Appendix I
Traffic Impact Analysis and VMT Memorandum

FONTANA FOOTHILLS COMMERCE CENTER
DRAFT EIR

Traffic Impact Analysis – Development Site

Fontana Foothills Commerce Center

TRAFFIC IMPACT ANALYSIS

CITY OF FONTANA

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TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**
APPENDICES ..... **III**
LIST OF EXHIBITS ..... **V**
LIST OF TABLES ..... **VII**
LIST OF ABBREVIATED TERMS ..... **IX**
1 INTRODUCTION **1**
1.1 Summary of Findings 1
1.2 Project Overview 3
1.3 Analysis Scenarios 3
1.4 Study Area 5
1.5 Analysis Findings 7
1.6 Local and Regional Funding Mechanisms 11
1.7 Cumulative Impacts 16
1.8 On-Site Roadway Improvements 17
1.9 Site Access Improvements 19
1.10 Truck Access 20
2 METHODOLOGIES **23**
2.1 Level of Service 23
2.2 Intersection Capacity Analysis 23
2.3 Roadway Segment Capacity Analysis Methodology 25
2.4 Traffic Signal Warrant Analysis Methodology 26
2.5 Minimum Level of Service (LOS) 27
2.6 Thresholds of Significance 27
2.7 Project Fair Share Calculation Methodology 28
3 AREA CONDITIONS **29**
3.1 Existing Circulation Network 29
3.2 City of Fontana General Plan Circulation Elements 29
3.3 Truck Routes 32
3.4 Bicycle & Pedestrian Facilities 32
3.5 Transit Service 36
3.6 Existing Traffic Counts 36
3.7 Existing Conditions Intersection Operations Analysis 39
3.8 Existing Conditions Traffic Signal Warrants Analysis 39
3.9 Roadway Segment Analysis 39
4 PROJECTED FUTURE TRAFFIC **43**
4.1 Project Trip Generation 43
4.2 Project Trip Distribution 46
4.3 Modal Split 46
4.4 Project Trip Assignment 46
4.5 Background Traffic 50
4.6 Cumulative Development Traffic 50
4.7 Horizon Year (2040) Volume Development 55
5 E+P TRAFFIC CONDITIONS **59**

5.1 Roadway Improvements 59
5.2 E+P Traffic Volume Forecasts 59
5.3 Intersection Operations Analysis 59
5.4 Traffic Signal Warrants Analysis 59
5.5 Roadway Segment Analysis 63
5.6 Impacts and Mitigation Measures 63
6 OPENING YEAR CUMULATIVE (2022) TRAFFIC CONDITIONS 65
6.1 Roadway Improvements 65
6.2 Opening Year Cumulative (2022) Without Project Traffic Volume Forecasts 65
6.3 Opening Year Cumulative (2022) With Project Traffic Volume Forecasts 65
6.4 Intersection Operations Analysis 65
6.5 Traffic Signal Warrants Analysis 70
6.6 Roadway Segment Analysis 70
6.7 Opening Year Cumulative (2022) Impacts and Recommended Improvements 70
7 HORIZON YEAR (2040) TRAFFIC CONDITIONS 75
7.1 Roadway Improvements 75
7.2 Horizon Year (2040) Without Project Traffic Volume Forecasts 75
7.3 Horizon Year (2040) With Project Traffic Volume Forecasts 75
7.4 Intersection Operations Analysis 78
7.5 Traffic Signal Warrants Analysis 82
7.6 Roadway Segment Analysis 82
7.7 Horizon Year (2040) Cumulative Impacts and Recommended Improvements 82
8 REFERENCES 87

APPENDICES

APPENDIX 1.1: APPROVED SCOPING AGREEMENT
APPENDIX 1.2: SITE ADJACENT QUEUING ANALYSIS WORKSHEETS
APPENDIX 3.1: EXISTING TRAFFIC COUNTS – MARCH 2019
APPENDIX 3.2: EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 3.3: EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 4.1: POST PROCESSING WORKSHEETS
APPENDIX 5.1: E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 5.2: E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 6.1: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 6.2: OPENING YEAR CUMULATIVE (2022) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 6.3: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 6.4: OPENING YEAR CUMULATIVE (2022) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 6.5: OPENING YEAR CUMULATIVE (2022) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS
APPENDIX 7.1: HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 7.2: HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 7.3: HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 7.4: HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 7.5: HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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LIST OF EXHIBITS

EXHIBIT 1-1: PRELIMINARY SITE PLAN 2
EXHIBIT 1-2: LOCATION MAP 6
EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO 8
EXHIBIT 1-4: SITE ADJACENT ROADWAY RECOMMENDATIONS 18
EXHIBIT 1-5: TRUCK ACCESS 21
EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS 30
EXHIBIT 3-2: CITY OF FONTANA HIERARCHY OF STREETS 31
EXHIBIT 3-3: CITY OF FONTANA EXISTING TRUCK ROUTES 33
EXHIBIT 3-4: CITY OF FONTANA GENERAL PLAN BIKEWAYS 34
EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES 35
EXHIBIT 3-6: EXISTING TRANSIT ROUTES 37
EXHIBIT 3-7: EXISTING (2019) TRAFFIC VOLUMES (IN PCE) 38
EXHIBIT 3-8: EXISTING (2019) SUMMARY OF LOS 42
EXHIBIT 4-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION 47
EXHIBIT 4-2: PROJECT (TRUCK) TRIP DISTRIBUTION 48
EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES (IN PCE) 49
EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP 51
EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE) 56
EXHIBIT 5-1: E+P TRAFFIC VOLUMES (IN PCE) 60
EXHIBIT 5-2: E+P SUMMARY OF LOS 61
EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE) 66
EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC VOLUMES (IN PCE) 67
EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT SUMMARY OF LOS 68
EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2022) WITH PROJECT SUMMARY OF LOS 71
EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE) 76
EXHIBIT 7-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE) 77
EXHIBIT 7-3: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS 80
EXHIBIT 7-4: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS 81

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LIST OF TABLES

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS 5
TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS 7
TABLE 1-3: SUMMARY OF INTERSECTION IMPROVEMENTS AND PROJECT FAIR SHARE 13
TABLE 1-4: PROJECT FAIR SHARE CALCULATIONS 14
TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS 23
TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS 25
TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS 26
TABLE 2-4: THRESHOLDS OF SIGNIFICANT IMPACT 27
TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2019) CONDITIONS 40
TABLE 3-2: ROADWAY SEGMENT ANALYSIS FOR EXISTING (2019) CONDITIONS 41
TABLE 4-1: PROJECT TRIP GENERATION SUMMARY (ACTUAL VEHICLES) 44
TABLE 4-2: PROJECT TRIP GENERATION SUMMARY (PCE) 45
TABLE 4-3: CUMULATIVE DEVELOPMENT LAND USE SUMMARY 52
TABLE 5-1: INTERSECTION ANALYSIS FOR E+P CONDITIONS 62
TABLE 5-2: ROADWAY SEGMENT ANALYSIS FOR E+P CONDITIONS 64
TABLE 6-1: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2022) CONDITIONS 69
TABLE 6-2: ROADWAY SEGMENT ANALYSIS FOR OPENING YEAR CUMULATIVE (2022) CONDITIONS 72
TABLE 6-3: INTERSECTION ANALYSIS FOR OPENING YEAR CUMULATIVE (2022) CONDITIONS WITH IMPROVEMENTS 73
TABLE 7-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS 79
TABLE 7-2: ROADWAY SEGMENT ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS 83
TABLE 7-3: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS 84
TABLE 7-4: ROADWAY SEGMENT CAPACITY ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS 86

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Transportation Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
N/A	Not Applicable
NCHRP	National Cooperative Highway Research Program
PCE	Passenger Car Equivalent
PHF	Peak Hour Factor
Project	Fontana Foothills Commerce Center
RTP	Regional Transportation Plan
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
sf	Square Feet
TIA	Traffic Impact Analysis
tsf	Thousand Square Feet
vphg	Vehicles Per Hour of Green

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Fontana Foothills Commerce Center area ("Project"), which is located north of Jurupa Avenue, between Cypress Avenue and Juniper Avenue, in the City of Fontana, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential impacts related to traffic and circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to resolve identified deficiencies and to achieve acceptable circulation system operational conditions. Based on discussions with City staff, the scope of this TIA is consistent with other recently completed TIAs in the area and follows the City of Fontana's Draft Traffic Study Guidelines and the San Bernardino County Congestion Management Program (CMP). (1) (2)

1.1 SUMMARY OF FINDINGS

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, (10th Edition, 2017). (3) The Project is estimated to generate a net total of 1,058 trip-ends per day (actual vehicles) on a typical weekday with approximately 61 AM peak hour trips and 76 PM peak hour trips. For the purposes of the peak hour intersection operations analysis, the following trip generation in passenger car equivalent (PCE) has been utilized: 1,644 PCE trip-ends per day with 92 PCE AM peak hour trips and 105 PCE PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

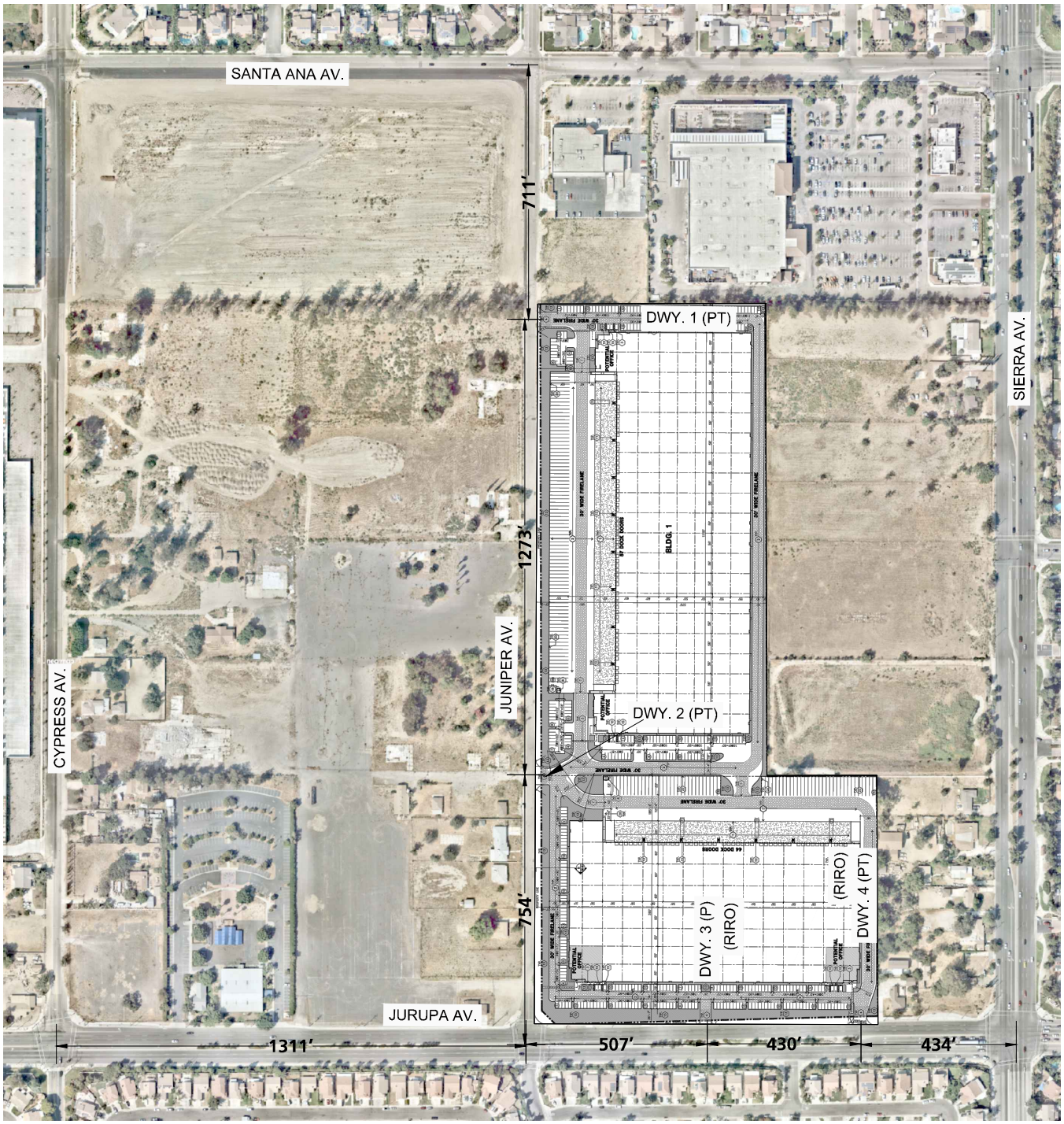
Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance* and the 50 peak hour trip criteria, the addition of Project traffic is not anticipated to result in any direct significant traffic impacts at the study area intersections for E+P traffic conditions. However, the addition of Project traffic is anticipated to result in a cumulative impact for E+P, Opening Year Cumulative (2022), or Horizon Year (2040) traffic conditions at the following locations:

- Juniper Avenue & Santa Ana Avenue (#4) – Opening Year Cumulative (2022) and Horizon Year (2040)
- Juniper Avenue & Jurupa Avenue (#7) – Horizon Year (2040) Only

The following mitigation measure has been recommended to address cumulative impacts:

Mitigation Measure 1.1 – Prior to the issuance of building permits, the Project Applicant shall participate in the City's Development Impact Fee (DIF) program by paying the requisite DIF fee at the time of building permit; and in addition, shall pay the fair share amount of $4,089, or as agreed to by the City and Project Applicant, for the improvements not included in a pre-existing fee program.

EXHIBIT 1-1: PRELIMINARY SITE PLAN



LEGEND:

RIRO	= RIGHT-IN/RIGHT-OUT ONLY ACCESS
P	= PASSENGER CARS ONLY
PT	= PASSENGER CARS AND TRUCKS

N

12997 - siteplan.dwg

URBAN CROSSROADS

The Project will construct its ultimate half-section of Juniper Avenue (Collector) and Jurupa Avenue (Modified Major Highway) along the Project's frontage. The Project should also modify the existing raised median to accommodate a 315-foot eastbound left turn pocket at the intersection of Juniper Avenue and Jurupa Avenue. Access to the Project site will be provided via driveways on Juniper Avenue and Jurupa Avenue. All project driveways on Juniper Avenue are assumed to accommodate full access while the driveways on Jurupa Avenue would accommodate right-in/right-out access only.

