                   |                                                                                     | 137.6                                                                               |                                                                                     |                                                                                     | 63.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 65.8                                                                              |                                                                                   |                                                                                   | 38.9                                                                              |                                                                                   |                                                                                     | 141.6                                                                               |                                                                                     |                                                                                     | 67.8                                                                                |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 4.1                                                                               | 31.6                                                                              |                                                                                   | 2.3                                                                               | 18.1                                                                              |                                                                                   | 9.2                                                                                 | 15.8                                                                                |                                                                                     | 4.3                                                                                 | 14.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 4.1                                                                               | 28.2                                                                              |                                                                                   | 2.3                                                                               | 17.1                                                                              |                                                                                   | 9.2                                                                                 | 14.4                                                                                |                                                                                     | 4.3                                                                                 | 12.5                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.6                                                                              | 31.6                                                                              |                                                                                   | 18.1                                                                              | 18.1                                                                              |                                                                                   | 15.8                                                                                | 15.8                                                                                |                                                                                     | 14.5                                                                                | 14.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.6                                                                              | 35.6                                                                              |                                                                                   | 22.1                                                                              | 22.1                                                                              |                                                                                   | 19.8                                                                                | 19.8                                                                                |                                                                                     | 18.5                                                                                | 18.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 44.6                                                                              |                                                                                   | 31.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 65.8                                                                              |                                                                                   | 141.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 57.7                                                                              |                                                                                   | 38.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 44.6                                                                              |                                                                                   | 31.6                                                                              |                                                                                   | 76.2                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 63.5%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## **Appendix G**

LOS Worksheets – Opening Year 2020 Plus Project Conditions

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 49                                                                                | 198                                                                               | 168                                                                               | 78                                                                                | 236                                                                               | 165                                                                               | 61                                                                                  | 382                                                                                 | 79                                                                                  | 130                                                                                 | 764                                                                                 | 81                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 49                                                                                | 366                                                                               | 0                                                                                 | 78                                                                                | 401                                                                               | 0                                                                                 | 61                                                                                  | 461                                                                                 | 0                                                                                   | 130                                                                                 | 845                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.93                                                                              | 0.85                                                                              | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3369                                                                              | 0                                                                                 | 1805                                                                              | 3394                                                                              | 0                                                                                 | 1805                                                                                | 3525                                                                                | 0                                                                                   | 1805                                                                                | 3566                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.3                                                                               | 13.0                                                                              | 0.0                                                                               | 5.2                                                                               | 14.2                                                                              | 0.0                                                                               | 4.1                                                                                 | 15.7                                                                                | 0.0                                                                                 | 8.6                                                                                 | 28.4                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 17.5                                                                              | 0.0                                                                               | 9.7                                                                               | 18.7                                                                              | 0.0                                                                               | 9.5                                                                                 | 20.2                                                                                | 0.0                                                                                 | 13.1                                                                                | 32.9                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1684                                                                              |                                                                                   | 120                                                                               | 1697                                                                              |                                                                                   | 120                                                                                 | 1762                                                                                |                                                                                     | 120                                                                                 | 1783                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 48.9                                                                              | 13.0                                                                              |                                                                                   | 77.8                                                                              | 14.2                                                                              |                                                                                   | 60.8                                                                                | 15.7                                                                                |                                                                                     | 129.6                                                                               | 28.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 48.9                                                                              |                                                                                   |                                                                                   | 77.8                                                                              |                                                                                   |                                                                                     | 60.8                                                                                |                                                                                     |                                                                                     | 129.6                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 53.4                                                                              |                                                                                   |                                                                                   | 82.3                                                                              |                                                                                   |                                                                                     | 65.3                                                                                |                                                                                     |                                                                                     | 134.1                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.3                                                                               | 13.0                                                                              |                                                                                   | 5.2                                                                               | 14.2                                                                              |                                                                                   | 4.1                                                                                 | 15.7                                                                                |                                                                                     | 8.6                                                                                 | 28.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.3                                                                               | 7.1                                                                               |                                                                                   | 5.2                                                                               | 8.3                                                                               |                                                                                   | 4.1                                                                                 | 13.0                                                                                |                                                                                     | 8.6                                                                                 | 25.7                                                                                |                                                                                     |
| Reference Time (s)                                                             | 13.0                                                                              | 13.0                                                                              |                                                                                   | 14.2                                                                              | 14.2                                                                              |                                                                                   | 15.7                                                                                | 15.7                                                                                |                                                                                     | 28.4                                                                                | 28.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 17.5                                                                              | 17.5                                                                              |                                                                                   | 18.7                                                                              | 18.7                                                                              |                                                                                   | 20.2                                                                                | 20.2                                                                                |                                                                                     | 32.9                                                                                | 32.9                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 28.2                                                                              |                                                                                   | 42.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 82.3                                                                              |                                                                                   | 134.1                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 36.2                                                                              |                                                                                   | 53.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 28.2                                                                              |                                                                                   | 42.4                                                                              |                                                                                   | 70.6                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 58.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |                                                                                      |  |  |                                                                                      |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |    |  |  |    |                                                                                   |  |   |                                                                                     |  |   |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 104                                                                               | 1525                                                                                                                                                                                                                                                  | 88                                                                                | 221                                                                               | 1122                                                                                                                                                                                                                                                  | 212                                                                               | 108                                                                                 | 530                                                                                                                                                                     | 177                                                                                 | 215                                                                                 | 585                                                                                                                                                                     | 95                                                                                  |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                                                                                                     | 4.5                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 104                                                                               | 1525                                                                                                                                                                                                                                                  | 88                                                                                | 221                                                                               | 1334                                                                                                                                                                                                                                                  | 0                                                                                 | 108                                                                                 | 707                                                                                                                                                                     | 0                                                                                   | 215                                                                                 | 585                                                                                                                                                                     | 95                                                                                  |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.96                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5052                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 3482                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3618                                                                                                                                                                    | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                   |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                     |                                                                                                                                                                         | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 6.9                                                                               | 35.4                                                                                                                                                                                                                                                  | 6.5                                                                               | 14.7                                                                              | 31.7                                                                                                                                                                                                                                                  | 0.0                                                                               | 7.2                                                                                 | 24.4                                                                                                                                                                    | 0.0                                                                                 | 14.3                                                                                | 19.4                                                                                                                                                                    | 7.1                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 11.4                                                                              | 39.9                                                                                                                                                                                                                                                  | 11.0                                                                              | 19.2                                                                              | 36.2                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.7                                                                                | 28.9                                                                                                                                                                    | 0.0                                                                                 | 18.8                                                                                | 23.9                                                                                                                                                                    | 11.6                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1684                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1741                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1809                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 103.7                                                                             | 35.4                                                                                                                                                                                                                                                  |                                                                                   | 220.4                                                                             | 31.7                                                                                                                                                                                                                                                  |                                                                                   | 107.7                                                                               | 24.4                                                                                                                                                                    |                                                                                     | 214.4                                                                               | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 103.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 220.4                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 107.7                                                                                                                                                                   |                                                                                     |                                                                                     | 214.4                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 108.2                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 224.9                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 112.2                                                                                                                                                                   |                                                                                     |                                                                                     | 218.9                                                                                                                                                                   |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 6.9                                                                               | 35.4                                                                                                                                                                                                                                                  |                                                                                   | 14.7                                                                              | 31.7                                                                                                                                                                                                                                                  |                                                                                   | 7.2                                                                                 | 24.4                                                                                                                                                                    |                                                                                     | 14.3                                                                                | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 6.9                                                                               | 35.4                                                                                                                                                                                                                                                  |                                                                                   | 14.7                                                                              | 26.6                                                                                                                                                                                                                                                  |                                                                                   | 7.2                                                                                 | 18.3                                                                                                                                                                    |                                                                                     | 14.3                                                                                | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 35.4                                                                              | 35.4                                                                                                                                                                                                                                                  |                                                                                   | 31.7                                                                              | 31.7                                                                                                                                                                                                                                                  |                                                                                   | 24.4                                                                                | 24.4                                                                                                                                                                    |                                                                                     | 19.4                                                                                | 19.4                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 39.9                                                                              | 39.9                                                                                                                                                                                                                                                  |                                                                                   | 36.2                                                                              | 36.2                                                                                                                                                                                                                                                  |                                                                                   | 28.9                                                                                | 28.9                                                                                                                                                                    |                                                                                     | 23.9                                                                                | 23.9                                                                                                                                                                    |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 59.1                                                                              |                                                                                                                                                                                                                                                       | 47.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 224.9                                                                             |                                                                                                                                                                                                                                                       | 218.9                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 76.0                                                                              |                                                                                                                                                                                                                                                       | 52.8                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 59.1                                                                              |                                                                                                                                                                                                                                                       | 47.7                                                                              |                                                                                   | 106.7                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 11.0                                                                              |                                                                                                                                                                                                                                                       | 11.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 23.9                                                                              |                                                                                                                                                                                                                                                       | 36.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 19.2                                                                              |                                                                                                                                                                                                                                                       | 11.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 54.1                                                                              |                                                                                                                                                                                                                                                       | 59.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 88.9%                                                                             |                                                                                                                                                                                                                                                       |                                                                                   | ICU Level of Service                                                              |                                                                                                                                                                                                                                                       |                                                                                   | E                                                                                   |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |  |  |  |  |  |  |



# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 110                                                                               | 889                                                                               | 174                                                                               | 179                                                                               | 1507                                                                              | 134                                                                               | 104                                                                                 | 368                                                                                 | 48                                                                                  | 113                                                                                 | 781                                                                                 | 228                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 110                                                                               | 1063                                                                              | 0                                                                                 | 179                                                                               | 1641                                                                              | 0                                                                                 | 104                                                                                 | 416                                                                                 | 0                                                                                   | 113                                                                                 | 781                                                                                 | 228                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5049                                                                              | 0                                                                                 | 1805                                                                              | 5112                                                                              | 0                                                                                 | 1805                                                                                | 3555                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 7.3                                                                               | 25.3                                                                              | 0.0                                                                               | 11.9                                                                              | 38.5                                                                              | 0.0                                                                               | 6.9                                                                                 | 14.0                                                                                | 0.0                                                                                 | 7.5                                                                                 | 25.9                                                                                | 16.9                                                                                |
| Adj Reference Time (s)                                                         | 11.3                                                                              | 29.3                                                                              | 0.0                                                                               | 15.9                                                                              | 42.5                                                                              | 0.0                                                                               | 10.9                                                                                | 18.0                                                                                | 0.0                                                                                 | 11.5                                                                                | 29.9                                                                                | 20.9                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1683                                                                              |                                                                                   | 120                                                                               | 1704                                                                              |                                                                                   | 120                                                                                 | 1777                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 109.7                                                                             | 25.3                                                                              |                                                                                   | 178.5                                                                             | 38.5                                                                              |                                                                                   | 103.7                                                                               | 14.0                                                                                |                                                                                     | 112.7                                                                               | 25.9                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 109.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 178.5                                                                             |                                                                                   |                                                                                     |                                                                                     | 103.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 113.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 182.5                                                                             |                                                                                   |                                                                                     |                                                                                     | 107.7                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 7.3                                                                               | 25.3                                                                              |                                                                                   | 11.9                                                                              | 38.5                                                                              |                                                                                   | 6.9                                                                                 | 14.0                                                                                |                                                                                     | 7.5                                                                                 | 25.9                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 7.3                                                                               | 21.1                                                                              |                                                                                   | 11.9                                                                              | 35.4                                                                              |                                                                                   | 6.9                                                                                 | 12.4                                                                                |                                                                                     | 7.5                                                                                 | 25.9                                                                                |                                                                                     |
| Reference Time (s)                                                             | 25.3                                                                              | 25.3                                                                              |                                                                                   | 38.5                                                                              | 38.5                                                                              |                                                                                   | 14.0                                                                                | 14.0                                                                                |                                                                                     | 25.9                                                                                | 25.9                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 29.3                                                                              | 29.3                                                                              |                                                                                   | 42.5                                                                              | 42.5                                                                              |                                                                                   | 18.0                                                                                | 18.0                                                                                |                                                                                     | 29.9                                                                                | 29.9                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 53.8                                                                              |                                                                                   | 40.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 182.5                                                                             |                                                                                   | 116.7                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 71.8                                                                              |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 53.8                                                                              |                                                                                   | 40.8                                                                              |                                                                                   | 94.7                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 20.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 42.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 10.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 74.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 78.9%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

09/17/2019



| Movement                                                                       | EBL  | EBR  | NBL   | NBT   | SBT                  | SBR  |
|--------------------------------------------------------------------------------|------|------|-------|-------|----------------------|------|
| Lane Configurations                                                            |      |      |       |       |                      |      |
| Volume (vph)                                                                   | 4    | 393  | 288   | 596   | 1023                 | 28   |
| Pedestrians                                                                    |      |      |       |       |                      |      |
| Ped Button                                                                     |      |      |       |       |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |       |                      |      |
| Free Right                                                                     |      | No   |       |       |                      | No   |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900  | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120   | 120                  | 120  |
| Volume Combined (vph)                                                          | 4    | 393  | 288   | 596   | 1051                 | 0    |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 0.95  | 0.95                 | 1.00 |
| Turning Factor (vph)                                                           | 0.95 | 0.85 | 0.95  | 1.00  | 1.00                 | 0.85 |
| Saturated Flow (vph)                                                           | 1805 | 1615 | 1805  | 3618  | 3603                 | 0    |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0   | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      |       | 0.00  | 0.00                 |      |
| Protected Option Allowed                                                       | No   |      |       | Yes   | Yes                  |      |
| Reference Time (s)                                                             |      | 29.2 | 19.1  | 19.8  | 35.0                 | 0.0  |
| Adj Reference Time (s)                                                         |      | 33.2 | 23.1  | 23.8  | 39.0                 | 0.0  |
| Permitted Option                                                               |      |      |       |       |                      |      |
| Adj Saturation A (vph)                                                         | 120  |      | 120   | 1809  | 1802                 |      |
| Reference Time A (s)                                                           | 4.0  |      | 287.2 | 19.8  | 35.0                 |      |
| Adj Saturation B (vph)                                                         | NA   |      | NA    | NA    | NA                   |      |
| Reference Time B (s)                                                           | NA   |      | NA    | NA    | NA                   |      |
| Reference Time (s)                                                             |      |      |       | 287.2 | 35.0                 |      |
| Adj Reference Time (s)                                                         |      |      |       | 291.2 | 39.0                 |      |
| Split Option                                                                   |      |      |       |       |                      |      |
| Ref Time Combined (s)                                                          | 0.3  |      | 19.1  | 19.8  | 35.0                 |      |
| Ref Time Seperate (s)                                                          | 0.3  |      | 19.1  | 19.8  | 34.1                 |      |
| Reference Time (s)                                                             | 0.3  |      | 19.8  | 19.8  | 35.0                 |      |
| Adj Reference Time (s)                                                         | 8.0  |      | 23.8  | 23.8  | 39.0                 |      |
| Summary                                                                        | EB   |      | NB SB |       | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 62.1  |       |                      |      |
| Permitted Option (s)                                                           | Err  |      | 291.2 |       |                      |      |
| Split Option (s)                                                               | 8.0  |      | 62.8  |       |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 62.1  |       | 70.1                 |      |
| Right Turns                                                                    | EBR  |      |       |       |                      |      |
| Adj Reference Time (s)                                                         | 33.2 |      |       |       |                      |      |
| Cross Thru Ref Time (s)                                                        | 39.0 |      |       |       |                      |      |
| Oncoming Left Ref Time (s)                                                     | 0.0  |      |       |       |                      |      |
| Combined (s)                                                                   | 72.2 |      |       |       |                      |      |
| Intersection Summary                                                           |      |      |       |       |                      |      |
| Intersection Capacity Utilization                                              |      |      | 60.2% |       | ICU Level of Service | B    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |       |                      |      |