1.2 PROJECT OVERVIEW

Exhibit 1-1 illustrates the preliminary land use plan for the Project. As indicated on Exhibit 1-1, the Project is to consist of 754,408 square feet (sf) of high-cube transload short-term warehouse use (no cold storage) within two buildings.

Passenger car and truck access will be provided via the following roadways (see Exhibit 1-1):

- Juniper Avenue via Driveway 1 – full access for passenger cars and trucks
- Juniper Avenue via Driveway 2 – full access for passenger cars and trucks
- Jurupa Avenue via Driveway 3 – right-in/right-out access for passenger cars only
- Jurupa Avenue via Driveway 4 – right-in/right-out access for passenger cars and trucks

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2019) (1 scenario)
- Existing plus Project (E+P) (1 scenario)
- Opening Year Cumulative (2022) Without and With Project (2 scenarios)
- Horizon Year (2040) Without and With Project (2 scenarios)

1.3.1 EXISTING (2019) CONDITIONS

Information for Existing (2019) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis determines significant traffic impacts that would occur on the existing roadway system with the addition of Project traffic. The E+P analysis is intended to identify the Project-specific impacts associated solely with the development of the Project based on a comparison of the E+P traffic conditions to Existing conditions.

1.3.3 OPENING YEAR CUMULATIVE (2022) CONDITIONS

The Opening Year Cumulative (2022) conditions analysis determines the near-term cumulative traffic impacts based on a comparison of the With Project traffic scenarios to the Without Project traffic scenario. The Opening Year Cumulative (2022) conditions analyses uniquely identifies the specific traffic impacts associated with the proposed Project. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth of 1.38 percent per year compounded over 3 years ($1.38^{3 \text{ years}}$) from Existing conditions is included for Opening Year Cumulative (2022) traffic conditions.

The currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for the City of Fontana identifies projected growth in population of 200,200 in 2012 to 280,900 in 2040, or a 40.31% increase over the 28-year period. (4) The change in population equates to roughly a 1.22 percent growth rate compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 49.19 percent, or 1.44 percent growth rate, compounded annually. Finally, growth in employment over the same 28-year period is projected to increase by 50.6 percent, or a 1.47 percent annual growth rate. The average annual growth rate between population, households, and employment is 1.38 percent per year and has been used for the purposes of this analysis.

1.3.4 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) Without Project conditions were derived from the San Bernardino County Transportation Analysis Model (SBTAM), the sub-regional model for San Bernardino County for the study area intersections located within the County of San Bernardino. The Horizon Year (2040) traffic conditions is utilized to determine long-term cumulative traffic impacts. The initial estimate of the future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Project traffic was then added to determine Horizon Year (2040) With Project traffic forecasts.

The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's DIF fee program, or other approved funding mechanisms can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Fontana (lead agency). It should be noted that the City of Fontana has updated their DIF program to also include appropriate contributions towards regionally significant improvements that have been identified via the San Bernardino County CMP regional fee program study. If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative mitigation. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.4 STUDY AREA

1.4.1 INTERSECTIONS

The following 11 study area intersection locations shown on Exhibit 1-2 and listed on Table 1-1 were selected for this TIA based on the City of Fontana's Traffic Study Guidelines and in consultation with the City of Fontana. Pursuant to the Traffic Study Guidelines, the City requires analysis of intersections where the Project would contribute 50 or more peak-hour trips.[1]

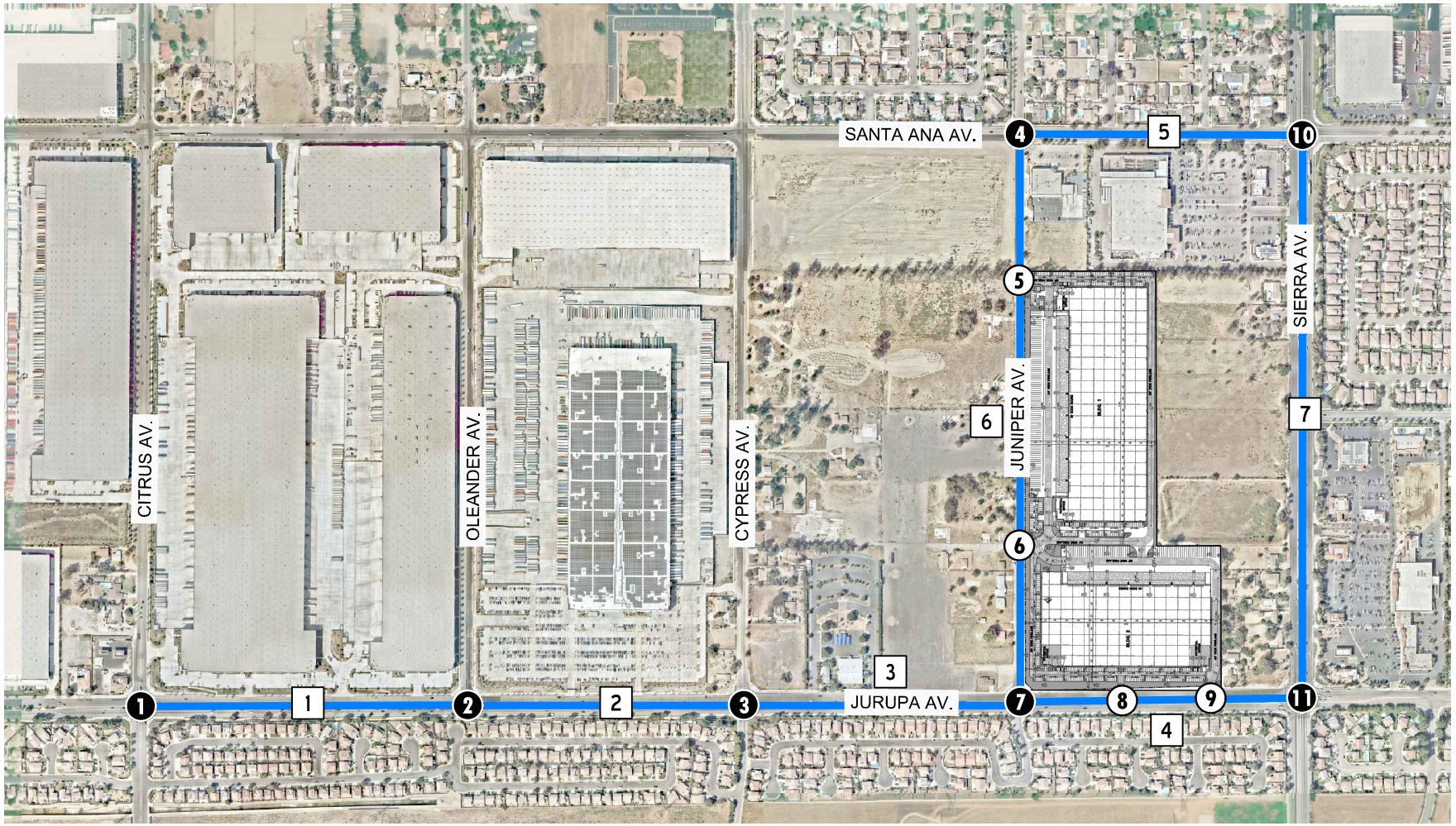
TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Citrus Avenue & Jurupa Avenue	City of Fontana	Yes
2	Oleander Avenue & Jurupa Avenue	City of Fontana	No
3	Cypress Avenue & Jurupa Avenue	City of Fontana	No
4	Juniper Avenue & Santa Ana Avenue	City of Fontana	No
5	Juniper Avenue & Driveway 1 – Future Intersection	City of Fontana	No
6	Juniper Avenue & Driveway 2 – Future Intersection	City of Fontana	No
7	Juniper Avenue & Jurupa Avenue	City of Fontana	No
8	Driveway 3 & Jurupa Avenue – Future Intersection	City of Fontana	No
9	Driveway 4 & Jurupa Avenue – Future Intersection	City of Fontana	No
10	Sierra Avenue & Santa Ana Avenue	City of Fontana	No
11	Sierra Avenue & Jurupa Avenue	City of Fontana	Yes

The intent of a CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. The County of San Bernardino CMP became effective with the passage of Proposition 111 in 1990 and updated most recently in 2016. The San Bernardino County Transportation Authority (SBCTA) adopted the 2016 CMP for the County of San Bernardino in June 2016. (2) There are 2 study area intersections identified as CMP facilities.

[1] The "50 or more peak hour trips" intersection analytic protocol stipulated in the City's Traffic Study Guidelines is consistent with standard industry practice. It is noted further that the 50 peak hour trip threshold is employed by other agencies throughout southern California including Caltrans, County of San Bernardino, County of Riverside, and the County of Orange.

EXHIBIT 1-2: LOCATION MAP



LEGEND:

- (0) = EXISTING INTERSECTION ANALYSIS LOCATION
- (0) = FUTURE INTERSECTION ANALYSIS LOCATION
- 00 = ROADWAY SEGMENT ANALYSIS LOCATION

N

1.4.2 ROADWAY SEGMENT ANALYSIS

Pursuant to the request of City staff, a roadway segment analysis has been evaluated for the following 7 study area roadway segments:

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segment	Jurisdiction
1	Jurupa Avenue between Citrus Avenue & Oleander Avenue	Fontana
2	Jurupa Avenue between Oleander Avenue & Cypress Avenue	Fontana
3	Jurupa Avenue between Cypress Avenue & Juniper Avenue	Fontana
4	Jurupa Avenue between Juniper Avenue & Sierra Avenue	Fontana
5	Santa Ana Avenue between Juniper Avenue & Sierra Avenue	Fontana
6	Juniper Avenue between Santa Ana Avenue & Jurupa Avenue	Fontana
7	Sierra Avenue between Santa Ana Avenue & Jurupa Avenue	Fontana

As stated in the City of Fontana's Traffic Impact Analysis Guidelines, roadway link analysis could be required where the ultimate street cross sections are not constructed. The roadway segment analysis has been conducted for each analysis scenario using the roadway capacities obtained from the City of Fontana General Plan Circulation Element. (1)

1.5 ANALYSIS FINDINGS

This section provides a summary of the analysis results for Existing, E+P, Opening Year Cumulative (2022), and Horizon Year (2040) traffic conditions.

1.5.1 EXISTING (2019) CONDITIONS

Intersection Operations Analysis

A summary of LOS results for Existing traffic conditions is presented on Exhibit 1-3. For Existing (2019) traffic conditions, the study area intersections currently operate at an acceptable level of service (LOS) (i.e., LOS C or better) during the peak hours.

Traffic Signal Warrant Analysis

There are no unsignalized intersections that currently meet peak hour volume-based traffic signal warrants under Existing traffic conditions.

Roadway Segment Operations

All of the study area roadway segments are currently operating at acceptable capacities based on the Existing daily volumes and available roadway capacity.

EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2019)	E+P	Opening Year (2022) Cumulative Without Project	Opening Year (2022) Cumulative With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Citrus Av. & Jurupa Av.						
2	Oleander Av. & Jurupa Av.						
3	Cypress Av. & Jurupa Av.						
4	Juniper Av. & Santa Ana Av.						
5	Juniper Av. & Dwy. 1	NA		NA		NA	
6	Juniper Av. & Dwy. 2	NA		NA		NA	
7	Juniper Av. & Jurupa Av.						
8	Dwy. 3 & Jurupa Av.	NA		NA		NA	
9	Dwy. 4 & Jurupa Av.	NA		NA		NA	
10	Sierra Av. & Santa Ana Av.						
11	Sierra Av. & Jurupa Av.						

LEGEND:

- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-C
- LOS D-E
- LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

1.5.2 E+P CONDITIONS

Intersection Operations Analysis

As shown in Exhibit 1-3 and consistent with Existing traffic conditions, the study area intersections are anticipated to continue to operate at an acceptable LOS for E+P traffic conditions.

Traffic Signal Warrant Analysis

There are no study area intersections anticipated to meet planning level (average daily traffic or ADT) or peak hour volume-based traffic signal warrants under E+P traffic conditions.

Roadway Segment Operations

The study area roadway segments are anticipated to operate at an acceptable LOS with the addition of Project traffic for E+P traffic conditions, consistent with Existing (2019) traffic conditions.

Impacts and Recommended Improvements

Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance* and the 50 peak hour trip threshold, the addition of Project traffic is not anticipated to result in a significant impact at any study area intersection. As such, no mitigation measures have been identified.

1.5.3 OPENING YEAR CUMULATIVE (2022) CONDITIONS

Intersection Operations Analysis

As shown in Exhibit 1-3, the following intersections are anticipated to operate at an unacceptable LOS for Opening Year Cumulative (2022) Without Project traffic conditions:

- Citrus Avenue & Jurupa Avenue (#1) – LOS D AM peak hour only
- Juniper Avenue & Santa Ana Avenue (#4) – LOS D PM peak hour only
- Sierra Avenue & Jurupa Avenue (#11) – LOS D PM peak hour only

There are no additional study area intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic for Opening Year Cumulative (2022) With Project traffic conditions.

Traffic Signal Warrant Analysis

There are no study area intersections anticipated to meet planning level (average daily traffic or ADT) or peak hour volume-based traffic signal warrants under Opening Year Cumulative (2022) Without and With Project traffic conditions.

Roadway Segment Operations

The study area roadway segments are anticipated to operate at an acceptable LOS for Opening Year Cumulative (2022) Without and With Project traffic conditions.

Impacts and Recommended Improvements

Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance*, the following intersection is anticipated to be significantly impacted by the Project during one or more peak hours:

- Juniper Avenue & Santa Ana Avenue (#4)

The following improvement has been recommended to address the cumulatively impacted intersection identified above:

Juniper Avenue & Santa Ana Avenue (#4) – The following improvement is necessary to improve the intersection's peak hour operations to pre-project conditions or better, thus reducing the cumulative impact to less than significant:

- Contribute fair share towards a 2nd eastbound through lane.

1.5.4 HORIZON YEAR (2040) CONDITIONS

Intersection Operations

The following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions during one or both peak hours:

- Citrus Avenue & Jurupa Avenue (#1) – LOS D AM peak hour only
- Oleander Avenue & Jurupa Avenue (#2) – LOS D PM peak hour only
- Juniper Avenue & Santa Ana Avenue (#4) – LOS D AM peak hour; LOS F PM peak hour
- Sierra Avenue & Santa Ana Avenue (#10) – LOS D PM peak hour only
- Sierra Avenue & Jurupa Avenue (#11) – LOS D PM peak hour only

The addition of Project traffic is not anticipated to result in any additional deficiencies at the study area intersections in addition to those previously identified for Horizon Year (2040) Without Project traffic conditions.

Traffic Signal Warrant Analysis

The intersection of Juniper Avenue and Santa Ana Avenue is anticipated to meet a peak hour volume-based traffic signal warrant under Horizon Year (2040) Without Project traffic conditions. There are no additional study area intersections anticipated to meet planning level (average daily traffic or ADT) or peak hour volume-based traffic signal warrants under Horizon Year (2040) With Project traffic conditions.

Roadway Segment Operations

The following roadway segment is anticipated operate at an unacceptable LOS for Horizon Year (2040) Without Project traffic conditions:

- Sierra Avenue, from Santa Ana Avenue to Jurupa Avenue (#7) – LOS D

The addition of Project traffic is not anticipated to result in any additional deficiencies along the study area roadway segments in addition to those previously identified for Horizon Year (2040) Without Project traffic conditions.

Impacts and Recommended Improvements

Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance*, the following intersections are anticipated to be cumulatively impacted by the Project during one or more peak hours:

- Juniper Avenue & Santa Ana Avenue (#4)
- Juniper Avenue & Jurupa Avenue (#7)

It should be noted, although the intersection of Juniper Avenue & Jurupa Avenue (#7) is anticipated to operate at an acceptable LOS during the peak hours under Horizon Year (2040) traffic conditions, based on the City of Fontana's significance criteria, this location is anticipated to be cumulatively impacted by the Project during one or more peak hours.

The following improvements have been recommended to address the cumulatively impacted intersections identified above:

Juniper Avenue & Santa Ana Avenue (#4) – The following improvement is necessary to improve the intersection's peak hour operations to pre-project conditions or better, thus reducing the cumulative impact to less than significant:

- Contribute fair share towards a 2nd eastbound through lane.

Juniper Avenue & Jurupa Avenue (#7) – The following improvement is necessary to improve the intersection's peak hour operations to pre-project conditions or better, thus reducing the cumulative impact to less than significant:

- Contribute fair share towards restriping the northbound and southbound approaches with a left turn lane and shared through-right turn lane.

1.6 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Fontana are funded through a combination of direct project mitigation, development impact fee programs or fair share contributions, such as the City of Fontana DIF program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

1.6.1 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by SBCTA and concluded that each jurisdiction should include a regional fee component

in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in May 2018. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study.

While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County, including within the City of Fontana.

1.6.2 CITY OF FONTANA DEVELOPMENT IMPACT FEE (DIF)

The City of Fontana adopted the latest update to their DIF program in September 2019. Fees from new residential, commercial and industrial development are collected to fund Measure "I" compliant regional facilities as well as local facilities. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

After the City's DIF fees are collected, they are placed in a separate restricted use account pursuant to the requirements of Government Code sections 66000 *et seq*. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Engineering Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds. The City's DIF program establishes a timeline to fund, design, and build the improvements.

1.6.3 FAIR SHARE CONTRIBUTION

Project mitigation may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Table 1-3 lists the incremental improvements that are required by the Horizon Year traffic conditions to mitigate the long-range cumulative impacts. After review of the local and regional transportation impact fee programs as compared to the recommended improvements for each impacted facility, if it is found that the impacted facilities which require improvements include improvements beyond those already identified within one of the City's fee programs, projects may be required to contribute to the intersection or roadway fair-share percentage toward the costs of the recommended improvements. Table 1-4 shows the development project fair share calculations for the study area intersection with a significant impact and recommended improvements that are not included in a pre-existing fee program.

Table 1-3

Summary of Intersection Improvements and Project Fair Share

#	Intersection Location	Jurisdiction	Analysis Scenarios			Improvements included in Fee Program?[1]	Mechanism for Mitigation[2]	Total Cost[3]	Fair Share %[4]	Estimated Fair Share Cost
			E+P	2022 With Project	2040 With Project					
4	Juniper Av. & Santa Ana Av.	Fontana	None	Add a 2nd EB through lane		Yes	Fee Payment	$0	N/A	$0
							Total	**$0**		**$0**
7	Juniper Av. & Jurupa Av.	Fontana	None	None	Restripe the NB and SB approaches with a left and shared through-right turn lane	No	Fair Share	$37,100	11.0%	$4,089
							Total	**$37,100**		**$4,089**
Total Costs for Horizon Year (2040) Improvements								**$37,100**		**$4,089**
Total Project Fair Share Contribution to the City of Fontana (non-DIF)[5]								**$4,089**		

[1] Improvements are included in the SBCTA Nexus Study Fee program or the SANBAG Measure I Funding.

[2] Identifies the Project's responsibility to construct an improvement or contribute fair share or fee payment towards the implementation of the improvements shown.

[3] Costs have been estimated using the data provided in Appendix G of the San Bernardino County CMP (2016 Update) for preliminary construction costs. Appendix G costs escalated by a factor of 1.484 to reflect 2019 conditions, except for Traffic Signals.

[4] Program improvements constructed may be eligible for fee credit, at discretion of City. See Table 1-4 for Fair Share Calculations.

[5] Total project fair share contribution consists of the improvements which are not already included in the City of Fontana's DIF for those intersections wholly or partially within the City of Fontana.

Table 1-4

Project Fair Share Calculations

#	Intersection	Existing	Project	2040 With Project	Total New Traffic	Project % of New Traffic[1]
7	Juniper Av. & Jurupa Av.					
	AM:	1,415	62	2,010	595	10.4%
	PM:	1,962	81	2,697	735	**11.0%**

BOLD = Highest fair share percentage is highlighted.

[1] Project percentage of new traffic between Existing (2019) and Horizon Year (2040) traffic conditions.

The improvements listed on Table 1-3 are comprised of lane additions. Table 1-3 shows the total recommended improvements to mitigate potential long-range cumulative impacts. When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each analysis peak hour, has been provided on Table 1-4 for each of the cumulatively impacted intersections. Improvements included in a defined program and constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate. The fair-share calculations, also presented on Table 1-4, indicate that the Project contributes between 10.4% and 11.0% of new vehicle trips to the cumulatively impacted intersections throughout the study area. The Project's fair share will be determined based on a higher of the AM or PM peak hour percentages in order to utilize the most conservative fair share percentage.

For improvements that do not appear to be in DIF, a fair share contribution based on the Project's percentage contribution may be imposed in order to mitigate the Project's share of impacts in lieu of construction. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases. Alternatively, minor fair share responsibilities may be waived when collection is infeasible or where other mitigation assignments substantially exceed the Project's demonstrated impacts.

A rough order of magnitude cost has been prepared to determine the appropriate contribution value based upon the Project's fair share of traffic as part of the project approval process. Table 1-3 also summarizes the applicable cost associated with each of the recommended improvements based on the preliminary construction cost estimates found in Appendix G of the San Bernardino County CMP in conjunction with a cost escalation factor of 1.484% to reflect current (2019) costs. The total cost of needed study area intersection improvements is $37,100. Based on the project fair share percentages shown on Table 1-3, the project's fair share cost is estimated at $4,089. These estimates are a rough order of magnitude only as they are intended only for discussion purposes and do not imply any legal responsibility or formula for contributions or mitigation.

1.7 CUMULATIVE IMPACTS

A summary of the cumulatively impacted study area intersections and recommended mitigation measures to address cumulatively significant impacts are described in detail within Section 6 *Opening Year Cumulative (2022) Traffic Conditions* and Section 7 *Horizon Year (2040) Traffic Conditions*. Cumulative impacts are deficiencies that would not be directly caused by the Project. The Project would, however, contribute traffic to these deficient facilities along with other cumulative development projects, resulting in a cumulatively considerable impact. The following mitigation measure is based on the improvements needed for either Opening Year Cumulative (2022) or Horizon Year (2040) traffic conditions.

1.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

A summary of off-site improvements needed to address cumulative traffic impacts for Horizon Year (2040) traffic conditions were included on Table 1-3. Improvements found to be included in City of Fontana (lead agency) DIF program have been identified as such. For improvements that are not in the City's DIF program, a fair share financial contribution based on the Project's fair share impact shall be imposed (for City of Fontana facilities) and may be imposed by other jurisdictions in order to mitigate the Project's share of impacts in lieu of construction. Because the City of Fontana does not have plenary control over intersections under other jurisdictions, the City of Fontana cannot guarantee that such improvements will be constructed. These fees (both to the City of Fontana, and as determined, to surrounding agencies as fair-share contributions) are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases. These estimates are a rough order of magnitude only as they are intended only for discussion purposes and do not imply any legal responsibility or formula for contributions or mitigation.

1.7.2 CUMULATIVE MITIGATION MEASURES

Mitigation Measure 1.1 – Prior to the issuance of building permits, the Project Applicant shall participate in the City's DIF program by paying the requisite DIF fee at the time of building permit; and in addition, shall pay the fair share amount of $4,089, or as agreed to by the City and Project Applicant, for the improvements identified on Table 1-3 which are consistent with the improvements shown on Table 7-3, but not included in a pre-existing fee program.

1.8 ON-SITE ROADWAY IMPROVEMENTS

Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements should be in place prior to occupancy.

1.8.1 SITE ADJACENT ROADWAY IMPROVEMENTS

The recommended site-adjacent roadway improvements for the Project are described below. Exhibit 1-4 illustrates the site-adjacent roadway improvement recommendations. The recommended site-adjacent roadway improvements are described below. These improvements need to be incorporated prior to project approval or imposed as conditions of approval as part of the project approval.

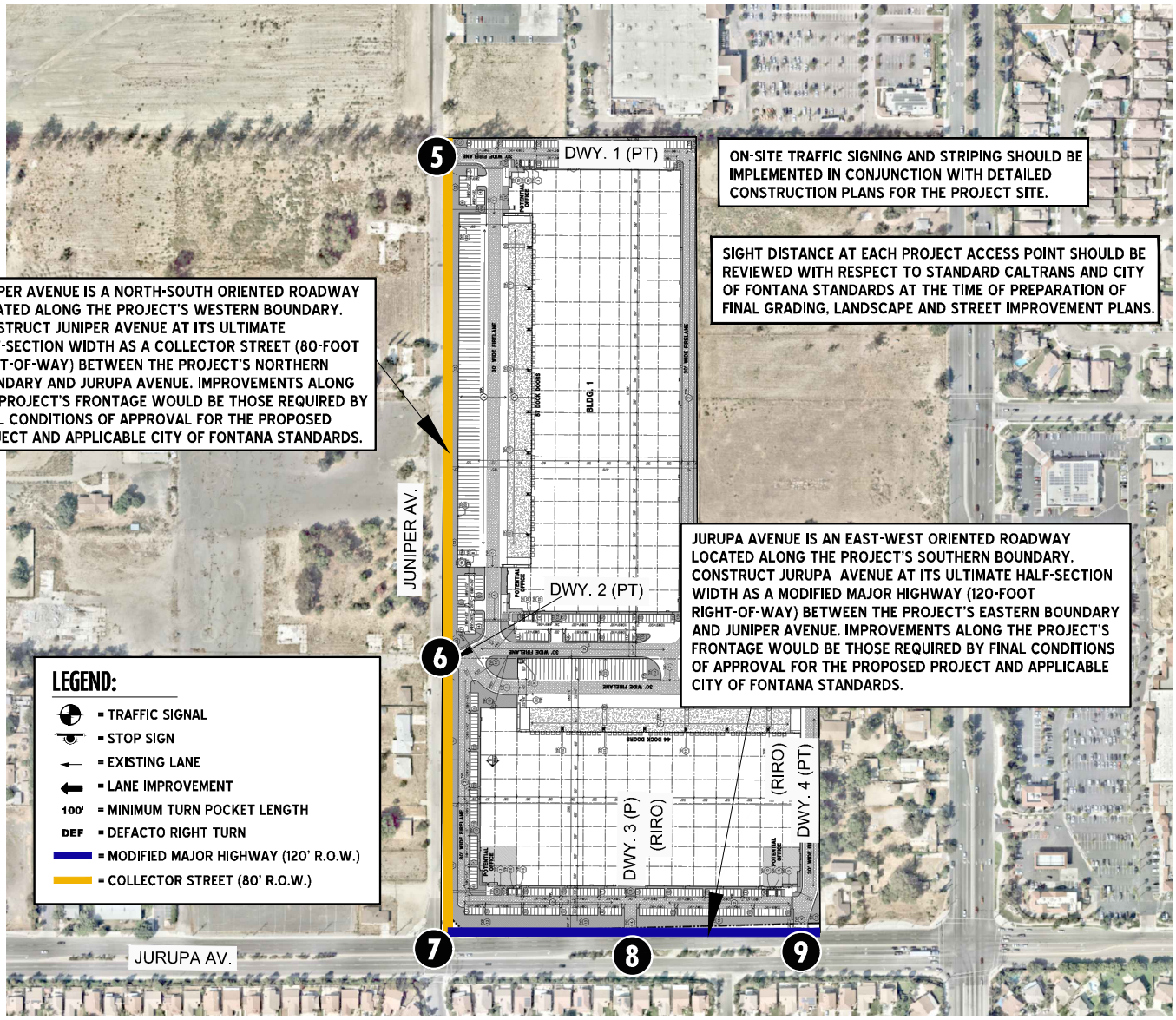
Juniper Avenue – Juniper Avenue is a north-south oriented roadway located along the Project's westbound boundary. Construct Juniper Avenue at its ultimate half-section width as a collector street (80-foot right-of-way) between the project's northern boundary and Jurupa Avenue. Improvements along the Project's frontage would be those required by final conditions of approval for the proposed Project and applicable City of Fontana standards.