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 48                                                                                | 309                                                                               | 168                                                                               | 176                                                                               | 520                                                                               | 215                                                                               | 119                                                                                 | 644                                                                                 | 123                                                                                 | 232                                                                                 | 1002                                                                                | 104                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 48                                                                                | 477                                                                               | 0                                                                                 | 176                                                                               | 520                                                                               | 215                                                                               | 119                                                                                 | 767                                                                                 | 0                                                                                   | 232                                                                                 | 1106                                                                                | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1800                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3531                                                                                | 0                                                                                   | 1805                                                                                | 3567                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.2                                                                               | 31.8                                                                              | 0.0                                                                               | 11.7                                                                              | 32.8                                                                              | 16.0                                                                              | 7.9                                                                                 | 26.1                                                                                | 0.0                                                                                 | 15.4                                                                                | 37.2                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.8                                                                              | 0.0                                                                               | 15.7                                                                              | 36.8                                                                              | 20.0                                                                              | 11.9                                                                                | 30.1                                                                                | 0.0                                                                                 | 19.4                                                                                | 41.2                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1800                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1765                                                                                |                                                                                     | 120                                                                                 | 1783                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 47.9                                                                              | 31.8                                                                              |                                                                                   | 175.5                                                                             | 32.8                                                                              |                                                                                   | 118.7                                                                               | 26.1                                                                                |                                                                                     | 231.4                                                                               | 37.2                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                   | 175.5                                                                             |                                                                                   |                                                                                     | 118.7                                                                               |                                                                                     |                                                                                     | 231.4                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 51.9                                                                              |                                                                                   |                                                                                   | 179.5                                                                             |                                                                                   |                                                                                     | 122.7                                                                               |                                                                                     |                                                                                     | 235.4                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.2                                                                               | 31.8                                                                              |                                                                                   | 11.7                                                                              | 32.8                                                                              |                                                                                   | 7.9                                                                                 | 26.1                                                                                |                                                                                     | 15.4                                                                                | 37.2                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.2                                                                               | 20.6                                                                              |                                                                                   | 11.7                                                                              | 32.8                                                                              |                                                                                   | 7.9                                                                                 | 21.9                                                                                |                                                                                     | 15.4                                                                                | 33.7                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.8                                                                              | 31.8                                                                              |                                                                                   | 32.8                                                                              | 32.8                                                                              |                                                                                   | 26.1                                                                                | 26.1                                                                                |                                                                                     | 37.2                                                                                | 37.2                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.8                                                                              | 35.8                                                                              |                                                                                   | 36.8                                                                              | 36.8                                                                              |                                                                                   | 30.1                                                                                | 30.1                                                                                |                                                                                     | 41.2                                                                                | 41.2                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.5                                                                              |                                                                                   | 53.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 179.5                                                                             |                                                                                   | 235.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 72.6                                                                              |                                                                                   | 71.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.5                                                                              |                                                                                   | 53.1                                                                              |                                                                                   | 104.6                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 20.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 30.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 59.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 87.2%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |   |                                                                                      |  |  |                                                                                      |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |  |  |    |  |  |   |                                                                                     |  |   |  |
| Volume (vph)                                                                   | 254                                                                               | 794                                                                                                                                                                                                                                                   | 164                                                                               | 55                                                                                | 1182                                                                                                                                                                                                                                                  | 197                                                                               | 118                                                                                 | 629                                                                                                                                                                     | 75                                                                                  | 56                                                                                  | 909                                                                                                                                                                     | 240                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                                                                                                         |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 254                                                                               | 794                                                                                                                                                                                                                                                   | 164                                                                               | 55                                                                                | 1182                                                                                                                                                                                                                                                  | 197                                                                               | 118                                                                                 | 704                                                                                                                                                                     | 0                                                                                   | 56                                                                                  | 1149                                                                                                                                                                    | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 1.00                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                                                                                                    | 0.85                                                                                | 0.95                                                                                | 0.97                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                              | 5176                                                                                                                                                                                                                                                  | 1615                                                                              | 1805                                                                                | 3560                                                                                                                                                                    | 0                                                                                   | 1805                                                                                | 3504                                                                                                                                                                    | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   | 0.00                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                                                                                                         | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   | Yes                                                                                                                                                                                                                                                   |                                                                                   |                                                                                     |                                                                                                                                                                         | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 16.9                                                                              | 18.4                                                                                                                                                                                                                                                  | 12.2                                                                              | 3.7                                                                               | 27.4                                                                                                                                                                                                                                                  | 14.6                                                                              | 7.8                                                                                 | 23.7                                                                                                                                                                    | 0.0                                                                                 | 3.7                                                                                 | 39.3                                                                                                                                                                    | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 20.9                                                                              | 22.4                                                                                                                                                                                                                                                  | 16.2                                                                              | 9.0                                                                               | 31.4                                                                                                                                                                                                                                                  | 18.6                                                                              | 11.8                                                                                | 27.7                                                                                                                                                                    | 0.0                                                                                 | 9.0                                                                                 | 43.3                                                                                                                                                                    | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1725                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1780                                                                                                                                                                    |                                                                                     | 120                                                                                 | 1752                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 253.3                                                                             | 18.4                                                                                                                                                                                                                                                  |                                                                                   | 54.8                                                                              | 27.4                                                                                                                                                                                                                                                  |                                                                                   | 117.7                                                                               | 23.7                                                                                                                                                                    |                                                                                     | 55.8                                                                                | 39.3                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 253.3                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 54.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 117.7                                                                                                                                                                   |                                                                                     |                                                                                     | 55.8                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 257.3                                                                                                                                                                                                                                                 |                                                                                   |                                                                                   | 58.8                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | 121.7                                                                                                                                                                   |                                                                                     |                                                                                     | 59.8                                                                                                                                                                    |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 16.9                                                                              | 18.4                                                                                                                                                                                                                                                  |                                                                                   | 3.7                                                                               | 27.4                                                                                                                                                                                                                                                  |                                                                                   | 7.8                                                                                 | 23.7                                                                                                                                                                    |                                                                                     | 3.7                                                                                 | 39.3                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 16.9                                                                              | 18.4                                                                                                                                                                                                                                                  |                                                                                   | 3.7                                                                               | 27.4                                                                                                                                                                                                                                                  |                                                                                   | 7.8                                                                                 | 21.2                                                                                                                                                                    |                                                                                     | 3.7                                                                                 | 31.1                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 18.4                                                                              | 18.4                                                                                                                                                                                                                                                  |                                                                                   | 27.4                                                                              | 27.4                                                                                                                                                                                                                                                  |                                                                                   | 23.7                                                                                | 23.7                                                                                                                                                                    |                                                                                     | 39.3                                                                                | 39.3                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 22.4                                                                              | 22.4                                                                                                                                                                                                                                                  |                                                                                   | 31.4                                                                              | 31.4                                                                                                                                                                                                                                                  |                                                                                   | 27.7                                                                                | 27.7                                                                                                                                                                    |                                                                                     | 43.3                                                                                | 43.3                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 52.3                                                                              |                                                                                                                                                                                                                                                       | 55.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 257.3                                                                             |                                                                                                                                                                                                                                                       | 121.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 53.8                                                                              |                                                                                                                                                                                                                                                       | 71.1                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 52.3                                                                              |                                                                                                                                                                                                                                                       | 55.2                                                                              |                                                                                   | 107.5                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | EBR                                                                               |                                                                                                                                                                                                                                                       | WBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 16.2                                                                              |                                                                                                                                                                                                                                                       | 18.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 43.3                                                                              |                                                                                                                                                                                                                                                       | 27.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                                                                                                                                                                                       | 20.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 68.5                                                                              |                                                                                                                                                                                                                                                       | 67.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 89.6%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | E                                                                                                                                                                       |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

09/17/2019

|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |   |  |  |  |                                                                                      |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |                                                                                   |  |    |                                                                                   |  |  |  |  |   |  |
| Volume (vph)                                                                   | 37                                                                                | 867                                                                                                                                                                                                                                                   | 132                                                                               | 128                                                                               | 1537                                                                                                                                                                                                                                                  | 104                                                                               | 112                                                                                 | 175                                                                                 | 71                                                                                  | 126                                                                                 | 346                                                                                                                                                                     | 151                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 37                                                                                | 999                                                                                                                                                                                                                                                   | 0                                                                                 | 128                                                                               | 1641                                                                                                                                                                                                                                                  | 0                                                                                 | 112                                                                                 | 175                                                                                 | 71                                                                                  | 126                                                                                 | 346                                                                                                                                                                     | 151                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.99                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5073                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                              | 5126                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                                                                                                    | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   | 0.00                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   | Yes                                                                                                                                                                                                                                                   |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Time (s)                                                             | 2.5                                                                               | 23.6                                                                                                                                                                                                                                                  | 0.0                                                                               | 8.5                                                                               | 38.4                                                                                                                                                                                                                                                  | 0.0                                                                               | 7.4                                                                                 | 11.1                                                                                | 5.3                                                                                 | 8.4                                                                                 | 21.9                                                                                                                                                                    | 11.2                                                                                |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 27.6                                                                                                                                                                                                                                                  | 0.0                                                                               | 12.5                                                                              | 42.4                                                                                                                                                                                                                                                  | 0.0                                                                               | 11.4                                                                                | 15.1                                                                                | 9.3                                                                                 | 12.4                                                                                | 25.9                                                                                                                                                                    | 15.2                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1691                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1709                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 36.9                                                                              | 23.6                                                                                                                                                                                                                                                  |                                                                                   | 127.6                                                                             | 38.4                                                                                                                                                                                                                                                  |                                                                                   | 111.7                                                                               | 11.1                                                                                |                                                                                     | 125.7                                                                               | 21.9                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 36.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 127.6                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 111.7                                                                               |                                                                                     |                                                                                     | 125.7                                                                                                                                                                   |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 40.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   | 131.6                                                                                                                                                                                                                                                 |                                                                                   |                                                                                     | 115.7                                                                               |                                                                                     |                                                                                     | 129.7                                                                                                                                                                   |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 2.5                                                                               | 23.6                                                                                                                                                                                                                                                  |                                                                                   | 8.5                                                                               | 38.4                                                                                                                                                                                                                                                  |                                                                                   | 7.4                                                                                 | 11.1                                                                                |                                                                                     | 8.4                                                                                 | 21.9                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 2.5                                                                               | 20.5                                                                                                                                                                                                                                                  |                                                                                   | 8.5                                                                               | 36.0                                                                                                                                                                                                                                                  |                                                                                   | 7.4                                                                                 | 11.1                                                                                |                                                                                     | 8.4                                                                                 | 21.9                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 23.6                                                                              | 23.6                                                                                                                                                                                                                                                  |                                                                                   | 38.4                                                                              | 38.4                                                                                                                                                                                                                                                  |                                                                                   | 11.1                                                                                | 11.1                                                                                |                                                                                     | 21.9                                                                                | 21.9                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 27.6                                                                              | 27.6                                                                                                                                                                                                                                                  |                                                                                   | 42.4                                                                              | 42.4                                                                                                                                                                                                                                                  |                                                                                   | 15.1                                                                                | 15.1                                                                                |                                                                                     | 25.9                                                                                | 25.9                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 51.4                                                                              |                                                                                                                                                                                                                                                       | 37.3                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 131.6                                                                             |                                                                                                                                                                                                                                                       | 129.7                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 70.0                                                                              |                                                                                                                                                                                                                                                       | 40.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 51.4                                                                              |                                                                                                                                                                                                                                                       | 37.3                                                                              |                                                                                   | 88.7                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | NBR                                                                               |                                                                                                                                                                                                                                                       | SBR                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 9.3                                                                               |                                                                                                                                                                                                                                                       | 15.2                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 27.6                                                                              |                                                                                                                                                                                                                                                       | 42.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 12.4                                                                              |                                                                                                                                                                                                                                                       | 11.4                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 49.3                                                                              |                                                                                                                                                                                                                                                       | 69.1                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 73.9%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 7                                                                                 | 2                                                                                 | 5                                                                                 | 69                                                                                | 6                                                                                 | 82                                                                                | 26                                                                                  | 363                                                                                 | 27                                                                                  | 54                                                                                  | 611                                                                                 | 13                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 0                                                                                 | 14                                                                                | 0                                                                                 | 0                                                                                 | 157                                                                               | 0                                                                                 | 26                                                                                  | 390                                                                                 | 0                                                                                   | 54                                                                                  | 624                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.90                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1753                                                                              | 0                                                                                 | 0                                                                                 | 1713                                                                              | 0                                                                                 | 1805                                                                                | 1880                                                                                | 0                                                                                   | 1805                                                                                | 1894                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 1.7                                                                                 | 24.9                                                                                | 0.0                                                                                 | 3.6                                                                                 | 39.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 9.0                                                                                 | 28.9                                                                                | 0.0                                                                                 | 9.0                                                                                 | 43.5                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 1306                                                                              |                                                                                   | 0                                                                                 | 1431                                                                              |                                                                                   | 120                                                                                 | 1880                                                                                |                                                                                     | 120                                                                                 | 1894                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 0.0                                                                               | 1.3                                                                               |                                                                                   | 0.0                                                                               | 13.2                                                                              |                                                                                   | 25.9                                                                                | 24.9                                                                                |                                                                                     | 53.9                                                                                | 39.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | 8.5                                                                               | 9.0                                                                               |                                                                                   | 12.6                                                                              | 19.0                                                                              |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 1.3                                                                               |                                                                                   |                                                                                   | 13.2                                                                              |                                                                                   |                                                                                   | 25.9                                                                                |                                                                                     |                                                                                     | 53.9                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               |                                                                                   |                                                                                   | 17.2                                                                              |                                                                                   |                                                                                   | 29.9                                                                                |                                                                                     |                                                                                     | 57.9                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 1.0                                                                               |                                                                                   | 0.0                                                                               | 11.0                                                                              |                                                                                   | 1.7                                                                                 | 24.9                                                                                |                                                                                     | 3.6                                                                                 | 39.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 0.5                                                                               | 0.1                                                                               |                                                                                   | 4.6                                                                               | 0.4                                                                               |                                                                                   | 1.7                                                                                 | 23.2                                                                                |                                                                                     | 3.6                                                                                 | 38.7                                                                                |                                                                                     |
| Reference Time (s)                                                             | 1.0                                                                               | 1.0                                                                               |                                                                                   | 11.0                                                                              | 11.0                                                                              |                                                                                   | 24.9                                                                                | 24.9                                                                                |                                                                                     | 39.5                                                                                | 39.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   | 15.0                                                                              | 15.0                                                                              |                                                                                   | 28.9                                                                                | 28.9                                                                                |                                                                                     | 43.5                                                                                | 43.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 52.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 17.2                                                                              |                                                                                   | 57.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 24.0                                                                              |                                                                                   | 72.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 17.2                                                                              |                                                                                   | 52.5                                                                              |                                                                                   | 69.7                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 58.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