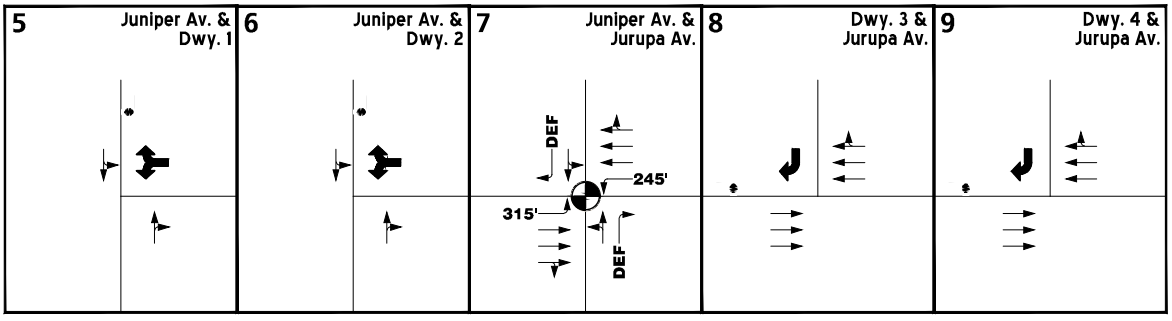
Jurupa Avenue – Jurupa Avenue is an east-west oriented roadway located along the Project's southern boundary. Construct Jurupa Avenue at its ultimate half-section width as a modified major highway (120-foot right-of-way) between Juniper Avenue and the Project's eastern boundary. Improvements along the Project's frontage would be those required by Final conditions of approval for the proposed Project and applicable City of Fontana standards.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project site.

Sight distance at each project access point should be reviewed with respect to standards Caltrans and City of Fontana standards at the time of preparation of final grading, landscape and street improvement plans.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS





1.9 SITE ACCESS IMPROVEMENTS

The recommended site access driveway improvements for the Project are described below. Exhibit 1-4 also illustrates the site access improvements. Construction of on-site and site adjacent improvements shall occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

***Juniper Avenue & Driveway 1* (#5)** – Install a stop control on the westbound approach and construct the intersection with the following geometrics (proposed to align with a future driveway on the west side):

- Northbound Approach: One shared through-right turn lane.
- Southbound Approach: One shared left-through lane.
- Eastbound Approach: Not Applicable (N/A)
- Westbound: One shared left-right turn lane.

***Juniper Avenue & Driveway 2* (#6)** – Install a stop control on the westbound approach and construct the intersection with the following geometrics (proposed to align with a future driveway on the west side):

- Northbound Approach: One shared through-right turn lane.
- Southbound Approach: One shared left-through lane.
- Eastbound Approach: N/A
- Westbound: One shared left-right turn lane.

***Juniper Avenue & Jurupa Avenue* (#7)** – Maintain the existing traffic and modify the intersection to accommodate the following:

- Eastbound Approach: Modify the existing raised median along Jurupa Avenue to accommodate an eastbound left turn lane with 315-feet of storage.

***Driveway 3 & Jurupa Avenue* (#8)** – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

- Northbound Approach: N/A
- Southbound Approach: One right turn lane.
- Eastbound Approach: Three through lanes.
- Westbound: Two through lanes and a shared through-right turn lane.

***Driveway 4 & Jurupa Avenue* (#9)** – Install a stop control on the southbound approach and construct the intersection with the following geometrics:

- Northbound Approach: N/A
- Southbound Approach: One right turn lane.
- Eastbound Approach: Three through lanes.
- Westbound: Two through lanes and a shared through-right turn lane.

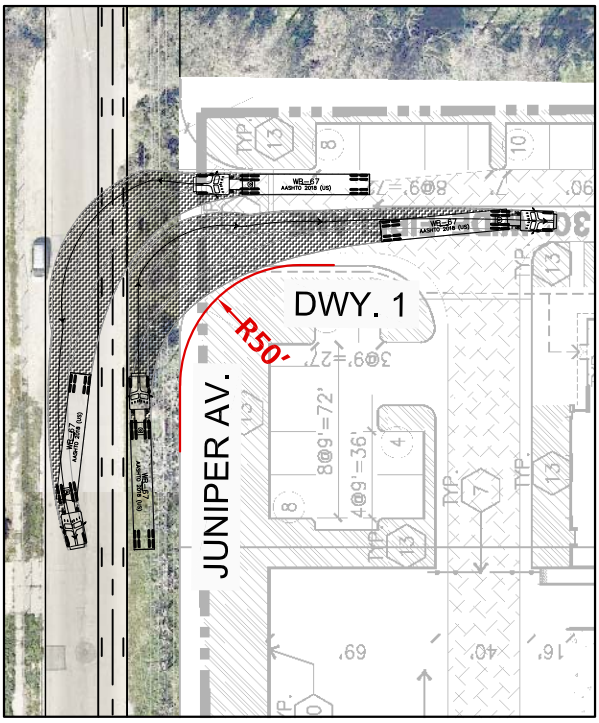
Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of Fontana General Plan Circulation Element.

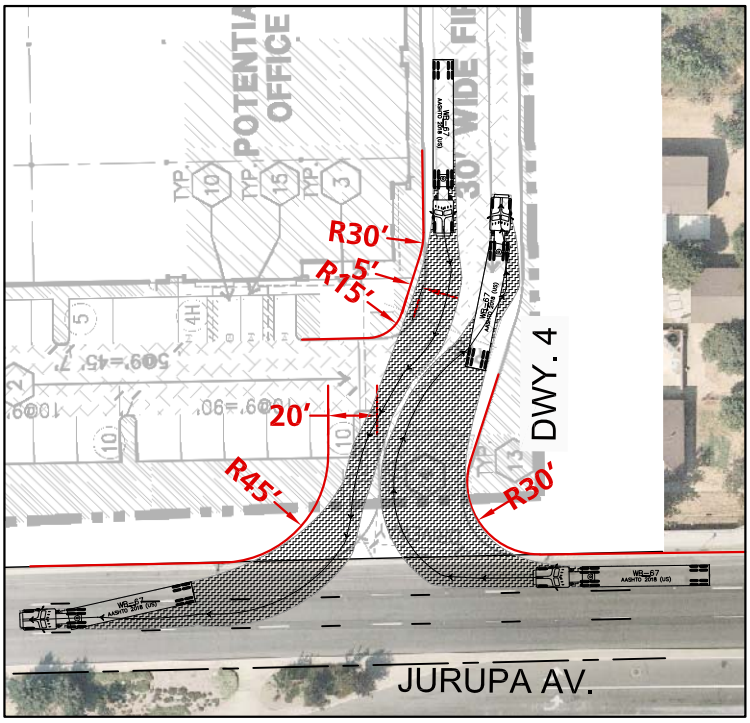
1.10 TRUCK ACCESS

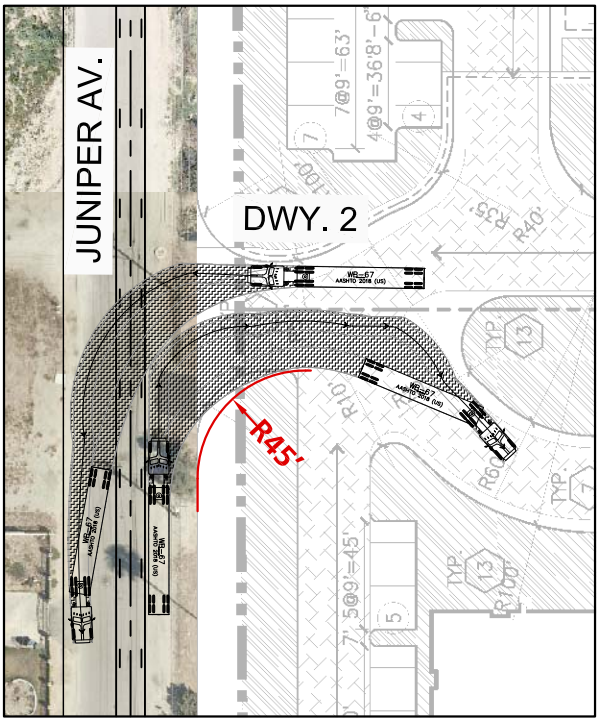
Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-5, the following curb radius and driveway changes are necessary in order to accommodate the ingress and egress of heavy trucks:

- Driveway 1 on Juniper Avenue should be modified to provide a 50-foot curb radius on the southeast corner.
- Driveway 2 on Juniper Avenue should be modified to provide a 45-foot curb radius on the southeast corner.
- Driveway 4 on Jurupa Avenue should be modified as shown internally and widen the driveway by 20-feet to the west in conjunction with a 45-foot curb radius on the northwest corner and 30-foot curb radius on the northeast corner in order to accommodate concurrent ingress and egress truck turns.

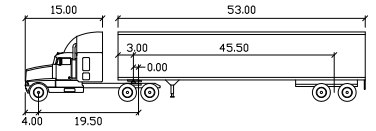
EXHIBIT 1-5: TRUCK ACCESS







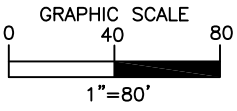
LEGEND:



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		



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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Fontana's Traffic Study Guidelines. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Fontana requires signalized intersection operations analysis based on the methodology described in the HCM. (5)

Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: HCM, 6th Edition

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to analyze signalized intersections within the study area. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM (6th Edition). (5) Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The LOS and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

The LOS analysis for signalized intersections has been performed using existing signal timing for Existing, E+P, Opening Year Cumulative (2022), and Horizon Year (2040) traffic conditions. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM (6th Edition), PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

Saturation flow rates of 1,900 vehicles per hour of green (vphg) has been utilized, consistent with the recommended values in the City's traffic study guidelines. (1)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Fontana requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM, 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 ROADWAY SEGMENT CAPACITY ANALYSIS METHODOLOGY

Roadway segment operations have been evaluated using the applicable average daily traffic (ADT) roadway capacity values provided in the City of Fontana General Plan. The roadway capacities utilized for the purposes of this analysis are considered "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic.

While using ADT for planning purposes is suitable with regards to evaluating potential volume to capacity with future forecasts, it is not suitable for operational analysis because it does not account for the factors listed previously. As such, where the ADT based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

2.4 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the California Department of Transportation (Caltrans) and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (6)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future ADT volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets. Traffic signal warrant analyses were performed for the following study area intersection shown on Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
4	Juniper Avenue & Santa Ana Avenue	City of Fontana
5	Juniper Avenue & Driveway 1 – Future Intersection	City of Fontana
6	Juniper Avenue & Driveway 2 – Future Intersection	City of Fontana

Although Driveway 3 and Driveway 4 on Jurupa Avenue are also proposed to be unsignalized intersections, traffic signal warrant analysis has not been performed at these intersections as the access to these driveways is proposed to be restricted to right-in/right-out access only. The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Conditions,* Section 6 *Opening Year Cumulative (2022) Traffic Conditions,* and Section 7 *Horizon Year (2040) Traffic Conditions* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.5 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from each of the applicable jurisdictions.

2.5.1 CITY OF FONTANA

The City of Fontana has set the goal for acceptable LOS as LOS C or better, wherever feasible (see City's Traffic Study Guidelines). However, in some instances maintaining the LOS C threshold within a built environment may require extensive roadway widening that could affect existing uses, property rights and substantial costs associated with implementing these improvements. In the event that the improvements required to maintain LOS C is determined to be infeasible, the City of Fontana recognizes that LOS D may be considered the worst acceptable level of service in urbanized areas of the City. Where feasible, LOS C has been utilized as the minimum LOS criteria for intersections located within the City of Fontana. (1)

2.5.2 SAN BERNARDINO COUNTY CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. (2) However, for the purposes of this TIA, LOS C has been utilized consistent with the City of Fontana LOS criteria.

2.6 THRESHOLDS OF SIGNIFICANCE

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. For purposes of analyzing California Environmental Quality Act (CEQA) impacts, the E+P scenario will be used to establish direct project impacts.

2.6.1 INTERSECTIONS

For the intersections that lie within the City of Fontana, determination of significant impacts will be based on a comparison of without and with project levels of service for each analysis year. A Significant Impact occurs if project traffic increases the average delay at an intersection by more than the thresholds identified on Table 2-4. The thresholds for LOS A, B, and C do not apply to projects consistent with the General Plan.

TABLE 2-4: THRESHOLDS OF SIGNIFICANT IMPACT

Pre-Project LOS	Significant Impact Threshold[1]
A/B	10.0 Seconds
C	8.0 Seconds
D	5.0 Seconds
E	3.0 Seconds
F	1.0 Second

Source: Fontana Traffic Study Guidelines, Updated October 2019

[1] Increase in delay

2.6.2 CUMULATIVE IMPACTS:

Cumulative traffic impacts are deficiencies that are not directly caused by the Project, but occur as a result of regional growth combined with that or other nearby cumulative development projects. Cumulative impacts utilize the same thresholds of significant impacts as shown on Table 2-4. The Project's contribution to a particular cumulative transportation deficiency is deemed cumulatively considerable if the Project adds significant traffic to the forecasted deficiency (Per Table 2-4). A Project's contribution to a cumulatively considerable impact can be reduced to less than significant if the Project is required to implement or fund its fair share of improvements designed to alleviate the potential cumulative impact. If full funding of future cumulative improvements is not reasonably assured, a temporary unmitigated cumulative impact may occur until the needed improvement is fully funded and constructed.

2.7 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TIA identifies that the proposed Project would have a significant cumulative impact to a roadway facility, and the recommended mitigation measure is a fair share monetary contribution, the following methodology was applied to determine the fair share contribution. A project's fair share contribution at an off-site study area intersection is determined based on the following equation, which is the ratio of Project traffic to new traffic, and new traffic is total future traffic subtracts existing baseline traffic:

Project Fair Share % = Project Traffic / (2040 Total Traffic – Existing Baseline Traffic)

The Project fair share contribution calculations are presented in Section 1.6 *Local and Regional Funding Mechanisms* of this TIA.