09/17/2019



| Movement                                                                       | WBL  | WBR  | NBT   | NBR  | SBL                  | SBT  |
|--------------------------------------------------------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations                                                            | W    | R    | T     | R    | L                    | R    |
| Volume (vph)                                                                   | 17   | 24   | 377   | 13   | 37                   | 554  |
| Pedestrians                                                                    |      |      |       |      |                      |      |
| Ped Button                                                                     |      |      |       |      |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |      |                      |      |
| Free Right                                                                     |      | No   |       | No   |                      |      |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900 | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120  | 120                  | 120  |
| Volume Combined (vph)                                                          | 41   | 0    | 390   | 0    | 37                   | 554  |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 1.00 | 1.00                 | 1.00 |
| Turning Factor (vph)                                                           | 0.89 | 0.85 | 0.99  | 0.85 | 0.95                 | 1.00 |
| Saturated Flow (vph)                                                           | 1697 | 0    | 1891  | 0    | 1805                 | 1900 |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0  | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      | 0.00  |      |                      | 0.00 |
| Protected Option Allowed                                                       | No   |      | Yes   |      |                      | Yes  |
| Reference Time (s)                                                             |      | 0.0  | 24.8  | 0.0  | 2.5                  | 35.0 |
| Adj Reference Time (s)                                                         |      | 0.0  | 28.8  | 0.0  | 8.0                  | 39.0 |
| Permitted Option                                                               |      |      |       |      |                      |      |
| Adj Saturation A (vph)                                                         | 113  |      | 1891  |      | 120                  | 1900 |
| Reference Time A (s)                                                           | 43.5 |      | 24.8  |      | 36.9                 | 35.0 |
| Adj Saturation B (vph)                                                         | NA   |      | NA    |      | NA                   | NA   |
| Reference Time B (s)                                                           | NA   |      | NA    |      | NA                   | NA   |
| Reference Time (s)                                                             |      |      | 24.8  |      |                      | 36.9 |
| Adj Reference Time (s)                                                         |      |      | 28.8  |      |                      | 40.9 |
| Split Option                                                                   |      |      |       |      |                      |      |
| Ref Time Combined (s)                                                          | 2.9  |      | 24.8  |      | 2.5                  | 35.0 |
| Ref Time Seperate (s)                                                          | 1.2  |      | 23.9  |      | 2.5                  | 35.0 |
| Reference Time (s)                                                             | 2.9  |      | 24.8  |      | 35.0                 | 35.0 |
| Adj Reference Time (s)                                                         | 8.0  |      | 28.8  |      | 39.0                 | 39.0 |
| Summary                                                                        | WB   |      | NB SB |      | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 39.0  |      |                      |      |
| Permitted Option (s)                                                           | Err  |      | 40.9  |      |                      |      |
| Split Option (s)                                                               | 8.0  |      | 67.7  |      |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 39.0  |      | 47.0                 |      |
| Right Turns                                                                    |      |      |       |      |                      |      |
| Adj Reference Time (s)                                                         |      |      |       |      |                      |      |
| Cross Thru Ref Time (s)                                                        |      |      |       |      |                      |      |
| Oncoming Left Ref Time (s)                                                     |      |      |       |      |                      |      |
| Combined (s)                                                                   |      |      |       |      |                      |      |
| Intersection Summary                                                           |      |      |       |      |                      |      |
| Intersection Capacity Utilization                                              |      |      | 39.2% |      | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |      |                      |      |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 58                                                                                | 300                                                                               | 199                                                                               | 44                                                                                | 525                                                                               | 68                                                                                | 234                                                                                 | 265                                                                                 | 30                                                                                  | 74                                                                                  | 310                                                                                 | 193                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 58                                                                                | 499                                                                               | 0                                                                                 | 44                                                                                | 593                                                                               | 0                                                                                 | 234                                                                                 | 295                                                                                 | 0                                                                                   | 74                                                                                  | 503                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.94                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1786                                                                              | 0                                                                                 | 1805                                                                              | 1867                                                                              | 0                                                                                 | 1805                                                                                | 1871                                                                                | 0                                                                                   | 1805                                                                                | 1791                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.9                                                                               | 33.5                                                                              | 0.0                                                                               | 2.9                                                                               | 38.1                                                                              | 0.0                                                                               | 15.6                                                                                | 18.9                                                                                | 0.0                                                                                 | 4.9                                                                                 | 33.7                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 37.5                                                                              | 0.0                                                                               | 9.0                                                                               | 42.1                                                                              | 0.0                                                                               | 19.6                                                                                | 22.9                                                                                | 0.0                                                                                 | 9.0                                                                                 | 37.7                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1786                                                                              |                                                                                   | 120                                                                               | 1867                                                                              |                                                                                   | 120                                                                                 | 1871                                                                                |                                                                                     | 120                                                                                 | 1791                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 57.8                                                                              | 33.5                                                                              |                                                                                   | 43.9                                                                              | 38.1                                                                              |                                                                                   | 233.4                                                                               | 18.9                                                                                |                                                                                     | 73.8                                                                                | 33.7                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 57.8                                                                              |                                                                                   |                                                                                   | 43.9                                                                              |                                                                                   |                                                                                     | 233.4                                                                               |                                                                                     |                                                                                     | 73.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 61.8                                                                              |                                                                                   |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                     | 237.4                                                                               |                                                                                     |                                                                                     | 77.8                                                                                |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.9                                                                               | 33.5                                                                              |                                                                                   | 2.9                                                                               | 38.1                                                                              |                                                                                   | 15.6                                                                                | 18.9                                                                                |                                                                                     | 4.9                                                                                 | 33.7                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.9                                                                               | 20.2                                                                              |                                                                                   | 2.9                                                                               | 33.7                                                                              |                                                                                   | 15.6                                                                                | 17.0                                                                                |                                                                                     | 4.9                                                                                 | 20.8                                                                                |                                                                                     |
| Reference Time (s)                                                             | 33.5                                                                              | 33.5                                                                              |                                                                                   | 38.1                                                                              | 38.1                                                                              |                                                                                   | 18.9                                                                                | 18.9                                                                                |                                                                                     | 33.7                                                                                | 33.7                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 37.5                                                                              | 37.5                                                                              |                                                                                   | 42.1                                                                              | 42.1                                                                              |                                                                                   | 22.9                                                                                | 22.9                                                                                |                                                                                     | 37.7                                                                                | 37.7                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.1                                                                              |                                                                                   | 57.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 61.8                                                                              |                                                                                   | 237.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 79.6                                                                              |                                                                                   | 60.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.1                                                                              |                                                                                   | 57.3                                                                              |                                                                                   | 108.4                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 90.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 107                                                                               | 587                                                                               | 171                                                                               | 69                                                                                | 1246                                                                              | 71                                                                                | 158                                                                                 | 387                                                                                 | 35                                                                                  | 45                                                                                  | 443                                                                                 | 59                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 107                                                                               | 758                                                                               | 0                                                                                 | 69                                                                                | 1317                                                                              | 0                                                                                 | 158                                                                                 | 422                                                                                 | 0                                                                                   | 45                                                                                  | 502                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5000                                                                              | 0                                                                                 | 1805                                                                              | 5134                                                                              | 0                                                                                 | 1805                                                                                | 3573                                                                                | 0                                                                                   | 1805                                                                                | 3554                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 7.1                                                                               | 18.2                                                                              | 0.0                                                                               | 4.6                                                                               | 30.8                                                                              | 0.0                                                                               | 10.5                                                                                | 14.2                                                                                | 0.0                                                                                 | 3.0                                                                                 | 17.0                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 11.1                                                                              | 22.2                                                                              | 0.0                                                                               | 9.0                                                                               | 34.8                                                                              | 0.0                                                                               | 14.5                                                                                | 18.2                                                                                | 0.0                                                                                 | 9.0                                                                                 | 21.0                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1667                                                                              |                                                                                   | 120                                                                               | 1711                                                                              |                                                                                   | 120                                                                                 | 1786                                                                                |                                                                                     | 120                                                                                 | 1777                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 106.7                                                                             | 18.2                                                                              |                                                                                   | 68.8                                                                              | 30.8                                                                              |                                                                                   | 157.6                                                                               | 14.2                                                                                |                                                                                     | 44.9                                                                                | 17.0                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 106.7                                                                             |                                                                                   |                                                                                   | 68.8                                                                              |                                                                                   |                                                                                   | 157.6                                                                               |                                                                                     |                                                                                     | 44.9                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 110.7                                                                             |                                                                                   |                                                                                   | 72.8                                                                              |                                                                                   |                                                                                   | 161.6                                                                               |                                                                                     |                                                                                     | 48.9                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 7.1                                                                               | 18.2                                                                              |                                                                                   | 4.6                                                                               | 30.8                                                                              |                                                                                   | 10.5                                                                                | 14.2                                                                                |                                                                                     | 3.0                                                                                 | 17.0                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 7.1                                                                               | 14.1                                                                              |                                                                                   | 4.6                                                                               | 29.1                                                                              |                                                                                   | 10.5                                                                                | 13.0                                                                                |                                                                                     | 3.0                                                                                 | 15.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 18.2                                                                              | 18.2                                                                              |                                                                                   | 30.8                                                                              | 30.8                                                                              |                                                                                   | 14.2                                                                                | 14.2                                                                                |                                                                                     | 17.0                                                                                | 17.0                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 22.2                                                                              | 22.2                                                                              |                                                                                   | 34.8                                                                              | 34.8                                                                              |                                                                                   | 18.2                                                                                | 18.2                                                                                |                                                                                     | 21.0                                                                                | 21.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 45.9                                                                              |                                                                                   | 35.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 110.7                                                                             |                                                                                   | 161.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 57.0                                                                              |                                                                                   | 39.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 45.9                                                                              |                                                                                   | 35.5                                                                              |                                                                                   | 81.4                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 67.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 1: Norwalk Boulevard & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 29                                                                                | 208                                                                               | 103                                                                               | 132                                                                               | 431                                                                               | 222                                                                               | 123                                                                                 | 773                                                                                 | 110                                                                                 | 112                                                                                 | 580                                                                                 | 75                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 29                                                                                | 311                                                                               | 0                                                                                 | 132                                                                               | 653                                                                               | 0                                                                                 | 123                                                                                 | 883                                                                                 | 0                                                                                   | 112                                                                                 | 655                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 3438                                                                              | 0                                                                                 | 1805                                                                              | 3433                                                                              | 0                                                                                 | 1805                                                                                | 3550                                                                                | 0                                                                                   | 1805                                                                                | 3555                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     | Yes                                                                                 |                                                                                     |
| Reference Time (s)                                                             | 1.9                                                                               | 10.9                                                                              | 0.0                                                                               | 8.8                                                                               | 22.8                                                                              | 0.0                                                                               | 8.2                                                                                 | 29.8                                                                                | 0.0                                                                                 | 7.4                                                                                 | 22.1                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.5                                                                               | 15.4                                                                              | 0.0                                                                               | 13.3                                                                              | 27.3                                                                              | 0.0                                                                               | 12.7                                                                                | 34.3                                                                                | 0.0                                                                                 | 11.9                                                                                | 26.6                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1719                                                                              |                                                                                   | 120                                                                               | 1717                                                                              |                                                                                   | 120                                                                                 | 1775                                                                                |                                                                                     | 120                                                                                 | 1778                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 28.9                                                                              | 10.9                                                                              |                                                                                   | 131.6                                                                             | 22.8                                                                              |                                                                                   | 122.7                                                                               | 29.8                                                                                |                                                                                     | 111.7                                                                               | 22.1                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 28.9                                                                              |                                                                                   |                                                                                   | 131.6                                                                             |                                                                                   |                                                                                     | 122.7                                                                               |                                                                                     |                                                                                     | 111.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 33.4                                                                              |                                                                                   |                                                                                   | 136.1                                                                             |                                                                                   |                                                                                     | 127.2                                                                               |                                                                                     |                                                                                     | 116.2                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 1.9                                                                               | 10.9                                                                              |                                                                                   | 8.8                                                                               | 22.8                                                                              |                                                                                   | 8.2                                                                                 | 29.8                                                                                |                                                                                     | 7.4                                                                                 | 22.1                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 1.9                                                                               | 7.3                                                                               |                                                                                   | 8.8                                                                               | 15.1                                                                              |                                                                                   | 8.2                                                                                 | 26.1                                                                                |                                                                                     | 7.4                                                                                 | 19.6                                                                                |                                                                                     |
| Reference Time (s)                                                             | 10.9                                                                              | 10.9                                                                              |                                                                                   | 22.8                                                                              | 22.8                                                                              |                                                                                   | 29.8                                                                                | 29.8                                                                                |                                                                                     | 22.1                                                                                | 22.1                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 15.4                                                                              | 15.4                                                                              |                                                                                   | 27.3                                                                              | 27.3                                                                              |                                                                                   | 34.3                                                                                | 34.3                                                                                |                                                                                     | 26.6                                                                                | 26.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 36.8                                                                              |                                                                                   | 46.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 136.1                                                                             |                                                                                   | 127.2                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 42.7                                                                              |                                                                                   | 61.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 36.8                                                                              |                                                                                   | 46.3                                                                              |                                                                                   | 83.1                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 69.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 2: Norwalk Boulevard & Telegraph Road

09/17/2019

|                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                                                                   | 106                                                                               | 1286                                                                              | 90                                                                                | 122                                                                               | 1333                                                                              | 166                                                                               | 163                                                                                 | 721                                                                                 | 286                                                                                 | 185                                                                                 | 497                                                                                 | 124                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.0                                                                               | 4.5                                                                                 | 4.5                                                                                 | 4.0                                                                                 | 4.5                                                                                 | 4.5                                                                                 | 4.5                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 106                                                                               | 1286                                                                              | 90                                                                                | 122                                                                               | 1499                                                                              | 0                                                                                 | 163                                                                                 | 1007                                                                                | 0                                                                                   | 185                                                                                 | 497                                                                                 | 124                                                                                 |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.96                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                              | 1615                                                                              | 1805                                                                              | 5090                                                                              | 0                                                                                 | 1805                                                                                | 3463                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 7.0                                                                               | 29.8                                                                              | 6.7                                                                               | 8.1                                                                               | 35.3                                                                              | 0.0                                                                               | 10.8                                                                                | 34.9                                                                                | 0.0                                                                                 | 12.3                                                                                | 16.5                                                                                | 9.2                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 11.5                                                                              | 34.3                                                                              | 11.2                                                                              | 12.6                                                                              | 39.8                                                                              | 0.0                                                                               | 15.3                                                                                | 39.4                                                                                | 0.0                                                                                 | 16.8                                                                                | 21.0                                                                                | 13.7                                                                                |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                              |                                                                                   | 120                                                                               | 1697                                                                              |                                                                                   | 120                                                                                 | 1732                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 105.7                                                                             | 29.8                                                                              |                                                                                   | 121.7                                                                             | 35.3                                                                              |                                                                                   | 162.5                                                                               | 34.9                                                                                |                                                                                     | 184.5                                                                               | 16.5                                                                                |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 105.7                                                                             |                                                                                   |                                                                                   | 121.7                                                                             |                                                                                   |                                                                                     | 162.5                                                                               |                                                                                     |                                                                                     | 184.5                                                                               |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 110.2                                                                             |                                                                                   |                                                                                   | 126.2                                                                             |                                                                                   |                                                                                     | 167.0                                                                               |                                                                                     |                                                                                     | 189.0                                                                               |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 7.0                                                                               | 29.8                                                                              |                                                                                   | 8.1                                                                               | 35.3                                                                              |                                                                                   | 10.8                                                                                | 34.9                                                                                |                                                                                     | 12.3                                                                                | 16.5                                                                                |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 7.0                                                                               | 29.8                                                                              |                                                                                   | 8.1                                                                               | 31.4                                                                              |                                                                                   | 10.8                                                                                | 25.0                                                                                |                                                                                     | 12.3                                                                                | 16.5                                                                                |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 29.8                                                                              | 29.8                                                                              |                                                                                   | 35.3                                                                              | 35.3                                                                              |                                                                                   | 34.9                                                                                | 34.9                                                                                |                                                                                     | 16.5                                                                                | 16.5                                                                                |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 34.3                                                                              | 34.3                                                                              |                                                                                   | 39.8                                                                              | 39.8                                                                              |                                                                                   | 39.4                                                                                | 39.4                                                                                |                                                                                     | 21.0                                                                                | 21.0                                                                                |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 51.4                                                                              |                                                                                   | 56.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 126.2                                                                             |                                                                                   | 189.0                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 74.2                                                                              |                                                                                   | 60.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 51.4                                                                              |                                                                                   | 56.2                                                                              |                                                                                   | 107.6                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                   | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 11.2                                                                              |                                                                                   | 13.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 21.0                                                                              |                                                                                   | 39.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 12.6                                                                              |                                                                                   | 15.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 44.8                                                                              |                                                                                   | 68.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 89.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 3: Santa Fe Springs Road & Slauson Avenue/Mulberry Drive