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Fontana General Plan Circulation Network, and a review of existing peak hour intersection operations, roadway segment operations, and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to discussion with City of Fontana staff, the study area includes a total of 11 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF FONTANA GENERAL PLAN CIRCULATION ELEMENTS

As previously noted, the Project site is located within the City of Fontana. Exhibit 3-2 shows the City of Fontana Hierarchy of Streets. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Fontana Circulation Master Plan, are described subsequently.

Major Highways can accommodate six or eight travel lanes and may have raised medians. These facilities carry high traffic volumes and are the primary thoroughfares linking Fontana with adjacent cities and the regional highway system. Driveway access to these roadways is typically limited to provide efficient high-volume traffic flow. Right of way (including sidewalks) on these facilities varies between 132 and 156 feet depending on the number of lanes. The following study area roadways within the City of Fontana are classified as Major Highways:

- Citrus Avenue, Slover Avenue to Valley Boulevard
- Sierra Avenue, Jurupa Avenue to Slover Avenue

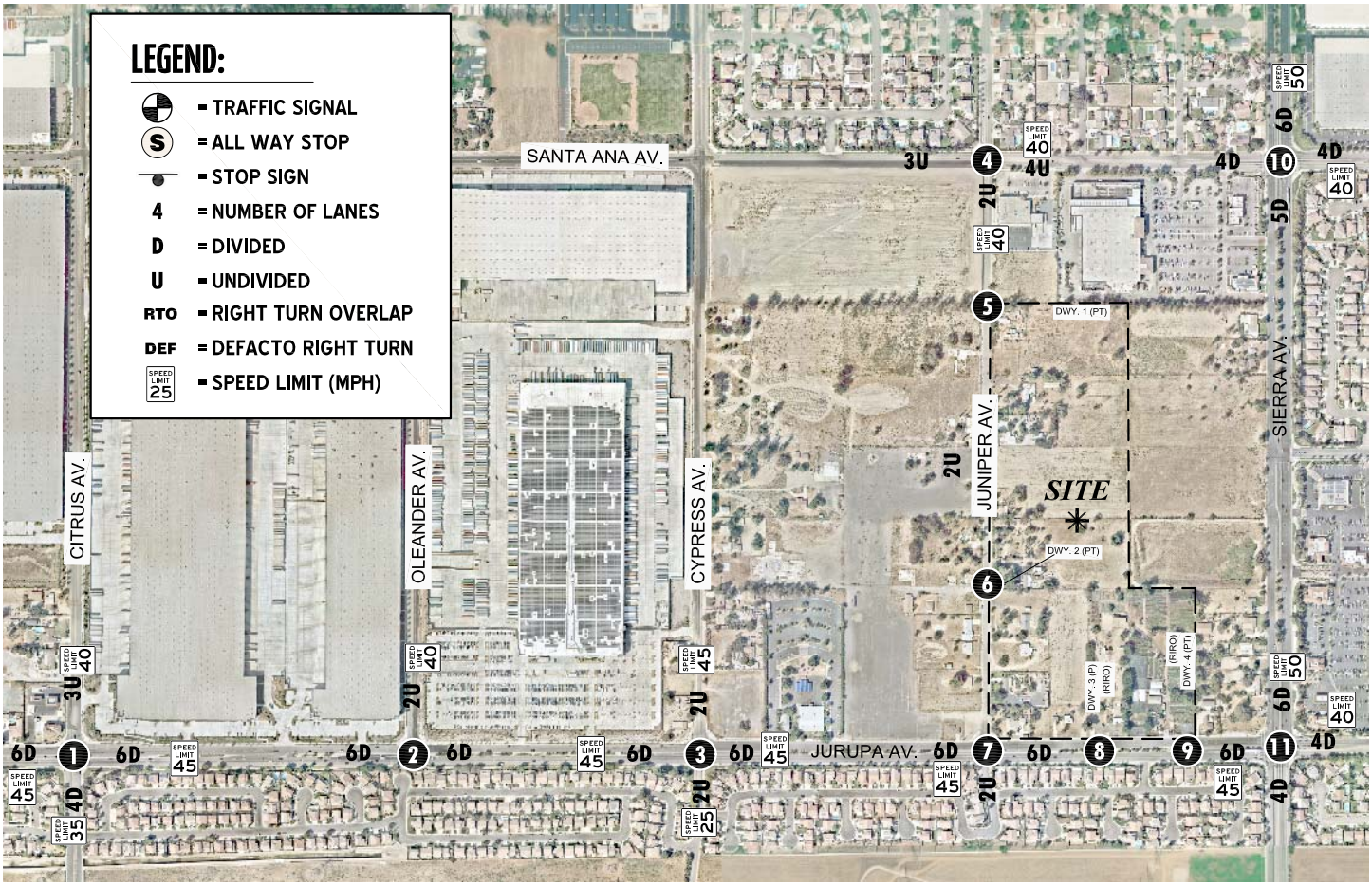
Modified Major Highways are adapted streets being brought up to the Major Highway classification from existing and previous conditions. The following study area roadways within the City of Fontana are classified as Modified Major Highways:

- Jurupa Avenue
- Sierra Avenue, Slover Avenue to Valley Boulevard

Primary Highways are designed to accommodate four travel lanes with a median, within a typical 104-foot right of way, carry high traffic volumes and provide limited access. Their primary function is to link the major highways to the secondary highways as well as to carry vehicles entering and exiting the City from neighboring areas. Driveway access is also typically limited on these facilities, where feasible. The following study area roadway within the City of Fontana is classified as a Primary Highway:

- Slover Avenue

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



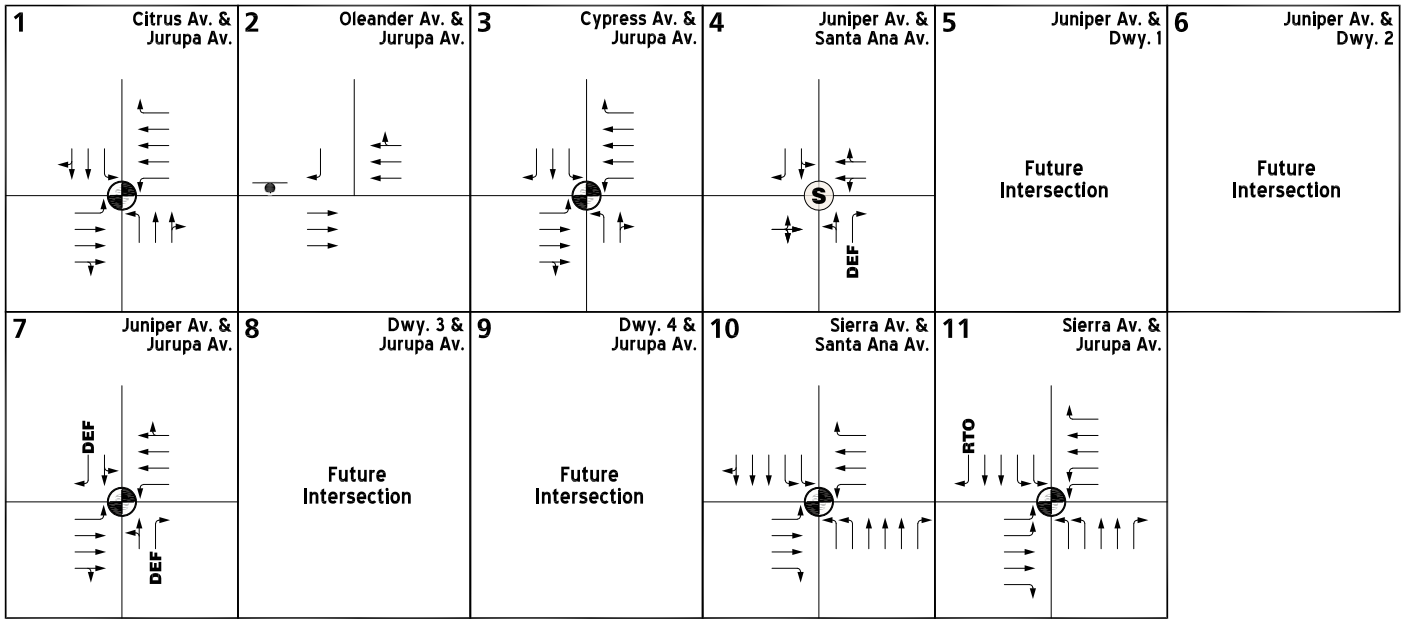
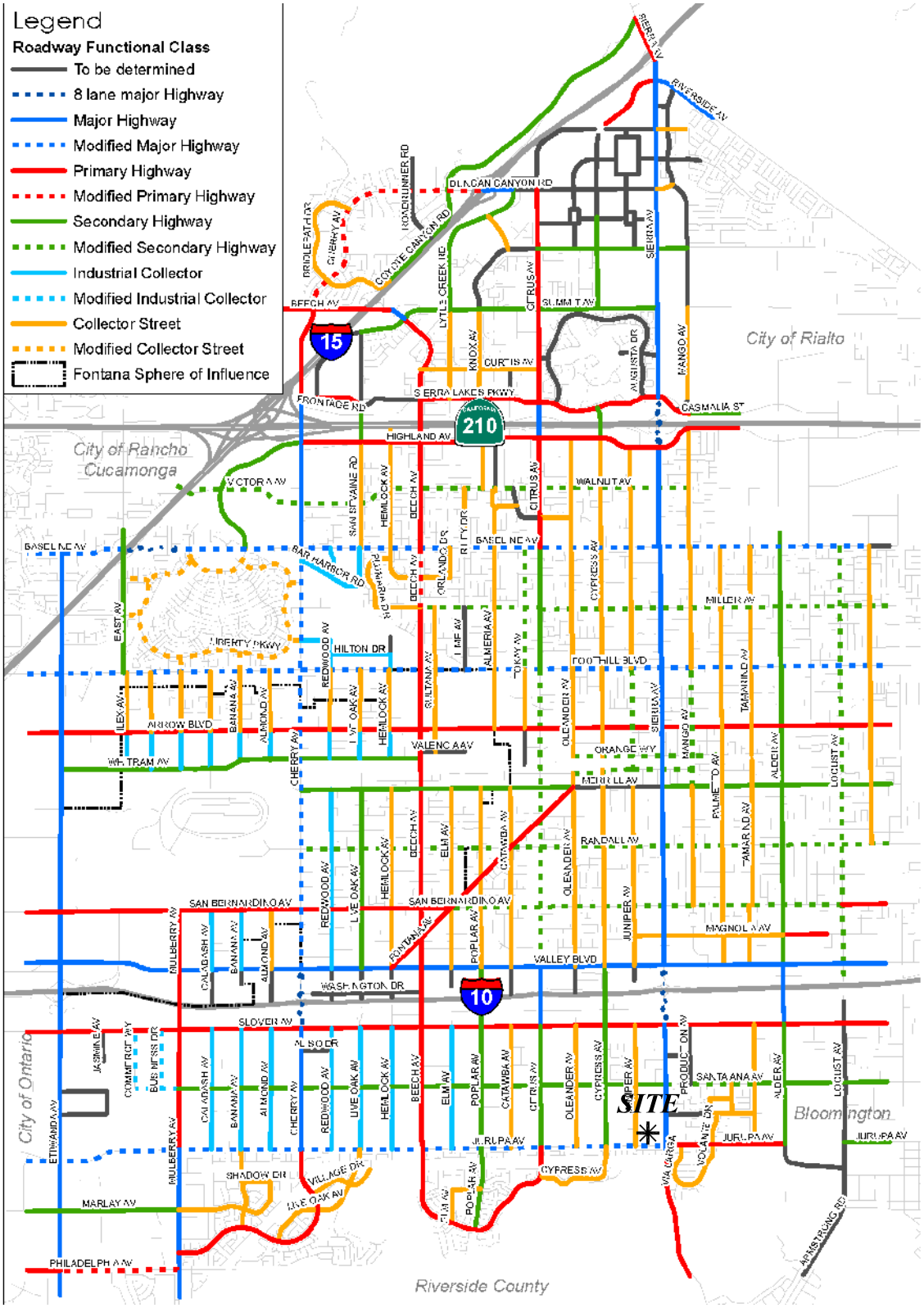


EXHIBIT 3-2: CITY OF FONTANA HIERARCHY OF STREETS



Secondary Highways are typically four-lane streets, providing two lanes in each direction. These highways carry traffic along the perimeters of major developments, provide support to the major and primary highways, and are also through streets enabling traffic to travel uninterrupted for longer distances through the City. Secondary highways have a 92-foot wide right of way, which includes sidewalks. The following study area roadways within the City of Fontana are classified as Secondary Highways:

- Santa Ana Avenue
- Citrus Avenue, Jurupa Avenue to Slover Avenue
- Cypress Avenue, Jurupa Avenue to Valley Boulevard

Collector Streets are typically two-lane streets that connect the local streets with the secondary highways allowing local traffic to access the regional transportation facilities. Collector streets have a 68-foot wide right of way and Industrial Collectors have an 80-foot right of way. The following study area roadways within the City of Fontana are classified as Collector Streets:

- Juniper Avenue
- Oleander Avenue

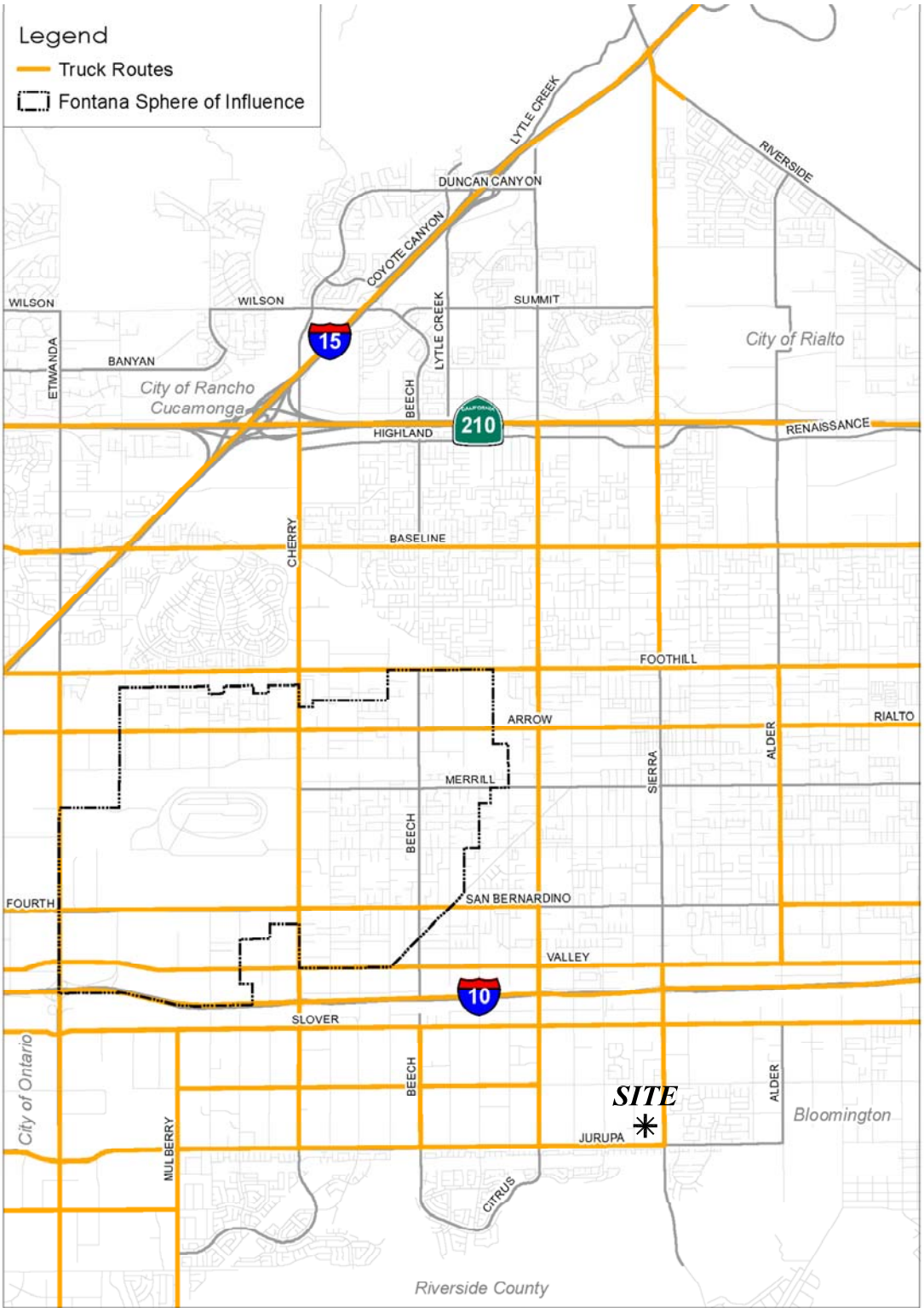
3.3 TRUCK ROUTES

The City of Fontana designated truck route map is shown on Exhibit 3-3. Slover Avenue, Santa Ana Avenue (west of Citrus Avenue), Jurupa Avenue, Citrus Avenue, and Sierra Avenue are study area roadways that are identified as existing City of Fontana truck routes. The designated truck route maps have been utilized to route truck traffic from the proposed Project throughout the study area. The truck routes have also been utilized for routing truck traffic for cumulative projects.

3.4 BICYCLE & PEDESTRIAN FACILITIES

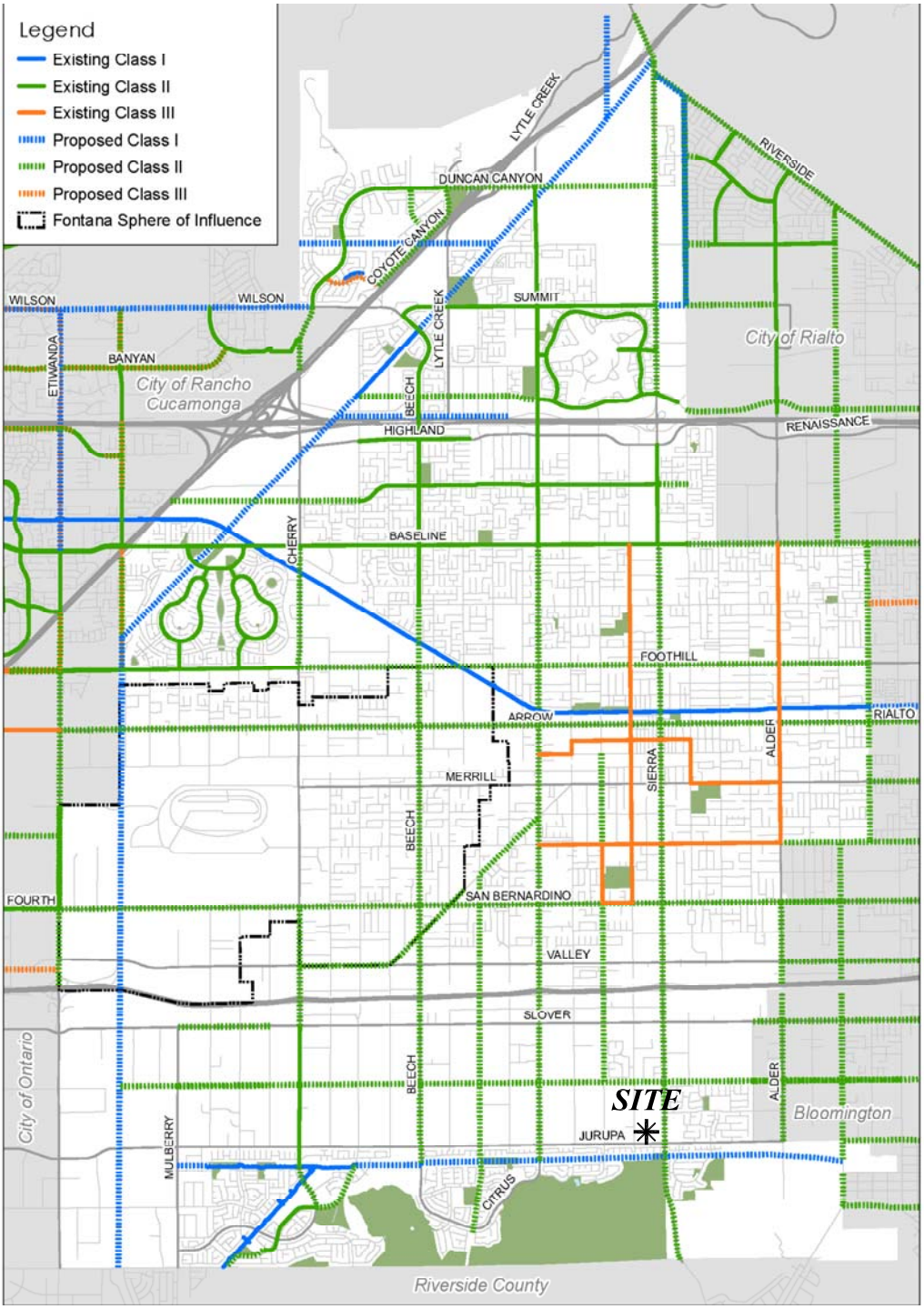
The City of Fontana General Plan Bikeways are shown on Exhibit 3-4. As shown on Exhibit 3-4 , there are Class II bike lanes existing/proposed along Citrus Avenue, Oleander Avenue, Cypress Avenue, Sierra Avenue, Jurupa Avenue, and Santa Ana Avenue near the vicinity of the Project. There is a Class I bike path/trail along the Southern California Edison utility corridor south of Jurupa Avenue. Existing pedestrian facilities within the study area are shown on Exhibit 3-5. There are no existing bike lanes within the study area. Field observations indicate nominal pedestrian and bicycle activity within the study area.

EXHIBIT 3-3: CITY OF FONTANA EXISTING TRUCK ROUTES



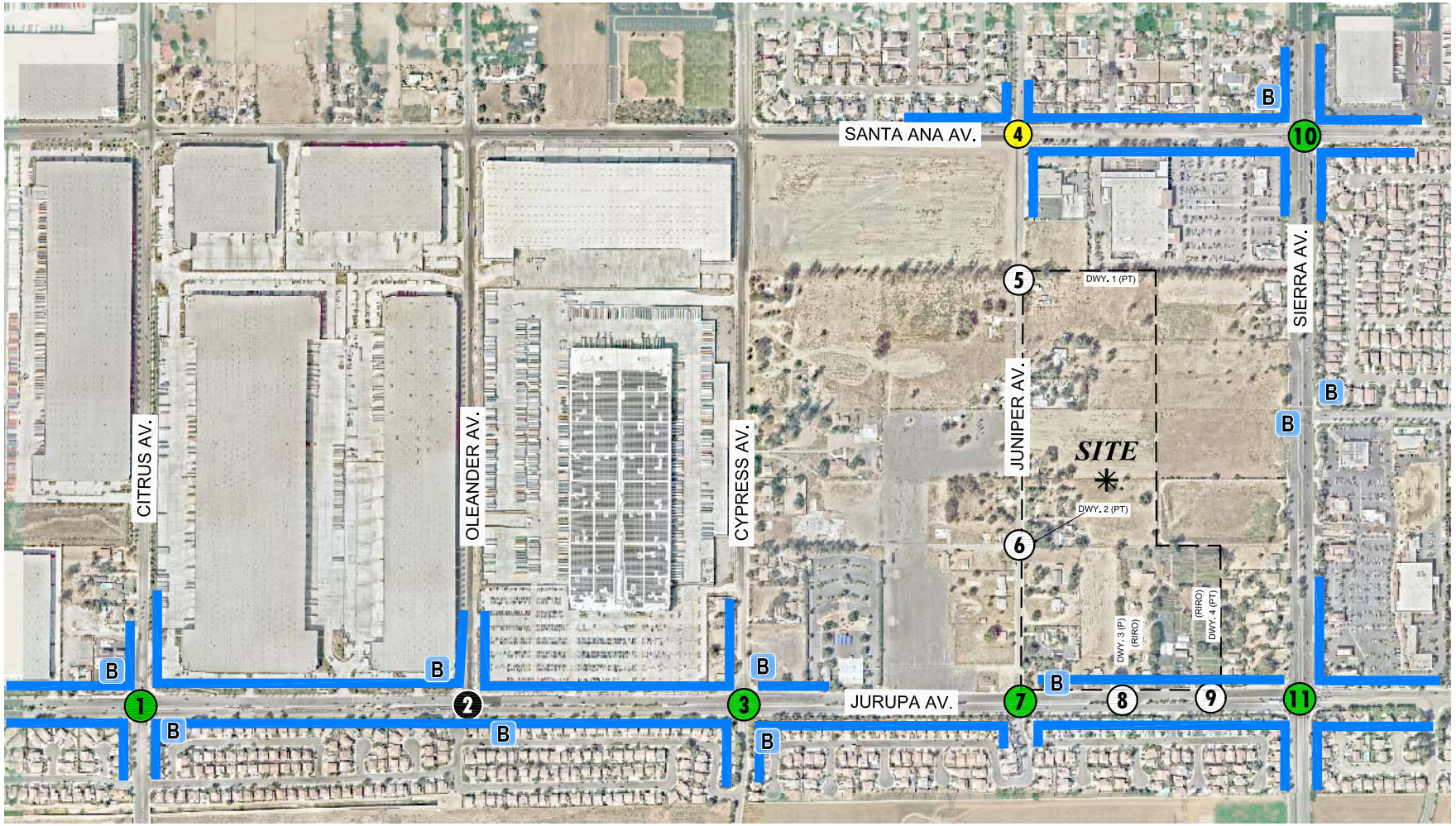
Source: City of Fontana
November 2018

EXHIBIT 3-4: CITY OF FONTANA GENERAL PLAN BIKEWAYS



Source: City of Fontana
November 2018

EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES



LEGEND:

- = SIDEWALK
- B = BUS STOP
- 0 = NO CROSSWALK
- 0 = FUTURE INTERSECTION
- 0 = CROSSWALK ON ALL APPROACHES
- 0 = SCHOOL CROSSWALK ON ONE APPROACHES

N

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URBAN CROSSROADS

3.5 TRANSIT SERVICE

The study area is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County, with bus service along Jurupa Avenue and Sierra Avenue via Route 82, which would likely serve the Project. The existing bus route provided within the area by Omnitrans is depicted on Exhibit 3-6. Transit service is reviewed and updated by Omnitrans periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.6 EXISTING TRAFFIC COUNTS