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 171                                                                               | 1449                                                                              | 125                                                                               | 105                                                                               | 801                                                                               | 126                                                                               | 141                                                                                 | 727                                                                                 | 180                                                                                 | 114                                                                                 | 512                                                                                 | 135                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 171                                                                               | 1574                                                                              | 0                                                                                 | 105                                                                               | 927                                                                               | 0                                                                                 | 141                                                                                 | 907                                                                                 | 0                                                                                   | 114                                                                                 | 512                                                                                 | 135                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5114                                                                              | 0                                                                                 | 1805                                                                              | 5070                                                                              | 0                                                                                 | 1805                                                                                | 3510                                                                                | 0                                                                                   | 1805                                                                                | 3618                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 11.4                                                                              | 36.9                                                                              | 0.0                                                                               | 7.0                                                                               | 21.9                                                                              | 0.0                                                                               | 9.4                                                                                 | 31.0                                                                                | 0.0                                                                                 | 7.6                                                                                 | 17.0                                                                                | 10.0                                                                                |
| Adj Reference Time (s)                                                         | 15.4                                                                              | 40.9                                                                              | 0.0                                                                               | 11.0                                                                              | 25.9                                                                              | 0.0                                                                               | 13.4                                                                                | 35.0                                                                                | 0.0                                                                                 | 11.6                                                                                | 21.0                                                                                | 14.0                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1705                                                                              |                                                                                   | 120                                                                               | 1690                                                                              |                                                                                   | 120                                                                                 | 1755                                                                                |                                                                                     | 120                                                                                 | 1809                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 170.5                                                                             | 36.9                                                                              |                                                                                   | 104.7                                                                             | 21.9                                                                              |                                                                                   | 140.6                                                                               | 31.0                                                                                |                                                                                     | 113.7                                                                               | 17.0                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 170.5                                                                             |                                                                                   |                                                                                   | 104.7                                                                             |                                                                                   |                                                                                     | 140.6                                                                               |                                                                                     |                                                                                     | 113.7                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 174.5                                                                             |                                                                                   |                                                                                   | 108.7                                                                             |                                                                                   |                                                                                     | 144.6                                                                               |                                                                                     |                                                                                     | 117.7                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 11.4                                                                              | 36.9                                                                              |                                                                                   | 7.0                                                                               | 21.9                                                                              |                                                                                   | 9.4                                                                                 | 31.0                                                                                |                                                                                     | 7.6                                                                                 | 17.0                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 11.4                                                                              | 34.0                                                                              |                                                                                   | 7.0                                                                               | 19.0                                                                              |                                                                                   | 9.4                                                                                 | 24.9                                                                                |                                                                                     | 7.6                                                                                 | 17.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 36.9                                                                              | 36.9                                                                              |                                                                                   | 21.9                                                                              | 21.9                                                                              |                                                                                   | 31.0                                                                                | 31.0                                                                                |                                                                                     | 17.0                                                                                | 17.0                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 40.9                                                                              | 40.9                                                                              |                                                                                   | 25.9                                                                              | 25.9                                                                              |                                                                                   | 35.0                                                                                | 35.0                                                                                |                                                                                     | 21.0                                                                                | 21.0                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.9                                                                              |                                                                                   | 46.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 174.5                                                                             |                                                                                   | 144.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 66.9                                                                              |                                                                                   | 56.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.9                                                                              |                                                                                   | 46.6                                                                              |                                                                                   | 98.5                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 14.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 25.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 13.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 53.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 82.1%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 4: Santa Fe Springs Road & Sorensen Avenue

09/17/2019



| Movement                                                                       | EBL  | EBR  | NBL   | NBT   | SBT                  | SBR  |
|--------------------------------------------------------------------------------|------|------|-------|-------|----------------------|------|
| Lane Configurations                                                            |      |      |       |       |                      |      |
| Volume (vph)                                                                   | 19   | 315  | 388   | 979   | 696                  | 17   |
| Pedestrians                                                                    |      |      |       |       |                      |      |
| Ped Button                                                                     |      |      |       |       |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |       |                      |      |
| Free Right                                                                     |      | No   |       |       |                      | No   |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900  | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0   | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120   | 120                  | 120  |
| Volume Combined (vph)                                                          | 19   | 315  | 388   | 979   | 713                  | 0    |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 0.95  | 0.95                 | 1.00 |
| Turning Factor (vph)                                                           | 0.95 | 0.85 | 0.95  | 1.00  | 1.00                 | 0.85 |
| Saturated Flow (vph)                                                           | 1805 | 1615 | 1805  | 3618  | 3605                 | 0    |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0   | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      |       | 0.00  | 0.00                 |      |
| Protected Option Allowed                                                       | No   |      |       | Yes   | Yes                  |      |
| Reference Time (s)                                                             |      | 23.4 | 25.8  | 32.5  | 23.7                 | 0.0  |
| Adj Reference Time (s)                                                         |      | 27.4 | 29.8  | 36.5  | 27.7                 | 0.0  |
| Permitted Option                                                               |      |      |       |       |                      |      |
| Adj Saturation A (vph)                                                         | 120  |      | 120   | 1809  | 1802                 |      |
| Reference Time A (s)                                                           | 18.9 |      | 386.9 | 32.5  | 23.7                 |      |
| Adj Saturation B (vph)                                                         | NA   |      | NA    | NA    | NA                   |      |
| Reference Time B (s)                                                           | NA   |      | NA    | NA    | NA                   |      |
| Reference Time (s)                                                             |      |      |       | 386.9 | 23.7                 |      |
| Adj Reference Time (s)                                                         |      |      |       | 390.9 | 27.7                 |      |
| Split Option                                                                   |      |      |       |       |                      |      |
| Ref Time Combined (s)                                                          | 1.3  |      | 25.8  | 32.5  | 23.7                 |      |
| Ref Time Seperate (s)                                                          | 1.3  |      | 25.8  | 32.5  | 23.2                 |      |
| Reference Time (s)                                                             | 1.3  |      | 32.5  | 32.5  | 23.7                 |      |
| Adj Reference Time (s)                                                         | 8.0  |      | 36.5  | 36.5  | 27.7                 |      |
| Summary                                                                        | EB   |      | NB SB |       | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 57.5  |       |                      |      |
| Permitted Option (s)                                                           | Err  |      | 390.9 |       |                      |      |
| Split Option (s)                                                               | 8.0  |      | 64.2  |       |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 57.5  |       | 65.5                 |      |
| Right Turns                                                                    | EBR  |      |       |       |                      |      |
| Adj Reference Time (s)                                                         | 27.4 |      |       |       |                      |      |
| Cross Thru Ref Time (s)                                                        | 27.7 |      |       |       |                      |      |
| Oncoming Left Ref Time (s)                                                     | 0.0  |      |       |       |                      |      |
| Combined (s)                                                                   | 55.1 |      |       |       |                      |      |
| Intersection Summary                                                           |      |      |       |       |                      |      |
| Intersection Capacity Utilization                                              |      |      | 54.6% |       | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |       |                      |      |

# Intersection Capacity Utilization

## 5: Santa Fe Springs Road & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |  |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 76                                                                                | 448                                                                               | 95                                                                                | 121                                                                               | 487                                                                               | 280                                                                               | 130                                                                                 | 981                                                                                 | 91                                                                                  | 183                                                                                 | 746                                                                                 | 96                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 76                                                                                | 543                                                                               | 0                                                                                 | 121                                                                               | 487                                                                               | 280                                                                               | 130                                                                                 | 1072                                                                                | 0                                                                                   | 183                                                                                 | 842                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1850                                                                              | 0                                                                                 | 1805                                                                              | 1900                                                                              | 1615                                                                              | 1805                                                                                | 3572                                                                                | 0                                                                                   | 1805                                                                                | 3556                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 5.1                                                                               | 35.2                                                                              | 0.0                                                                               | 8.0                                                                               | 30.8                                                                              | 20.8                                                                              | 8.6                                                                                 | 36.0                                                                                | 0.0                                                                                 | 12.2                                                                                | 28.4                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.1                                                                               | 39.2                                                                              | 0.0                                                                               | 12.0                                                                              | 34.8                                                                              | 24.8                                                                              | 12.6                                                                                | 40.0                                                                                | 0.0                                                                                 | 16.2                                                                                | 32.4                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1850                                                                              |                                                                                   | 120                                                                               | 1900                                                                              |                                                                                   | 120                                                                                 | 1786                                                                                |                                                                                     | 120                                                                                 | 1778                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 75.8                                                                              | 35.2                                                                              |                                                                                   | 120.7                                                                             | 30.8                                                                              |                                                                                   | 129.6                                                                               | 36.0                                                                                |                                                                                     | 182.5                                                                               | 28.4                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 75.8                                                                              |                                                                                   |                                                                                   | 120.7                                                                             |                                                                                   |                                                                                     | 129.6                                                                               |                                                                                     |                                                                                     | 182.5                                                                               |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 79.8                                                                              |                                                                                   |                                                                                   | 124.7                                                                             |                                                                                   |                                                                                     | 133.6                                                                               |                                                                                     |                                                                                     | 186.5                                                                               |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 5.1                                                                               | 35.2                                                                              |                                                                                   | 8.0                                                                               | 30.8                                                                              |                                                                                   | 8.6                                                                                 | 36.0                                                                                |                                                                                     | 12.2                                                                                | 28.4                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 5.1                                                                               | 29.1                                                                              |                                                                                   | 8.0                                                                               | 30.8                                                                              |                                                                                   | 8.6                                                                                 | 33.0                                                                                |                                                                                     | 12.2                                                                                | 25.2                                                                                |                                                                                     |
| Reference Time (s)                                                             | 35.2                                                                              | 35.2                                                                              |                                                                                   | 30.8                                                                              | 30.8                                                                              |                                                                                   | 36.0                                                                                | 36.0                                                                                |                                                                                     | 28.4                                                                                | 28.4                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 39.2                                                                              | 39.2                                                                              |                                                                                   | 34.8                                                                              | 34.8                                                                              |                                                                                   | 40.0                                                                                | 40.0                                                                                |                                                                                     | 32.4                                                                                | 32.4                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.3                                                                              |                                                                                   | 56.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 124.7                                                                             |                                                                                   | 186.5                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 74.0                                                                              |                                                                                   | 72.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.3                                                                              |                                                                                   | 56.2                                                                              |                                                                                   | 107.4                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 24.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 40.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 9.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 73.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 89.5%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 6: Santa Fe Springs Road & Telegraph Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|--|--|--|--|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |  |  |  |  |  |  |
| Lane Configurations                                                            |  |  |  |  |  |  |   |  |                                                                                     |  |  |                                                                                     |  |  |  |  |  |  |
| Volume (vph)                                                                   | 178                                                                               | 1219                                                                              | 127                                                                               | 52                                                                                | 791                                                                               | 80                                                                                | 98                                                                                  | 812                                                                                 | 82                                                                                  | 127                                                                                 | 749                                                                                 | 271                                                                                 |  |  |  |  |  |  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |  |  |  |  |  |  |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |  |  |  |  |  |  |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |  |  |  |  |  |  |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |  |  |  |  |  |  |
| Volume Combined (vph)                                                          | 178                                                                               | 1219                                                                              | 127                                                                               | 52                                                                                | 791                                                                               | 80                                                                                | 98                                                                                  | 894                                                                                 | 0                                                                                   | 127                                                                                 | 1020                                                                                | 0                                                                                   |  |  |  |  |  |  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |  |  |  |  |  |  |
| Turning Factor (vph)                                                           | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                              | 1.00                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.96                                                                                | 0.85                                                                                |  |  |  |  |  |  |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5176                                                                              | 1615                                                                              | 1805                                                                              | 5176                                                                              | 1615                                                                              | 1805                                                                                | 3568                                                                                | 0                                                                                   | 1805                                                                                | 3473                                                                                | 0                                                                                   |  |  |  |  |  |  |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |  |  |  |  |  |  |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 11.8                                                                              | 28.3                                                                              | 9.4                                                                               | 3.5                                                                               | 18.3                                                                              | 5.9                                                                               | 6.5                                                                                 | 30.1                                                                                | 0.0                                                                                 | 8.4                                                                                 | 35.2                                                                                | 0.0                                                                                 |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 15.8                                                                              | 32.3                                                                              | 13.4                                                                              | 9.0                                                                               | 22.3                                                                              | 9.9                                                                               | 10.5                                                                                | 34.1                                                                                | 0.0                                                                                 | 12.4                                                                                | 39.2                                                                                | 0.0                                                                                 |  |  |  |  |  |  |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1725                                                                              |                                                                                   | 120                                                                               | 1725                                                                              |                                                                                   | 120                                                                                 | 1784                                                                                |                                                                                     | 120                                                                                 | 1737                                                                                |                                                                                     |  |  |  |  |  |  |
| Reference Time A (s)                                                           | 177.5                                                                             | 28.3                                                                              |                                                                                   | 51.9                                                                              | 18.3                                                                              |                                                                                   | 97.7                                                                                | 30.1                                                                                |                                                                                     | 126.6                                                                               | 35.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |  |  |  |  |  |  |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             |                                                                                   | 177.5                                                                             |                                                                                   |                                                                                   | 51.9                                                                              |                                                                                   |                                                                                     | 97.7                                                                                |                                                                                     |                                                                                     | 126.6                                                                               |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         |                                                                                   | 181.5                                                                             |                                                                                   |                                                                                   | 55.9                                                                              |                                                                                   |                                                                                     | 101.7                                                                               |                                                                                     |                                                                                     | 130.6                                                                               |                                                                                     |  |  |  |  |  |  |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Ref Time Combined (s)                                                          | 11.8                                                                              | 28.3                                                                              |                                                                                   | 3.5                                                                               | 18.3                                                                              |                                                                                   | 6.5                                                                                 | 30.1                                                                                |                                                                                     | 8.4                                                                                 | 35.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Ref Time Seperate (s)                                                          | 11.8                                                                              | 28.3                                                                              |                                                                                   | 3.5                                                                               | 18.3                                                                              |                                                                                   | 6.5                                                                                 | 27.3                                                                                |                                                                                     | 8.4                                                                                 | 25.9                                                                                |                                                                                     |  |  |  |  |  |  |
| Reference Time (s)                                                             | 28.3                                                                              | 28.3                                                                              |                                                                                   | 18.3                                                                              | 18.3                                                                              |                                                                                   | 30.1                                                                                | 30.1                                                                                |                                                                                     | 35.2                                                                                | 35.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 32.3                                                                              | 32.3                                                                              |                                                                                   | 22.3                                                                              | 22.3                                                                              |                                                                                   | 34.1                                                                                | 34.1                                                                                |                                                                                     | 39.2                                                                                | 39.2                                                                                |                                                                                     |  |  |  |  |  |  |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Protected Option (s)                                                           | 41.3                                                                              |                                                                                   | 49.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Permitted Option (s)                                                           | 181.5                                                                             |                                                                                   | 130.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Split Option (s)                                                               | 54.6                                                                              |                                                                                   | 73.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Minimum (s)                                                                    | 41.3                                                                              |                                                                                   | 49.8                                                                              |                                                                                   | 91.0                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Right Turns                                                                    | EBR                                                                               |                                                                                   | WBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Adj Reference Time (s)                                                         | 13.4                                                                              |                                                                                   | 9.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Cross Thru Ref Time (s)                                                        | 39.2                                                                              |                                                                                   | 34.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Oncoming Left Ref Time (s)                                                     | 9.0                                                                               |                                                                                   | 15.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Combined (s)                                                                   | 61.7                                                                              |                                                                                   | 59.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Intersection Capacity Utilization                                              | 75.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |  |  |  |  |

# Intersection Capacity Utilization

## 7: Greenleaf Avenue & Mulberry Drive

09/17/2019

|                                                                                |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                                                                |  |                                                                                                                                                                      |  |  |                                                                                                                                                                      |  |  |  |  |  |                                                                                      |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                                                                                                                                                                                                   | EBR                                                                               | WBL                                                                               | WBT                                                                                                                                                                                                                                                   | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations                                                            |  |    |                                                                                   |  |    |                                                                                   |  |  |  |  |   |  |
| Volume (vph)                                                                   | 98                                                                                | 1593                                                                                                                                                                                                                                                  | 75                                                                                | 40                                                                                | 833                                                                                                                                                                                                                                                   | 96                                                                                | 128                                                                                 | 320                                                                                 | 151                                                                                 | 111                                                                                 | 246                                                                                                                                                                     | 77                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                |                                                                                                                                                                                                                                                       |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                                                                                                         |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                              | 1900                                                                                                                                                                                                                                                  | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                                                                                                     | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                               | 5.0                                                                                                                                                                                                                                                   | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                                                                                                     | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                               | 120                                                                                                                                                                                                                                                   | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                                                                                                     | 120                                                                                 |
| Volume Combined (vph)                                                          | 98                                                                                | 1668                                                                                                                                                                                                                                                  | 0                                                                                 | 40                                                                                | 929                                                                                                                                                                                                                                                   | 0                                                                                 | 128                                                                                 | 320                                                                                 | 151                                                                                 | 111                                                                                 | 246                                                                                                                                                                     | 77                                                                                  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                              | 0.91                                                                                                                                                                                                                                                  | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.99                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                              | 0.98                                                                                                                                                                                                                                                  | 0.85                                                                              | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5141                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                              | 5095                                                                                                                                                                                                                                                  | 0                                                                                 | 1805                                                                                | 1900                                                                                | 1615                                                                                | 1805                                                                                | 1900                                                                                                                                                                    | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                                                                                                                                                                                   | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                                                                                                     | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                                                                                                                                                                                       | 0.00                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                                                                                                    |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                                                                                                                                                                                       | Yes                                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     | Yes                                                                                                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.5                                                                               | 38.9                                                                                                                                                                                                                                                  | 0.0                                                                               | 2.7                                                                               | 21.9                                                                                                                                                                                                                                                  | 0.0                                                                               | 8.5                                                                                 | 20.2                                                                                | 11.2                                                                                | 7.4                                                                                 | 15.5                                                                                                                                                                    | 5.7                                                                                 |
| Adj Reference Time (s)                                                         | 10.5                                                                              | 42.9                                                                                                                                                                                                                                                  | 0.0                                                                               | 9.0                                                                               | 25.9                                                                                                                                                                                                                                                  | 0.0                                                                               | 12.5                                                                                | 24.2                                                                                | 15.2                                                                                | 11.4                                                                                | 19.5                                                                                                                                                                    | 9.7                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1714                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                               | 1698                                                                                                                                                                                                                                                  |                                                                                   | 120                                                                                 | 1900                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                                                                                                    |                                                                                     |
| Reference Time A (s)                                                           | 97.7                                                                              | 38.9                                                                                                                                                                                                                                                  |                                                                                   | 39.9                                                                              | 21.9                                                                                                                                                                                                                                                  |                                                                                   | 127.6                                                                               | 20.2                                                                                |                                                                                     | 110.7                                                                               | 15.5                                                                                                                                                                    |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                | NA                                                                                                                                                                                                                                                    |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                                                                                                      |                                                                                     |
| Reference Time (s)                                                             | 97.7                                                                              |                                                                                                                                                                                                                                                       | 39.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   | 127.6                                                                               |                                                                                     |                                                                                     |                                                                                     | 110.7                                                                                                                                                                   |                                                                                     |
| Adj Reference Time (s)                                                         | 101.7                                                                             |                                                                                                                                                                                                                                                       | 43.9                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   | 131.6                                                                               |                                                                                     |                                                                                     |                                                                                     | 114.7                                                                                                                                                                   |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Ref Time Combined (s)                                                          | 6.5                                                                               | 38.9                                                                                                                                                                                                                                                  |                                                                                   | 2.7                                                                               | 21.9                                                                                                                                                                                                                                                  |                                                                                   | 8.5                                                                                 | 20.2                                                                                |                                                                                     | 7.4                                                                                 | 15.5                                                                                                                                                                    |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.5                                                                               | 37.2                                                                                                                                                                                                                                                  |                                                                                   | 2.7                                                                               | 19.6                                                                                                                                                                                                                                                  |                                                                                   | 8.5                                                                                 | 20.2                                                                                |                                                                                     | 7.4                                                                                 | 15.5                                                                                                                                                                    |                                                                                     |
| Reference Time (s)                                                             | 38.9                                                                              | 38.9                                                                                                                                                                                                                                                  |                                                                                   | 21.9                                                                              | 21.9                                                                                                                                                                                                                                                  |                                                                                   | 20.2                                                                                | 20.2                                                                                |                                                                                     | 15.5                                                                                | 15.5                                                                                                                                                                    |                                                                                     |
| Adj Reference Time (s)                                                         | 42.9                                                                              | 42.9                                                                                                                                                                                                                                                  |                                                                                   | 25.9                                                                              | 25.9                                                                                                                                                                                                                                                  |                                                                                   | 24.2                                                                                | 24.2                                                                                |                                                                                     | 19.5                                                                                | 19.5                                                                                                                                                                    |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                                                                                                                                                                                       | NB SB                                                                             |                                                                                   | Combined                                                                                                                                                                                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Protected Option (s)                                                           | 51.9                                                                              |                                                                                                                                                                                                                                                       | 35.6                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Permitted Option (s)                                                           | 101.7                                                                             |                                                                                                                                                                                                                                                       | 131.6                                                                             |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Split Option (s)                                                               | 68.8                                                                              |                                                                                                                                                                                                                                                       | 43.7                                                                              |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Minimum (s)                                                                    | 51.9                                                                              |                                                                                                                                                                                                                                                       | 35.6                                                                              |                                                                                   | 87.5                                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Right Turns                                                                    | NBR                                                                               | SBR                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Adj Reference Time (s)                                                         | 15.2                                                                              | 9.7                                                                                                                                                                                                                                                   |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 42.9                                                                              | 25.9                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 11.4                                                                              | 12.5                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Combined (s)                                                                   | 69.5                                                                              | 48.1                                                                                                                                                                                                                                                  |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                                                                                                                                                                                       | 72.9%                                                                             |                                                                                   | ICU Level of Service                                                                                                                                                                                                                                  |                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                   |                                                                                                                                                                                                                                                       |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |



# Intersection Capacity Utilization

## 8: Greenleaf Avenue & Reis Street

09/17/2019

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 17                                                                                | 5                                                                                 | 13                                                                                | 14                                                                                | 5                                                                                 | 75                                                                                | 8                                                                                   | 464                                                                                 | 26                                                                                  | 86                                                                                  | 377                                                                                 | 10                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 0                                                                                 | 35                                                                                | 0                                                                                 | 0                                                                                 | 94                                                                                | 0                                                                                 | 8                                                                                   | 490                                                                                 | 0                                                                                   | 86                                                                                  | 387                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.92                                                                              | 0.85                                                                              | 0.95                                                                              | 0.87                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 0                                                                                 | 1751                                                                              | 0                                                                                 | 0                                                                                 | 1660                                                                              | 0                                                                                 | 1805                                                                                | 1885                                                                                | 0                                                                                   | 1805                                                                                | 1893                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |
| Protected Option Allowed                                                       | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 0.5                                                                                 | 31.2                                                                                | 0.0                                                                                 | 5.7                                                                                 | 24.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                   |                                                                                   | 9.0                                                                                 | 35.2                                                                                | 0.0                                                                                 | 9.7                                                                                 | 28.5                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 0                                                                                 | 696                                                                               |                                                                                   | 0                                                                                 | 1619                                                                              |                                                                                   | 120                                                                                 | 1885                                                                                |                                                                                     | 120                                                                                 | 1893                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 0.0                                                                               | 6.0                                                                               |                                                                                   | 0.0                                                                               | 7.0                                                                               |                                                                                   | 8.0                                                                                 | 31.2                                                                                |                                                                                     | 85.8                                                                                | 24.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | 9.1                                                                               | 10.4                                                                              |                                                                                   | 8.9                                                                               | 14.8                                                                              |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 6.0                                                                               |                                                                                   |                                                                                   | 7.0                                                                               |                                                                                   |                                                                                   | 31.2                                                                                |                                                                                     |                                                                                     | 85.8                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 10.0                                                                              |                                                                                   |                                                                                   | 11.0                                                                              |                                                                                   |                                                                                   | 35.2                                                                                |                                                                                     |                                                                                     | 89.8                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 0.0                                                                               | 2.4                                                                               |                                                                                   | 0.0                                                                               | 6.8                                                                               |                                                                                   | 0.5                                                                                 | 31.2                                                                                |                                                                                     | 5.7                                                                                 | 24.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 1.1                                                                               | 0.4                                                                               |                                                                                   | 0.9                                                                               | 0.4                                                                               |                                                                                   | 0.5                                                                                 | 29.5                                                                                |                                                                                     | 5.7                                                                                 | 23.9                                                                                |                                                                                     |
| Reference Time (s)                                                             | 2.4                                                                               | 2.4                                                                               |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 31.2                                                                                | 31.2                                                                                |                                                                                     | 24.5                                                                                | 24.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 9.0                                                                               |                                                                                   | 10.8                                                                              | 10.8                                                                              |                                                                                   | 35.2                                                                                | 35.2                                                                                |                                                                                     | 28.5                                                                                | 28.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | NA                                                                                |                                                                                   | 44.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 11.0                                                                              |                                                                                   | 89.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 19.8                                                                              |                                                                                   | 63.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 11.0                                                                              |                                                                                   | 44.9                                                                              |                                                                                   | 55.9                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 46.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 9: Greenleaf Avenue & Barton Road

09/17/2019



| Movement                                                                       | WBL  | WBR  | NBT   | NBR  | SBL                  | SBT  |
|--------------------------------------------------------------------------------|------|------|-------|------|----------------------|------|
| Lane Configurations                                                            | W    | R    | T     | R    | L                    | R    |
| Volume (vph)                                                                   | 4    | 18   | 488   | 29   | 16                   | 406  |
| Pedestrians                                                                    |      |      |       |      |                      |      |
| Ped Button                                                                     |      |      |       |      |                      |      |
| Pedestrian Timing (s)                                                          |      |      |       |      |                      |      |
| Free Right                                                                     |      | No   |       | No   |                      |      |
| Ideal Flow                                                                     | 1900 | 1900 | 1900  | 1900 | 1900                 | 1900 |
| Lost Time (s)                                                                  | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Minimum Green (s)                                                              | 4.0  | 4.0  | 4.0   | 4.0  | 4.0                  | 4.0  |
| Refr Cycle Length (s)                                                          | 120  | 120  | 120   | 120  | 120                  | 120  |
| Volume Combined (vph)                                                          | 22   | 0    | 517   | 0    | 16                   | 406  |
| Lane Utilization Factor                                                        | 1.00 | 1.00 | 1.00  | 1.00 | 1.00                 | 1.00 |
| Turning Factor (vph)                                                           | 0.87 | 0.85 | 0.99  | 0.85 | 0.95                 | 1.00 |
| Saturated Flow (vph)                                                           | 1652 | 0    | 1884  | 0    | 1805                 | 1900 |
| Ped Intf Time (s)                                                              | 0.0  | 0.0  | 0.0   | 0.0  | 0.0                  | 0.0  |
| Pedestrian Frequency (%)                                                       | 0.00 |      | 0.00  |      |                      | 0.00 |
| Protected Option Allowed                                                       | No   |      | Yes   |      |                      | Yes  |
| Reference Time (s)                                                             |      | 0.0  | 32.9  | 0.0  | 1.1                  | 25.6 |
| Adj Reference Time (s)                                                         |      | 0.0  | 36.9  | 0.0  | 8.0                  | 29.6 |
| Permitted Option                                                               |      |      |       |      |                      |      |
| Adj Saturation A (vph)                                                         | 110  |      | 1884  |      | 120                  | 1900 |
| Reference Time A (s)                                                           | 24.0 |      | 32.9  |      | 16.0                 | 25.6 |
| Adj Saturation B (vph)                                                         | NA   |      | NA    |      | NA                   | NA   |
| Reference Time B (s)                                                           | NA   |      | NA    |      | NA                   | NA   |
| Reference Time (s)                                                             |      |      | 32.9  |      |                      | 25.6 |
| Adj Reference Time (s)                                                         |      |      | 36.9  |      |                      | 29.6 |
| Split Option                                                                   |      |      |       |      |                      |      |
| Ref Time Combined (s)                                                          | 1.6  |      | 32.9  |      | 1.1                  | 25.6 |
| Ref Time Seperate (s)                                                          | 0.3  |      | 31.1  |      | 1.1                  | 25.6 |
| Reference Time (s)                                                             | 1.6  |      | 32.9  |      | 25.6                 | 25.6 |
| Adj Reference Time (s)                                                         | 8.0  |      | 36.9  |      | 29.6                 | 29.6 |
| Summary                                                                        | WB   |      | NB SB |      | Combined             |      |
| Protected Option (s)                                                           | NA   |      | 44.9  |      |                      |      |
| Permitted Option (s)                                                           | Err  |      | 36.9  |      |                      |      |
| Split Option (s)                                                               | 8.0  |      | 66.6  |      |                      |      |
| Minimum (s)                                                                    | 8.0  |      | 36.9  |      | 44.9                 |      |
| Right Turns                                                                    |      |      |       |      |                      |      |
| Adj Reference Time (s)                                                         |      |      |       |      |                      |      |
| Cross Thru Ref Time (s)                                                        |      |      |       |      |                      |      |
| Oncoming Left Ref Time (s)                                                     |      |      |       |      |                      |      |
| Combined (s)                                                                   |      |      |       |      |                      |      |
| Intersection Summary                                                           |      |      |       |      |                      |      |
| Intersection Capacity Utilization                                              |      |      | 37.4% |      | ICU Level of Service | A    |
| Reference Times and Phasing Options do not represent an optimized timing plan. |      |      |       |      |                      |      |