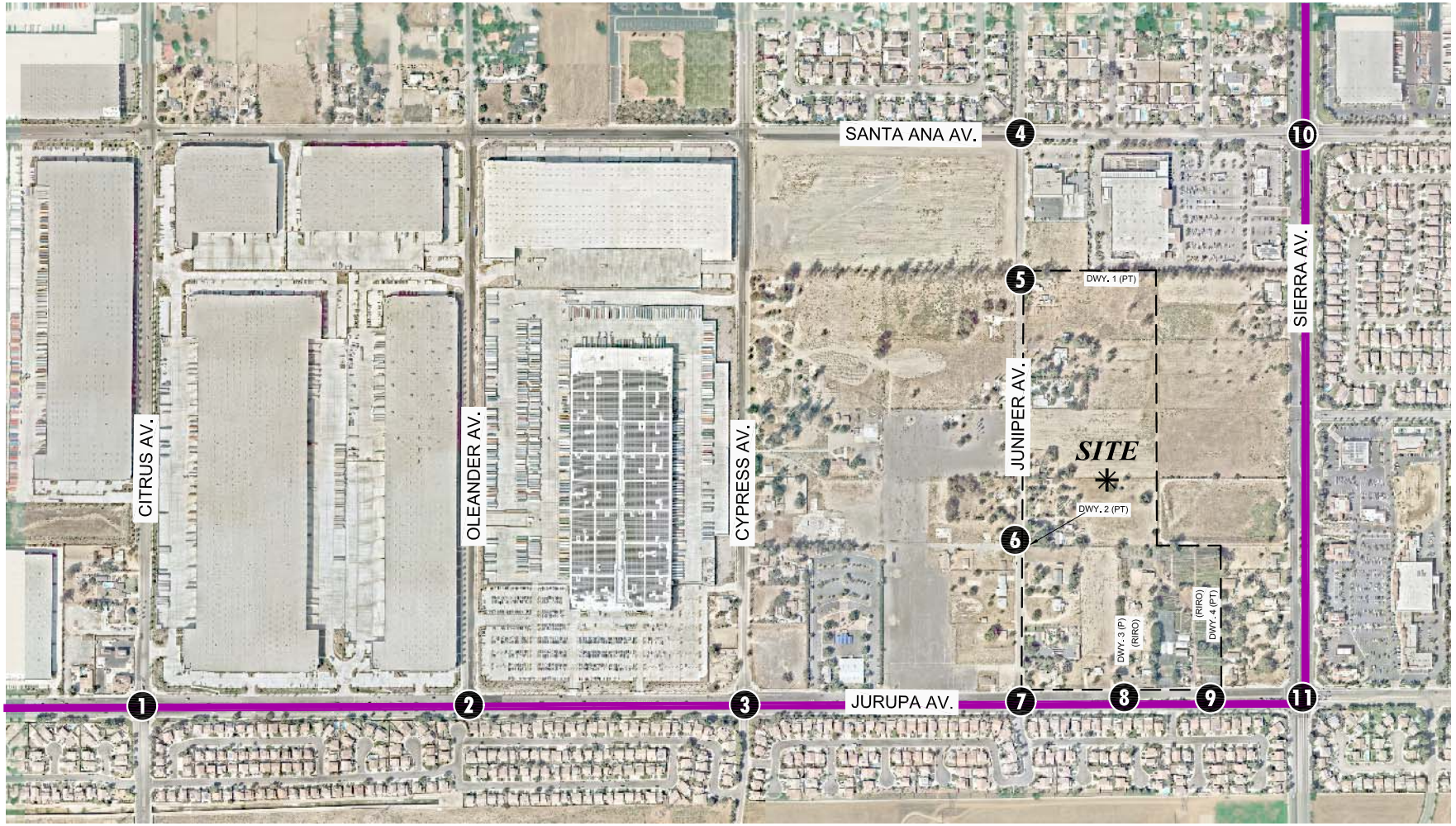
Manual AM and PM peak hour turning movement counts were conducted in March 2019. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. The traffic counts collected in March 2019 include the following vehicle classifications: Passenger Cars, 2-Axle Trucks, 3-Axle Trucks, and 4 or More Axle Trucks. To represent the impact large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into passenger-car-equivalent (PCE). By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 2.0 has been applied to 2-axle trucks, 2.5 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the City's traffic study guidelines.

Existing ADT volumes on arterial highways throughout the study area are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 11.1404 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 8.98 percent. As such, the above equation utilizing a factor of 11.1404 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.98 percent (i.e., 1/0.0898 = 11.1404) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing ADT volumes and weekday AM and PM peak hour intersection volumes are shown on Exhibit 3-7.

EXHIBIT 3-6: EXISTING TRANSIT ROUTES



LEGEND:

▬ OMNITRANS ROUTE 82

N

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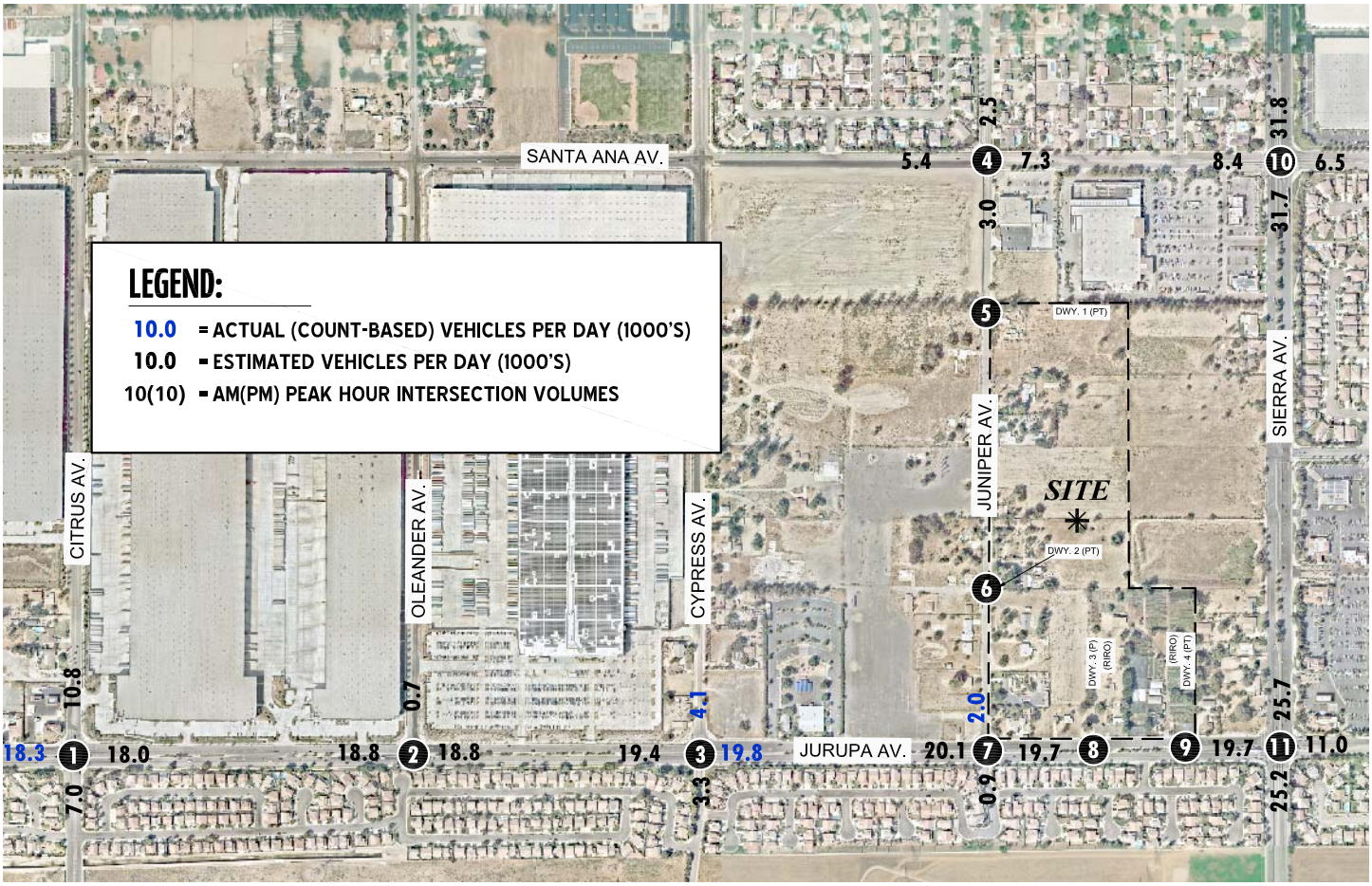
URBAN CROSSROADS

EXHIBIT 3-7: EXISTING (2019) TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av. 159(100) 113(202) 62(74) → 105(115) ← 517(390) ← 63(129) 181(328) → 382(822) → 13(51) → 59(18) 291(147) 99(82) ↑	**2** Oleander Av. & Jurupa Av. 35(32) → 37(27) ← 673(625) 551(1033) →	**3** Cypress Av. & Jurupa Av. 54(69) 23(44) 36(61) → 40(57) ← 619(580) ← 46(115) 82(122) → 465(939) → 14(22) → 26(9) 65(49) 122(61) ↑	**4** Juniper Av. & Santa Ana Av. 10(2) 34(48) 37(62) → 14(52) ← 134(227) ← 26(49) 3(6) → 136(199) → 23(23) → 23(30) 25(52) 20(64) ↑	**5** Juniper Av. & Dwy. 1 Future Intersection	**6** Juniper Av. & Dwy. 2 Future Intersection
7 Juniper Av. & Jurupa Av. 42(64) 6(22) 35(34) → 27(54) ← 654(671) ← 12(28) 36(77) → 574(980) → 3(5) → 5(7) 5(15) 17(5) ↑	**8** Dwy. 3 & Jurupa Av. Future Intersection	**9** Dwy. 4 & Jurupa Av. Future Intersection	**10** Sierra Av. & Santa Ana Av. 63(94) 659(1089) 90(127) → 87(79) ← 73(129) ← 33(74) 85(120) → 67(126) → 68(115) → 75(172) 1105(1343) 47(50) ↑	**11** Sierra Av. & Jurupa Av. 192(245) 422(576) 24(88) → 98(84) ← 263(261) ← 130(140) 222(404) → 220(318) → 210(279) → 243(260) 671(911) 54(98) ↑	

3.7 EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing (2019) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized on Table 3-1 which indicates that the existing study area intersections are currently operating at acceptable LOS (i.e., LOS C or better) during the peak hours.

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-8. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.8 EXISTING CONDITIONS TRAFFIC SIGNAL WARRANTS ANALYSIS

The traffic signal warrant analysis for Existing traffic conditions are based on existing peak hour intersection turning volumes. There are no unsignalized intersections that meet peak hour volume-based traffic signal warrants under Existing traffic conditions. The traffic signal warrant analysis worksheets are included in Appendix 3.3 of this TIA.

3.9 ROADWAY SEGMENT ANALYSIS

These roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2019) conditions roadway segment capacity analysis based on the City of Fontana Roadway Segment Capacity Thresholds. As shown on Table 3-2, all study area roadway segments currently operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds.

Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service		Acceptable Level of Service
			Northbound			Southbound			Eastbound			Westbound							
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
1	Citrus Av. & Jurupa Av.	TS	1	2	0	1	2	0	1	2	1	1	3	1	20.2	21.0	C	C	C
2	Oleander Av. & Jurupa Av.	CSS	0	0	0	0	0	1	0	3	0	0	3	0	12.2	11.9	B	B	C
3	Cypress Av. & Jurupa Av.	TS	1	1	0	1	1	1	1	3	0	1	3	1	12.8	14.4	B	B	C
4	Juniper Av. & Santa Ana Av.	AWS	0	1	d	0	1	1	0	1	0	0	2	0	9.9	11.4	A	B	C
5	Juniper Av. & Driveway 1		Future Intersection																C
6	Juniper Av. & Driveway 2		Future Intersection																C
7	Juniper Av. & Jurupa Av.	TS	0	1	d	0	1	d	1	3	0	1	3	0	11.7	12.5	B	B	C
8	Driveway 3 & Jurupa Av.		Future Intersection																C
9	Driveway 4 & Jurupa Av.		Future Intersection																C
10	Sierra Av. & Santa Ana Av.	TS	2	3	1	2	3	0	1	2	1	1	2	1	17.8	20.5	B	C	C
11	Sierra Av. & Jurupa Av.	TS	2	2	1	2	2	1>	2	2	1	2	2	1	20.2	25.6	C	C	C

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; > = Right Turn Overlap Phasing; >> = Free Right Turn Lane; d = Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are

[3] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal

Table 3-2

Roadway Segment Capacity Analysis for Existing (2019) Conditions

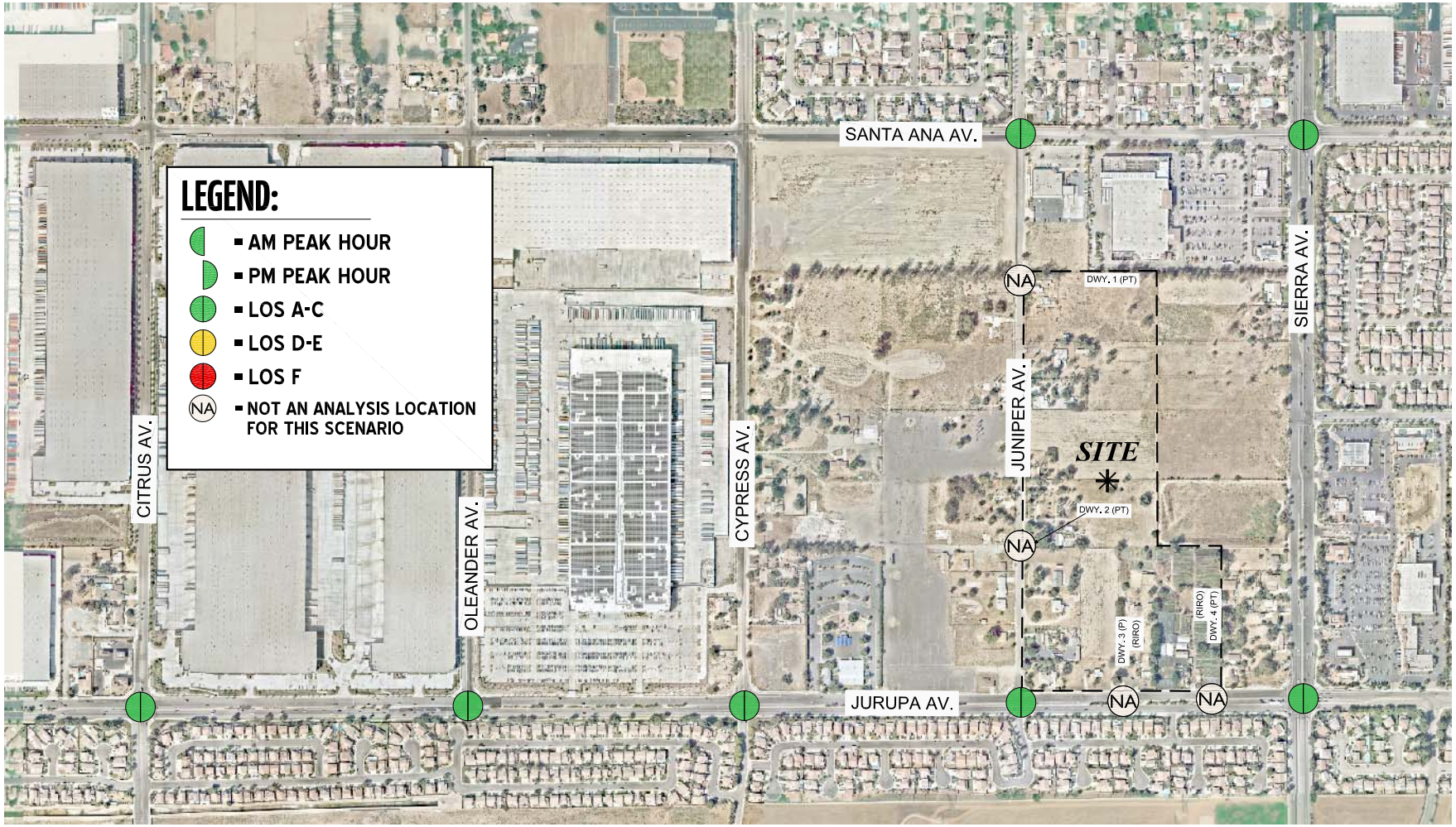
#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2019	V/C[2]	LOS[3]	Acceptable LOS
1	Jurupa Av.	Citrus Av. & Oleander Av.	6D	54,000	18,811	0.35	A	C
2		Oleander Av. & Cypress Av.	6D	54,000	19,390	0.36	A	C
3		Cypress Av. & Juniper Av.	6D	54,000	19,790	0.37	A	C
4		Juniper Av. & Sierra Av.	6D	54,000	19,741	0.37	A	C
5	Santa Ana Av.	Juniper Av. & Sierra Av.	4D	36,000	8,411	0.23	A	C
6	Juniper Av.	Santa Ana Av. & Jurupa Av.	2U	18,000	4,073	0.23	A	C
7	Sierra Av.	Santa Ana Av. & Jurupa Av.	6D	54,000	31,761	0.59	A	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