# Intersection Capacity Utilization

## 10: Greenleaf Avenue & Los Nietos Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 97                                                                                | 429                                                                               | 240                                                                               | 31                                                                                | 466                                                                               | 110                                                                               | 258                                                                                 | 316                                                                                 | 20                                                                                  | 75                                                                                  | 270                                                                                 | 79                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 97                                                                                | 669                                                                               | 0                                                                                 | 31                                                                                | 576                                                                               | 0                                                                                 | 258                                                                                 | 336                                                                                 | 0                                                                                   | 75                                                                                  | 349                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.97                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1798                                                                              | 0                                                                                 | 1805                                                                              | 1846                                                                              | 0                                                                                 | 1805                                                                                | 1883                                                                                | 0                                                                                   | 1805                                                                                | 1835                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.4                                                                               | 44.7                                                                              | 0.0                                                                               | 2.1                                                                               | 37.5                                                                              | 0.0                                                                               | 17.2                                                                                | 21.4                                                                                | 0.0                                                                                 | 5.0                                                                                 | 22.8                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 10.4                                                                              | 48.7                                                                              | 0.0                                                                               | 9.0                                                                               | 41.5                                                                              | 0.0                                                                               | 21.2                                                                                | 25.4                                                                                | 0.0                                                                                 | 9.0                                                                                 | 26.8                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1798                                                                              |                                                                                   | 120                                                                               | 1846                                                                              |                                                                                   | 120                                                                                 | 1883                                                                                |                                                                                     | 120                                                                                 | 1835                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 96.7                                                                              | 44.7                                                                              |                                                                                   | 30.9                                                                              | 37.5                                                                              |                                                                                   | 257.3                                                                               | 21.4                                                                                |                                                                                     | 74.8                                                                                | 22.8                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 96.7                                                                              |                                                                                   |                                                                                   | 37.5                                                                              |                                                                                   |                                                                                   | 257.3                                                                               |                                                                                     |                                                                                     | 74.8                                                                                |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 100.7                                                                             |                                                                                   |                                                                                   | 41.5                                                                              |                                                                                   |                                                                                   | 261.3                                                                               |                                                                                     |                                                                                     | 78.8                                                                                |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.4                                                                               | 44.7                                                                              |                                                                                   | 2.1                                                                               | 37.5                                                                              |                                                                                   | 17.2                                                                                | 21.4                                                                                |                                                                                     | 5.0                                                                                 | 22.8                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.4                                                                               | 28.6                                                                              |                                                                                   | 2.1                                                                               | 30.3                                                                              |                                                                                   | 17.2                                                                                | 20.1                                                                                |                                                                                     | 5.0                                                                                 | 17.7                                                                                |                                                                                     |
| Reference Time (s)                                                             | 44.7                                                                              | 44.7                                                                              |                                                                                   | 37.5                                                                              | 37.5                                                                              |                                                                                   | 21.4                                                                                | 21.4                                                                                |                                                                                     | 22.8                                                                                | 22.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 48.7                                                                              | 48.7                                                                              |                                                                                   | 41.5                                                                              | 41.5                                                                              |                                                                                   | 25.4                                                                                | 25.4                                                                                |                                                                                     | 26.8                                                                                | 26.8                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 57.7                                                                              |                                                                                   | 48.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 100.7                                                                             |                                                                                   | 261.3                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 90.1                                                                              |                                                                                   | 52.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 57.7                                                                              |                                                                                   | 48.0                                                                              |                                                                                   | 105.6                                                                             |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 88.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# Intersection Capacity Utilization

## 11: Shoemaker Avenue/Greenleaf Avenue & Telegraph Road

09/17/2019

|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Volume (vph)                                                                   | 68                                                                                | 1198                                                                              | 143                                                                               | 35                                                                                | 731                                                                               | 48                                                                                | 138                                                                                 | 435                                                                                 | 40                                                                                  | 76                                                                                  | 383                                                                                 | 73                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 68                                                                                | 1341                                                                              | 0                                                                                 | 35                                                                                | 779                                                                               | 0                                                                                 | 138                                                                                 | 475                                                                                 | 0                                                                                   | 76                                                                                  | 456                                                                                 | 0                                                                                   |
| Lane Utilization Factor                                                        | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                              | 0.99                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 5093                                                                              | 0                                                                                 | 1805                                                                              | 5128                                                                              | 0                                                                                 | 1805                                                                                | 3572                                                                                | 0                                                                                   | 1805                                                                                | 3531                                                                                | 0                                                                                   |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 4.5                                                                               | 31.6                                                                              | 0.0                                                                               | 2.3                                                                               | 18.2                                                                              | 0.0                                                                               | 9.2                                                                                 | 16.0                                                                                | 0.0                                                                                 | 5.1                                                                                 | 15.5                                                                                | 0.0                                                                                 |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 35.6                                                                              | 0.0                                                                               | 9.0                                                                               | 22.2                                                                              | 0.0                                                                               | 13.2                                                                                | 20.0                                                                                | 0.0                                                                                 | 9.1                                                                                 | 19.5                                                                                | 0.0                                                                                 |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1698                                                                              |                                                                                   | 120                                                                               | 1709                                                                              |                                                                                   | 120                                                                                 | 1786                                                                                |                                                                                     | 120                                                                                 | 1765                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 67.8                                                                              | 31.6                                                                              |                                                                                   | 34.9                                                                              | 18.2                                                                              |                                                                                   | 137.6                                                                               | 16.0                                                                                |                                                                                     | 75.8                                                                                | 15.5                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 67.8                                                                              |                                                                                   |                                                                                   | 34.9                                                                              |                                                                                   |                                                                                     | 137.6                                                                               |                                                                                     |                                                                                     | 75.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 71.8                                                                              |                                                                                   |                                                                                   | 38.9                                                                              |                                                                                   |                                                                                     | 141.6                                                                               |                                                                                     |                                                                                     | 79.8                                                                                |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 4.5                                                                               | 31.6                                                                              |                                                                                   | 2.3                                                                               | 18.2                                                                              |                                                                                   | 9.2                                                                                 | 16.0                                                                                |                                                                                     | 5.1                                                                                 | 15.5                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 4.5                                                                               | 28.2                                                                              |                                                                                   | 2.3                                                                               | 17.1                                                                              |                                                                                   | 9.2                                                                                 | 14.6                                                                                |                                                                                     | 5.1                                                                                 | 13.0                                                                                |                                                                                     |
| Reference Time (s)                                                             | 31.6                                                                              | 31.6                                                                              |                                                                                   | 18.2                                                                              | 18.2                                                                              |                                                                                   | 16.0                                                                                | 16.0                                                                                |                                                                                     | 15.5                                                                                | 15.5                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 35.6                                                                              | 35.6                                                                              |                                                                                   | 22.2                                                                              | 22.2                                                                              |                                                                                   | 20.0                                                                                | 20.0                                                                                |                                                                                     | 19.5                                                                                | 19.5                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 44.6                                                                              |                                                                                   | 32.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 71.8                                                                              |                                                                                   | 141.6                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 57.8                                                                              |                                                                                   | 39.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 44.6                                                                              |                                                                                   | 32.7                                                                              |                                                                                   | 77.3                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              | 64.4%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Intersection Capacity Utilization  
10: Greenleaf Avenue & Los Nietos Road

Opening Year 2020 Plus Project AM with Mitigation

|                                                                                |  |  |  |  |  |  |   |  |  |  |  |  |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 58                                                                                | 300                                                                               | 199                                                                               | 44                                                                                | 525                                                                               | 68                                                                                | 234                                                                                 | 265                                                                                 | 30                                                                                  | 74                                                                                  | 310                                                                                 | 193                                                                                 |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.5                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 58                                                                                | 499                                                                               | 0                                                                                 | 44                                                                                | 593                                                                               | 0                                                                                 | 234                                                                                 | 295                                                                                 | 0                                                                                   | 74                                                                                  | 310                                                                                 | 193                                                                                 |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.94                                                                              | 0.85                                                                              | 0.95                                                                              | 0.98                                                                              | 0.85                                                                              | 0.95                                                                                | 0.98                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1786                                                                              | 0                                                                                 | 1805                                                                              | 1867                                                                              | 0                                                                                 | 1805                                                                                | 1871                                                                                | 0                                                                                   | 1805                                                                                | 1900                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                   | 0.00                                                                                |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                 |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 3.9                                                                               | 33.5                                                                              | 0.0                                                                               | 2.9                                                                               | 38.1                                                                              | 0.0                                                                               | 15.6                                                                                | 18.9                                                                                | 0.0                                                                                 | 4.9                                                                                 | 19.6                                                                                | 14.3                                                                                |
| Adj Reference Time (s)                                                         | 9.0                                                                               | 37.5                                                                              | 0.0                                                                               | 9.0                                                                               | 42.1                                                                              | 0.0                                                                               | 19.6                                                                                | 22.9                                                                                | 0.0                                                                                 | 9.0                                                                                 | 23.6                                                                                | 18.8                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1786                                                                              |                                                                                   | 120                                                                               | 1867                                                                              |                                                                                   | 120                                                                                 | 1871                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 57.8                                                                              | 33.5                                                                              |                                                                                   | 43.9                                                                              | 38.1                                                                              |                                                                                   | 233.4                                                                               | 18.9                                                                                |                                                                                     | 73.8                                                                                | 19.6                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             |                                                                                   | 57.8                                                                              |                                                                                   |                                                                                   | 43.9                                                                              |                                                                                   |                                                                                     | 233.4                                                                               |                                                                                     |                                                                                     | 73.8                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         |                                                                                   | 61.8                                                                              |                                                                                   |                                                                                   | 47.9                                                                              |                                                                                   |                                                                                     | 237.4                                                                               |                                                                                     |                                                                                     | 77.8                                                                                |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 3.9                                                                               | 33.5                                                                              |                                                                                   | 2.9                                                                               | 38.1                                                                              |                                                                                   | 15.6                                                                                | 18.9                                                                                |                                                                                     | 4.9                                                                                 | 19.6                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 3.9                                                                               | 20.2                                                                              |                                                                                   | 2.9                                                                               | 33.7                                                                              |                                                                                   | 15.6                                                                                | 17.0                                                                                |                                                                                     | 4.9                                                                                 | 19.6                                                                                |                                                                                     |
| Reference Time (s)                                                             | 33.5                                                                              | 33.5                                                                              |                                                                                   | 38.1                                                                              | 38.1                                                                              |                                                                                   | 18.9                                                                                | 18.9                                                                                |                                                                                     | 19.6                                                                                | 19.6                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 37.5                                                                              | 37.5                                                                              |                                                                                   | 42.1                                                                              | 42.1                                                                              |                                                                                   | 22.9                                                                                | 22.9                                                                                |                                                                                     | 23.6                                                                                | 23.6                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 51.1                                                                              |                                                                                   | 43.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 61.8                                                                              |                                                                                   | 237.4                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 79.6                                                                              |                                                                                   | 46.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 51.1                                                                              |                                                                                   | 43.1                                                                              |                                                                                   | 94.2                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 18.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 42.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 19.6                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 80.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 78.5%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | D                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

Intersection Capacity Utilization  
10: Greenleaf Avenue & Los Nietos Road

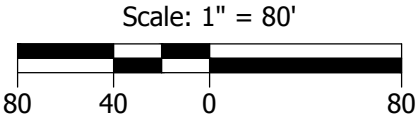
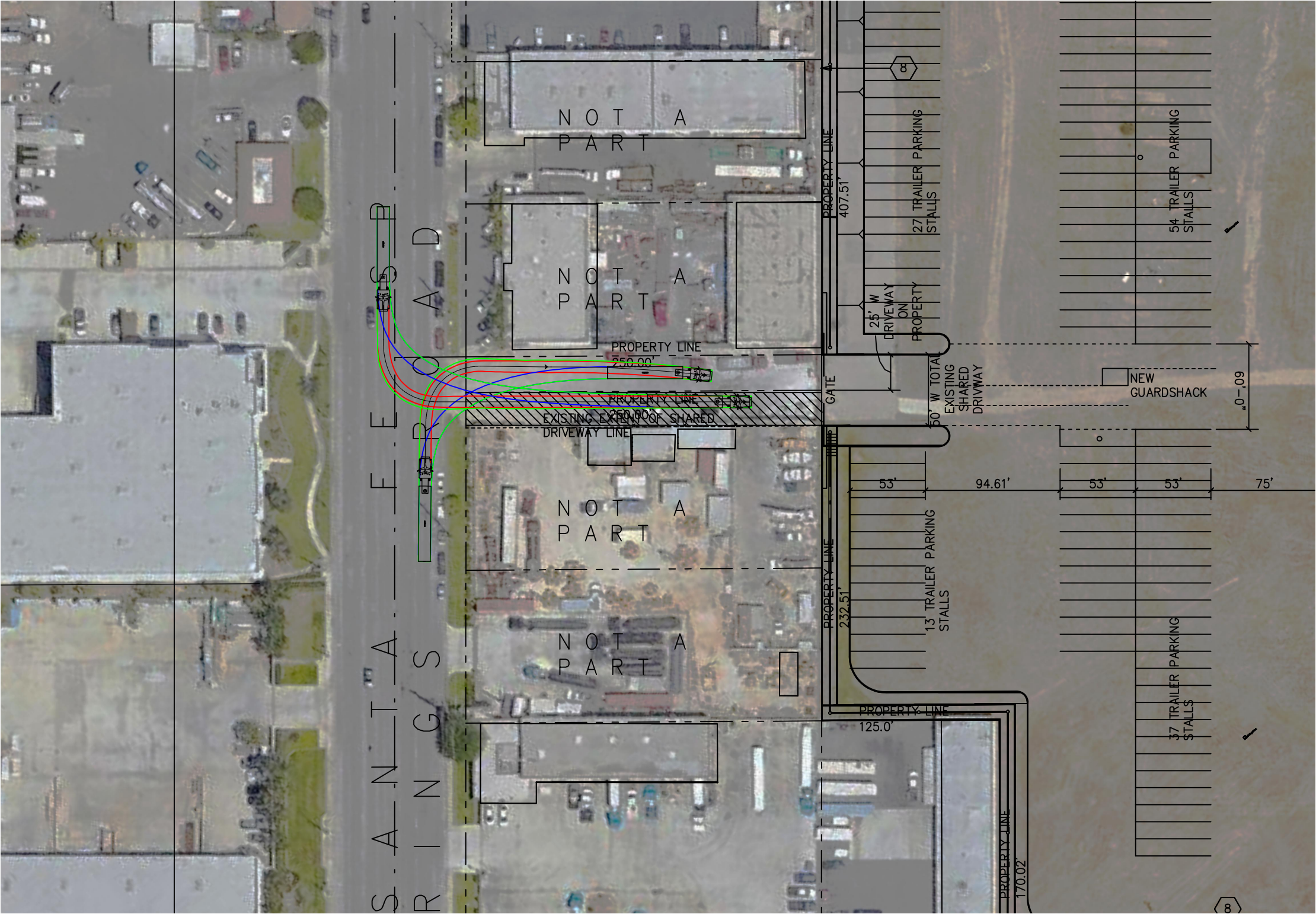
Opening Year 2020 Plus Project PM with Mitigation

|                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
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|                                                                                |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                                                                       | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                            |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Volume (vph)                                                                   | 97                                                                                | 429                                                                               | 240                                                                               | 31                                                                                | 466                                                                               | 110                                                                               | 258                                                                                 | 316                                                                                 | 20                                                                                  | 75                                                                                  | 270                                                                                 | 79                                                                                  |
| Pedestrians                                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ped Button                                                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Pedestrian Timing (s)                                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Free Right                                                                     | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                  |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Ideal Flow                                                                     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Lost Time (s)                                                                  | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.0                                                                                 | 4.5                                                                                 |
| Minimum Green (s)                                                              | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                               | 5.0                                                                               | 4.0                                                                               | 5.0                                                                                 | 5.0                                                                                 | 4.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 | 5.0                                                                                 |
| Refr Cycle Length (s)                                                          | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                               | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 | 120                                                                                 |
| Volume Combined (vph)                                                          | 97                                                                                | 669                                                                               | 0                                                                                 | 31                                                                                | 576                                                                               | 0                                                                                 | 258                                                                                 | 336                                                                                 | 0                                                                                   | 75                                                                                  | 270                                                                                 | 79                                                                                  |
| Lane Utilization Factor                                                        | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Turning Factor (vph)                                                           | 0.95                                                                              | 0.95                                                                              | 0.85                                                                              | 0.95                                                                              | 0.97                                                                              | 0.85                                                                              | 0.95                                                                                | 0.99                                                                                | 0.85                                                                                | 0.95                                                                                | 1.00                                                                                | 0.85                                                                                |
| Saturated Flow (vph)                                                           | 1805                                                                              | 1798                                                                              | 0                                                                                 | 1805                                                                              | 1846                                                                              | 0                                                                                 | 1805                                                                                | 1883                                                                                | 0                                                                                   | 1805                                                                                | 1900                                                                                | 1615                                                                                |
| Ped Intf Time (s)                                                              | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Pedestrian Frequency (%)                                                       | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   |                                                                                     |                                                                                     | 0.00                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Protected Option Allowed                                                       | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Reference Time (s)                                                             | 6.4                                                                               | 44.7                                                                              | 0.0                                                                               | 2.1                                                                               | 37.5                                                                              | 0.0                                                                               | 17.2                                                                                | 21.4                                                                                | 0.0                                                                                 | 5.0                                                                                 | 17.1                                                                                | 5.9                                                                                 |
| Adj Reference Time (s)                                                         | 10.4                                                                              | 48.7                                                                              | 0.0                                                                               | 9.0                                                                               | 41.5                                                                              | 0.0                                                                               | 21.2                                                                                | 25.4                                                                                | 0.0                                                                                 | 9.0                                                                                 | 21.1                                                                                | 10.4                                                                                |
| Permitted Option                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Saturation A (vph)                                                         | 120                                                                               | 1798                                                                              |                                                                                   | 120                                                                               | 1846                                                                              |                                                                                   | 120                                                                                 | 1883                                                                                |                                                                                     | 120                                                                                 | 1900                                                                                |                                                                                     |
| Reference Time A (s)                                                           | 96.7                                                                              | 44.7                                                                              |                                                                                   | 30.9                                                                              | 37.5                                                                              |                                                                                   | 257.3                                                                               | 21.4                                                                                |                                                                                     | 74.8                                                                                | 17.1                                                                                |                                                                                     |
| Adj Saturation B (vph)                                                         | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time B (s)                                                           | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                | NA                                                                                |                                                                                   | NA                                                                                  | NA                                                                                  |                                                                                     | NA                                                                                  | NA                                                                                  |                                                                                     |
| Reference Time (s)                                                             | 96.7                                                                              |                                                                                   |                                                                                   |                                                                                   | 37.5                                                                              |                                                                                   |                                                                                     |                                                                                     | 257.3                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 100.7                                                                             |                                                                                   |                                                                                   |                                                                                   | 41.5                                                                              |                                                                                   |                                                                                     |                                                                                     | 261.3                                                                               |                                                                                     |                                                                                     |                                                                                     |
| Split Option                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ref Time Combined (s)                                                          | 6.4                                                                               | 44.7                                                                              |                                                                                   | 2.1                                                                               | 37.5                                                                              |                                                                                   | 17.2                                                                                | 21.4                                                                                |                                                                                     | 5.0                                                                                 | 17.1                                                                                |                                                                                     |
| Ref Time Seperate (s)                                                          | 6.4                                                                               | 28.6                                                                              |                                                                                   | 2.1                                                                               | 30.3                                                                              |                                                                                   | 17.2                                                                                | 20.1                                                                                |                                                                                     | 5.0                                                                                 | 17.1                                                                                |                                                                                     |
| Reference Time (s)                                                             | 44.7                                                                              | 44.7                                                                              |                                                                                   | 37.5                                                                              | 37.5                                                                              |                                                                                   | 21.4                                                                                | 21.4                                                                                |                                                                                     | 17.1                                                                                | 17.1                                                                                |                                                                                     |
| Adj Reference Time (s)                                                         | 48.7                                                                              | 48.7                                                                              |                                                                                   | 41.5                                                                              | 41.5                                                                              |                                                                                   | 25.4                                                                                | 25.4                                                                                |                                                                                     | 21.1                                                                                | 21.1                                                                                |                                                                                     |
| Summary                                                                        | EB WB                                                                             |                                                                                   | NB SB                                                                             |                                                                                   | Combined                                                                          |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Option (s)                                                           | 57.7                                                                              |                                                                                   | 42.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Permitted Option (s)                                                           | 100.7                                                                             |                                                                                   | 261.3                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Split Option (s)                                                               | 90.1                                                                              |                                                                                   | 46.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum (s)                                                                    | 57.7                                                                              |                                                                                   | 42.2                                                                              |                                                                                   | 99.9                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turns                                                                    | SBR                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Adj Reference Time (s)                                                         | 10.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Cross Thru Ref Time (s)                                                        | 41.5                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Oncoming Left Ref Time (s)                                                     | 21.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Combined (s)                                                                   | 73.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                              |                                                                                   |                                                                                   | 83.2%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                     |                                                                                     | E                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Reference Times and Phasing Options do not represent an optimized timing plan. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

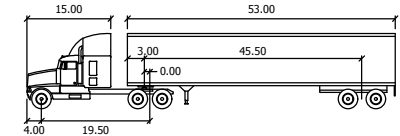
## **Appendix H**

### Truck Turning Templates





| Vehicle Turning Settings |                                      |
|--------------------------|--------------------------------------|
| Design Vehicle:          | WB-67                                |
| Vehicle Speed:           | 10 MPH                               |
| Min. Turning Radius:     |                                      |
| Turn from stop:          | Off                                  |
| Vehicle Envelope         | <span style="color: green;">—</span> |
| Front Tire Track         | <span style="color: red;">—</span>   |
| Rear Tire Track          | <span style="color: blue;">—</span>  |



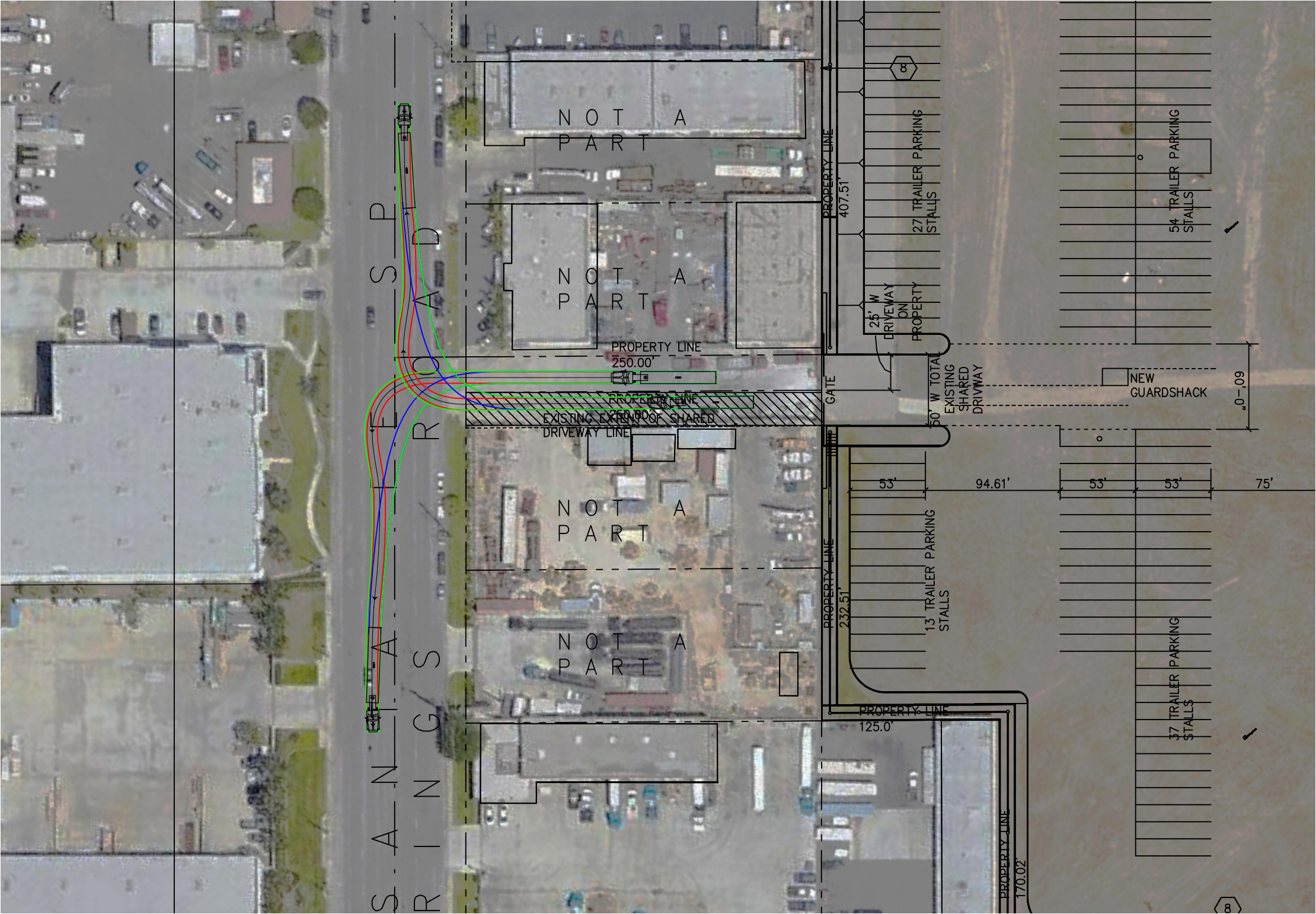
|               |        |                    |        |
|---------------|--------|--------------------|--------|
| WB-67         |        |                    |        |
|               | feet   |                    |        |
| Tractor Width | : 8.00 | Lock to Lock Time  | : 6.0  |
| Trailer Width | : 8.50 | Steering Angle     | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 |                    |        |

Entering Trucks  
Santa Fe Springs Road Driveway  
Santa Fe Springs, California

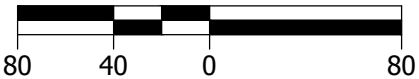
Figure  
H-1



H:\22\22812 - Santa Fe Springs Industrial\AutoTurn Analysis\22812\_Truck Access and Circulation.dwg Jun 19, 2019 - 2:43pm - cdougherty Layout Tab: Santa Fe Springs Departing

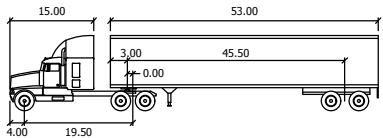


Scale: 1" = 80'



### Vehicle Turning Settings

|                      |                                      |
|----------------------|--------------------------------------|
| Design Vehicle:      | WB-67                                |
| Vehicle Speed:       | 10 MPH                               |
| Min. Turning Radius: |                                      |
| Turn from stop:      | Off                                  |
| Vehicle Envelope     | <span style="color: green;">—</span> |
| Front Tire Track     | <span style="color: red;">—</span>   |
| Rear Tire Track      | <span style="color: blue;">—</span>  |



WB-67

|               | feet   |                    |        |
|---------------|--------|--------------------|--------|
| Tractor Width | : 8.00 | Lock to Lock Time  | : 6.0  |
| Trailer Width | : 8.50 | Steering Angle     | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 |                    |        |

Departing Trucks  
Santa Fe Springs Road Driveway  
Santa Fe Springs, California

Figure  
H-2



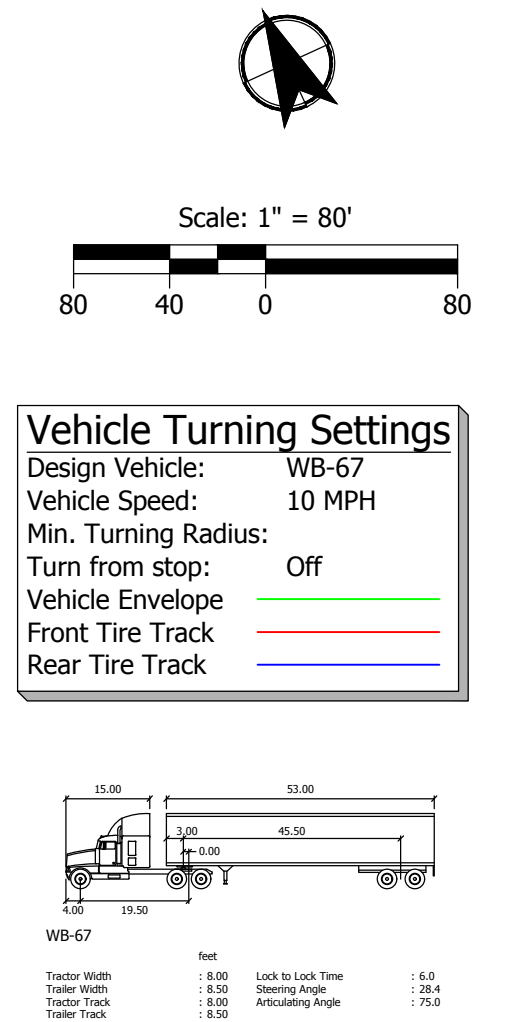
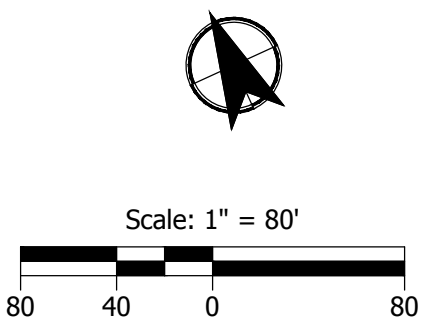
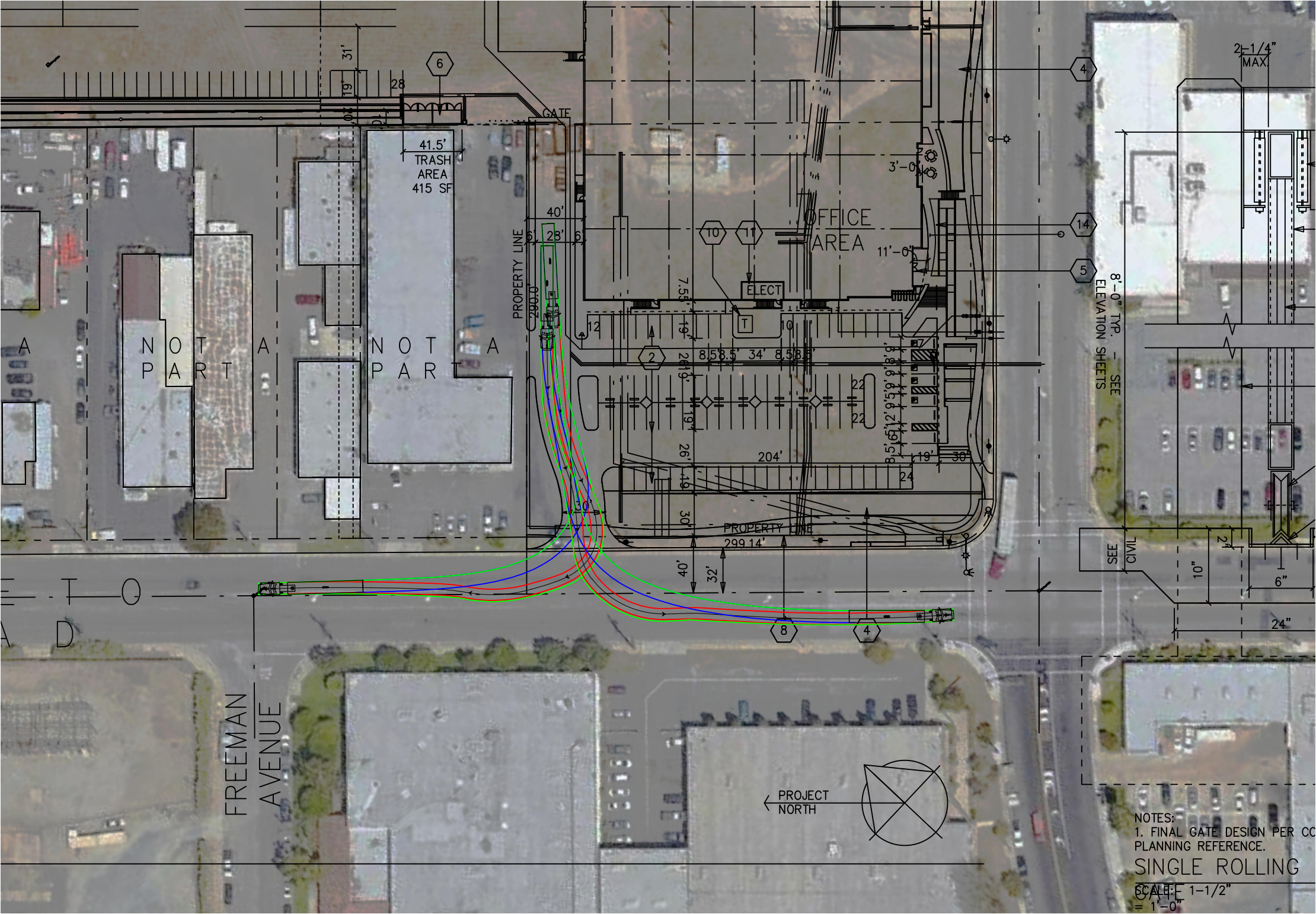


Figure  
H-3

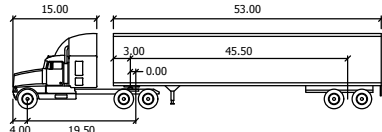


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**Vehicle Turning Settings**

|                      |                                      |
|----------------------|--------------------------------------|
| Design Vehicle:      | WB-67                                |
| Vehicle Speed:       | 10 MPH                               |
| Min. Turning Radius: |                                      |
| Turn from stop:      | Off                                  |
| Vehicle Envelope     | <span style="color: green;">—</span> |
| Front Tire Track     | <span style="color: red;">—</span>   |
| Rear Tire Track      | <span style="color: blue;">—</span>  |



WB-67

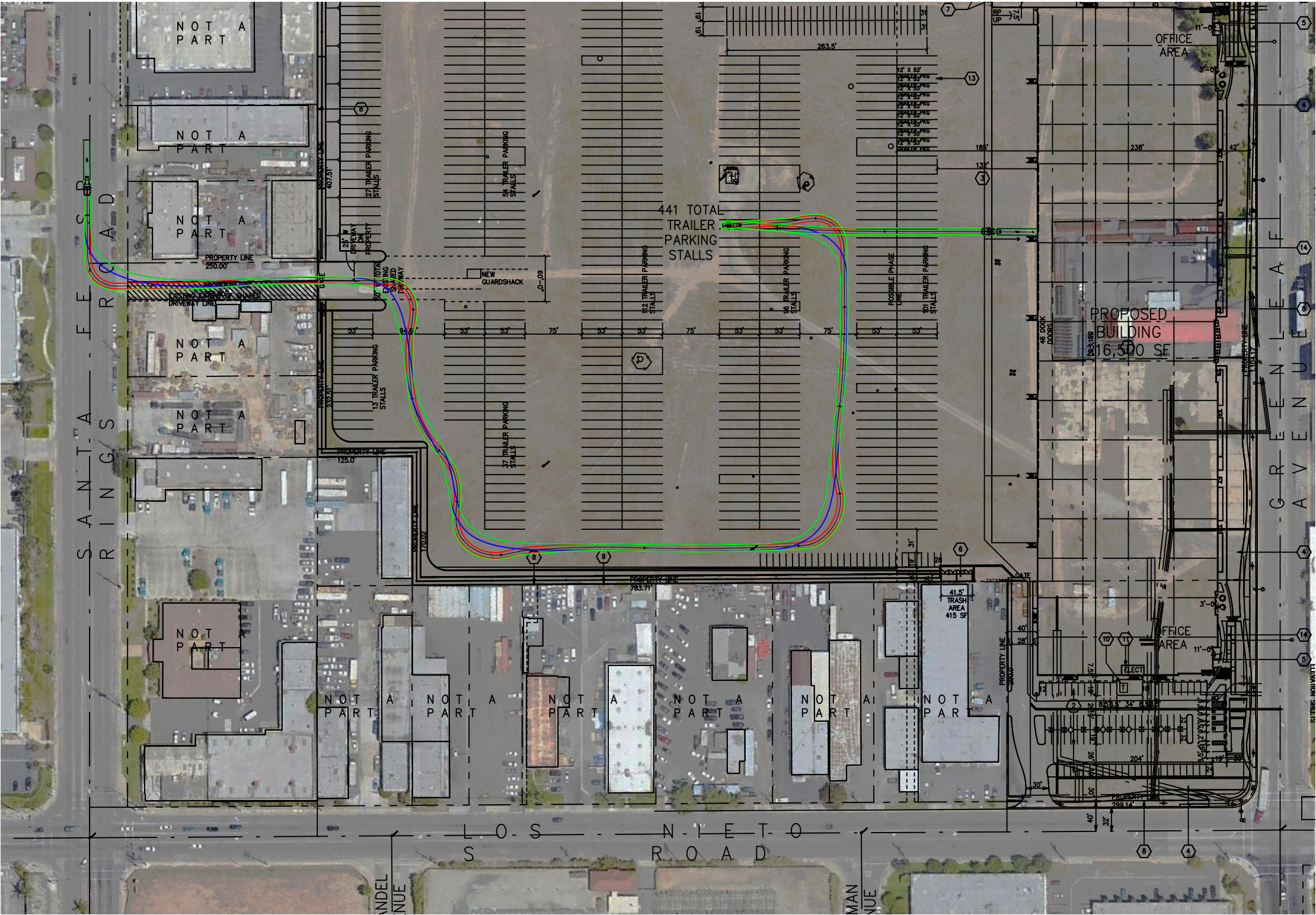
|               | feet   |                    |        |
|---------------|--------|--------------------|--------|
| Tractor Width | : 8.00 | Lock to Lock Time  | : 6.0  |
| Trailer Width | : 8.50 | Steering Angle     | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 |                    |        |

NOTES:  
1. FINAL GATE DESIGN PER CC  
PLANNING REFERENCE.  
SINGLE ROLLING  
SCALE 1-1/2"  
= 1'-0"

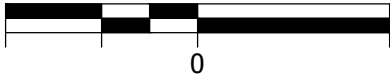
Departing Trucks  
Los Nietos Road Driveway  
Santa Fe Springs, California

Figure  
H-4



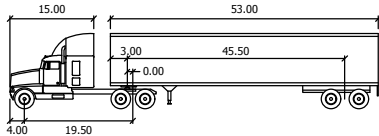


Scale: 1" = 150'



Vehicle Turning Settings

|                      |                                      |
|----------------------|--------------------------------------|
| Design Vehicle:      | WB-67                                |
| Vehicle Speed:       | 10 MPH                               |
| Min. Turning Radius: |                                      |
| Turn from stop:      | Off                                  |
| Vehicle Envelope     | <span style="color: green;">—</span> |
| Front Tire Track     | <span style="color: red;">—</span>   |
| Rear Tire Track      | <span style="color: blue;">—</span>  |



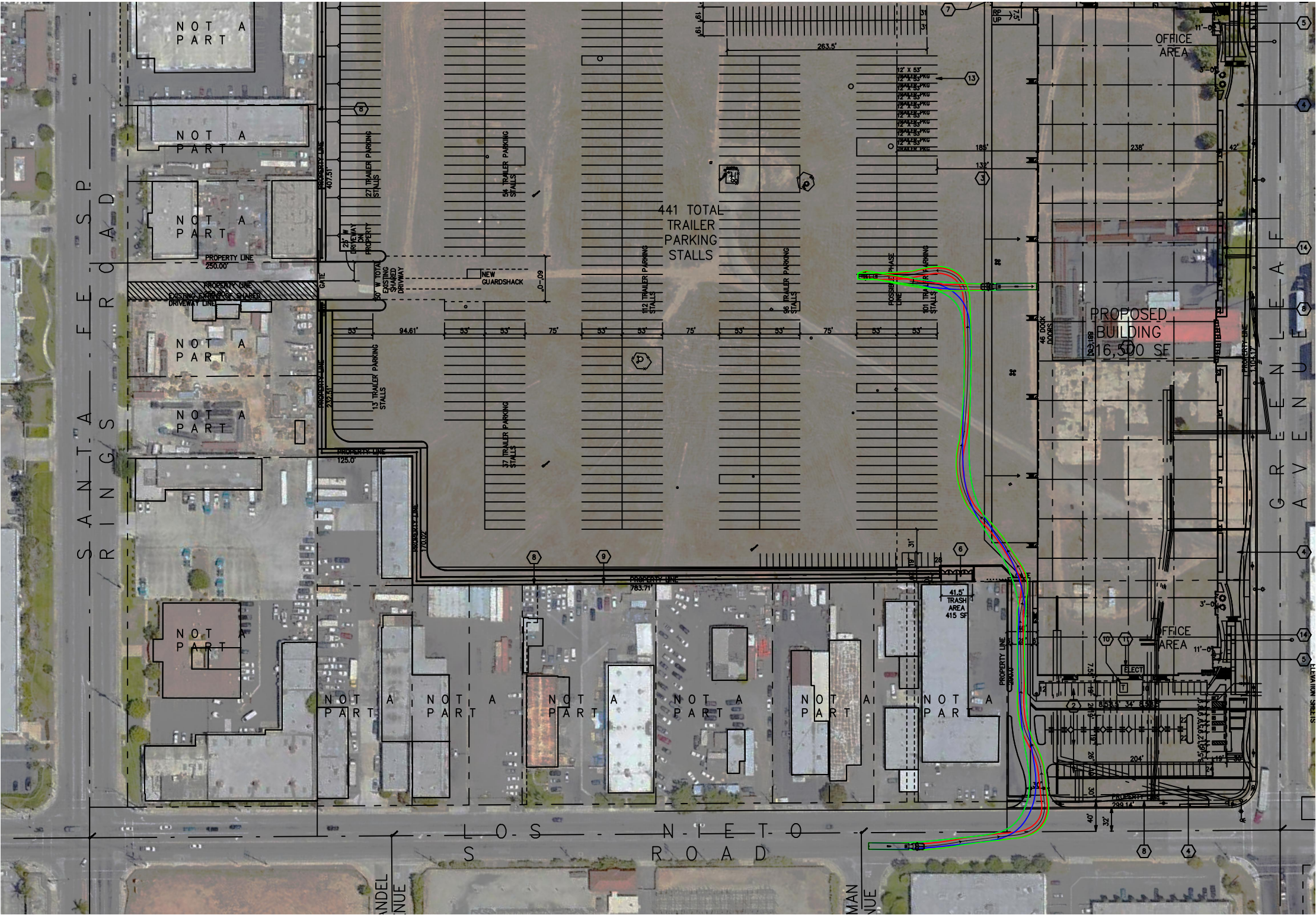
WB-67

|               | feet   |                    |        |
|---------------|--------|--------------------|--------|
| Tractor Width | : 8.00 | Lock to Lock Time  | : 6.0  |
| Trailer Width | : 8.50 | Steering Angle     | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 |                    |        |

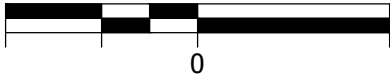
Circulation Trucks  
Santa Fe Springs Road Driveway  
Santa Fe Springs, California

Figure  
H-5



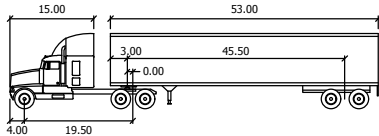


Scale: 1" = 150'



Vehicle Turning Settings

|                      |                                      |
|----------------------|--------------------------------------|
| Design Vehicle:      | WB-67                                |
| Vehicle Speed:       | 10 MPH                               |
| Min. Turning Radius: |                                      |
| Turn from stop:      | Off                                  |
| Vehicle Envelope     | <span style="color: green;">—</span> |
| Front Tire Track     | <span style="color: red;">—</span>   |
| Rear Tire Track      | <span style="color: blue;">—</span>  |



WB-67

|               | feet   |                    |        |
|---------------|--------|--------------------|--------|
| Tractor Width | : 8.00 | Lock to Lock Time  | : 6.0  |
| Trailer Width | : 8.50 | Steering Angle     | : 28.4 |
| Tractor Track | : 8.00 | Articulating Angle | : 75.0 |
| Trailer Track | : 8.50 |                    |        |

Circulation Trucks  
Los Nietos Road Driveway  
Santa Fe Springs, California

Figure  
H-6