EXHIBIT 3-8: EXISTING (2019) SUMMARY OF LOS



4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. For the purposes of this traffic analysis, the Project is proposed to be developed in a single phase with an anticipated Opening Year of 2022. The Project consists of the development of up to 754,408 sf of high-cube transload short-term warehouse use (no cold storage) within two buildings.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. Trip generation rates used to estimate Project traffic are shown on Table 4-1 in actual vehicles and in PCE on Table 4-2. A summary of the Project's trip generation based on actual vehicles and PCE are also shown on Table 4-1 and Table 4-2, respectively. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. (3)

A brief description of the use proposed for the Project is provided below:

High-Cube Transload and Short-term Storage Warehouse (ITE 154): High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical high-cube warehouse has a high level of on-site automation and logistics management. The automation and logistics enable highly efficient processing of goods.

Although the high-cube fulfillment center use was considered, the proposed buildings are not anticipated to be occupied by a fulfillment user. The site plan, as currently designed, does not lend itself to fulfillment center use due to the lack of employee parking.

The following vehicle mix (passenger cars versus trucks) has been obtained from the ITE's High Cube Warehouse Vehicle Trip Generation Analysis (dated October 2016): (7)

- Without Cold Storage Warehouses: AM Peak Hour: 69.2% passenger cars and 30.8% trucks; PM Peak Hour: 78.3% passenger cars and 21.7% trucks; Weekday Daily: 67.8% passenger cars and 32.2% trucks

The above truck percentage was then further broken down by axle type per the following South Coast Air Quality Management District's (SCAQMD) recommended truck mix, for high-cube warehouse uses: (8)

- Without Cold Storage: 2-Axle = 16.7%; 3-Axle = 20.7%; 4+-Axle = 62.6%

Table 4-1

Project Trip Generation Summary (Actual Vehicles)

Project Trip Generation Rates									
Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage[3,4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (AM-19.25%; PM-13.56%; Daily-20.13%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282

Project Trip Generation									
Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage (Building 1 & 2)	754.408	TSF							
Passenger Cars:			32	10	42	17	43	60	716
Truck Trips:									
2-axle:			2	1	3	1	2	3	58
3-axle:			3	1	4	1	2	3	70
4+-axle:			9	3	12	3	7	10	214
- Truck Trips (Actual Vehicles)			*14*	*5*	*19*	*5*	*11*	*16*	*342*
TOTAL TRIPS (Actual Vehicles)			***46***	***15***	***61***	***22***	***54***	***76***	***1,058***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).

Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks

Table 4-2

Project Trip Generation Summary (PCE)

Project Trip Generation Rates									
Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage[3,4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 2.0)[5]			0.006	0.002	0.008	0.002	0.005	0.007	0.151
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.5)[5]			0.010	0.003	0.013	0.003	0.008	0.011	0.233
4-Axle+ Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)[5]			0.036	0.011	0.046	0.011	0.029	0.041	0.845

Project Trip Generation									
Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage (Building 1 & 2)	754.408	TSF							
Passenger Cars:			32	10	42	17	43	60	716
Truck Trips:									
2-axle:			5	1	6	2	4	6	114
3-axle:			7	2	9	2	6	8	176
4+-axle:			27	8	35	9	22	31	638
- Truck Trips (PCE)			*39*	*11*	*50*	*13*	*32*	*45*	*928*
TOTAL TRIPS (PCE)			***71***	***21***	***92***	***30***	***75***	***105***	***1,644***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle Mix Source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

[4] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type for high-cube warehouse.
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks

[5] PCE rates are per City of Fontana's Traffic Impact Analysis Guidelines.

As noted on Table 4-1 and Table 4-2, refinements to the raw trip generation estimates have been made to provide a more detailed breakdown of trips between passenger cars and trucks. Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 2 different truck types: 2-4 axle, and 5+-axle trucks. PCE factors were applied to the trip generation rates for heavy trucks (large 2-4 axles, 5+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the City's traffic study guidelines: 2.0 for 2-Axle, 2.5 for 3-Axle, and 3.0 for 4+-Axle.

The Project is estimated to generate a total of 1,644 PCE trip-ends per day on a typical weekday with approximately 92 AM PCE peak hour trips and 105 PM PCE peak hour trips, as shown on Table 4-2. The proposed Project's trip generation, based on actual vehicles, has also been included on Table 4-1.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute.

The trip distribution pattern of passenger cars is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The trip distribution pattern for truck traffic is also influenced by the local truck routes approved by the City and other surrounding agencies. Given these differences, separate trip distributions were generated for both passenger cars and truck trips. Exhibit 4-1 shows the trip distributions patterns for heavy trucks. Exhibit 4-2 shows the passenger car trip distribution patterns for the Project.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes (non-truck trips only).

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADTs and AM and PM peak hour traffic volumes are shown on Exhibit 4-3 (in PCE).

EXHIBIT 4-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

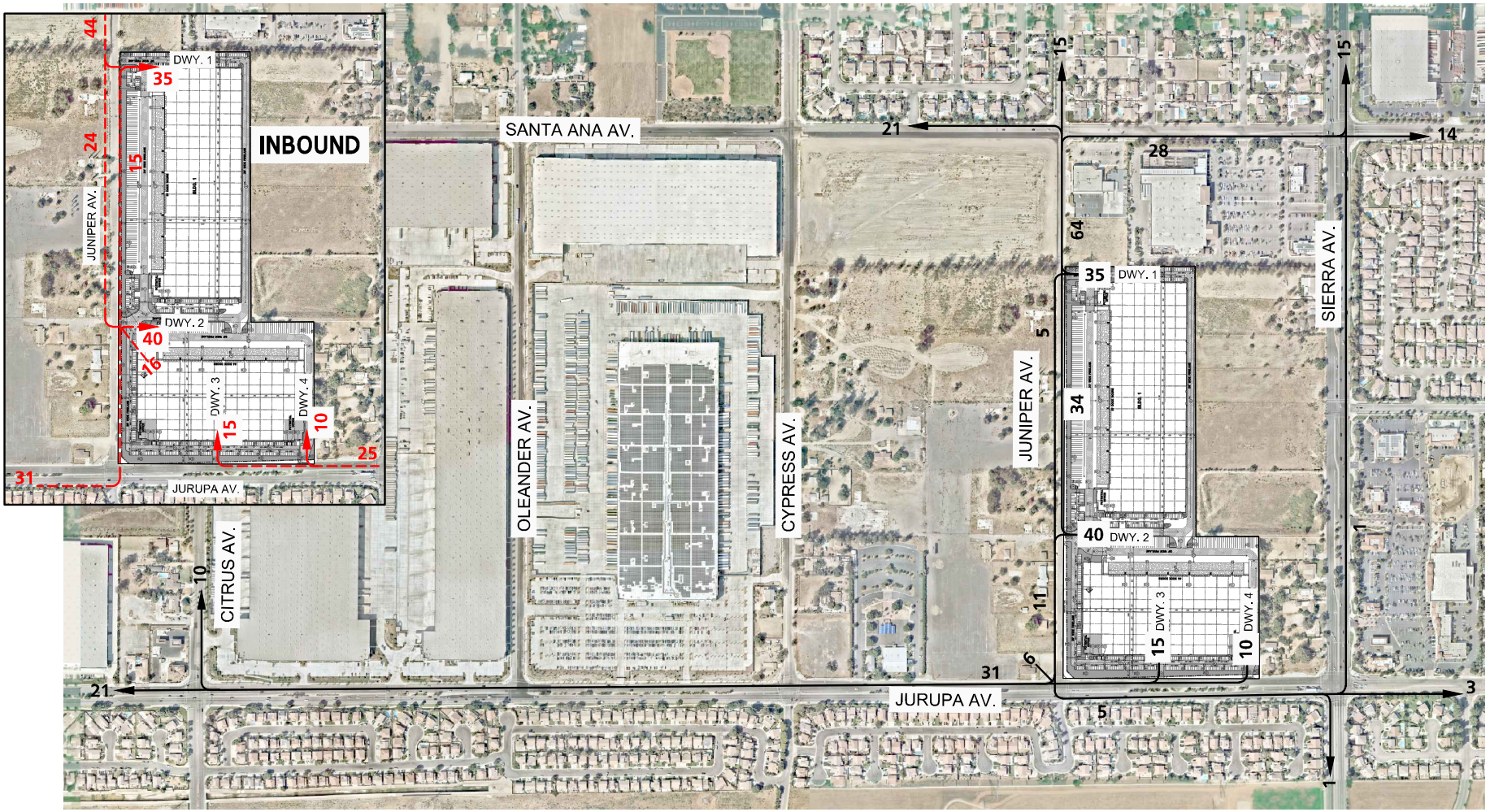
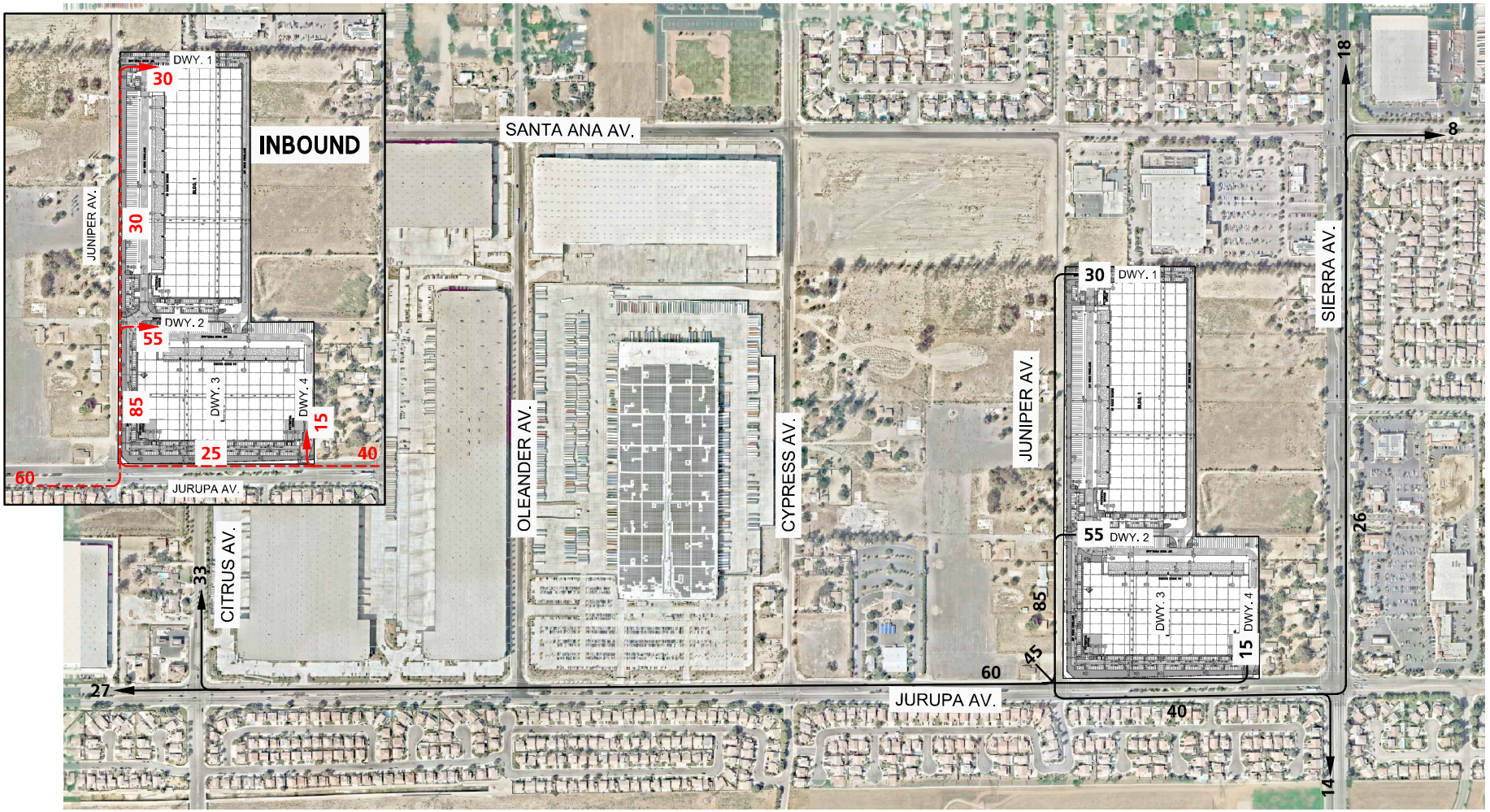


EXHIBIT 4-2: PROJECT (TRUCKS) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

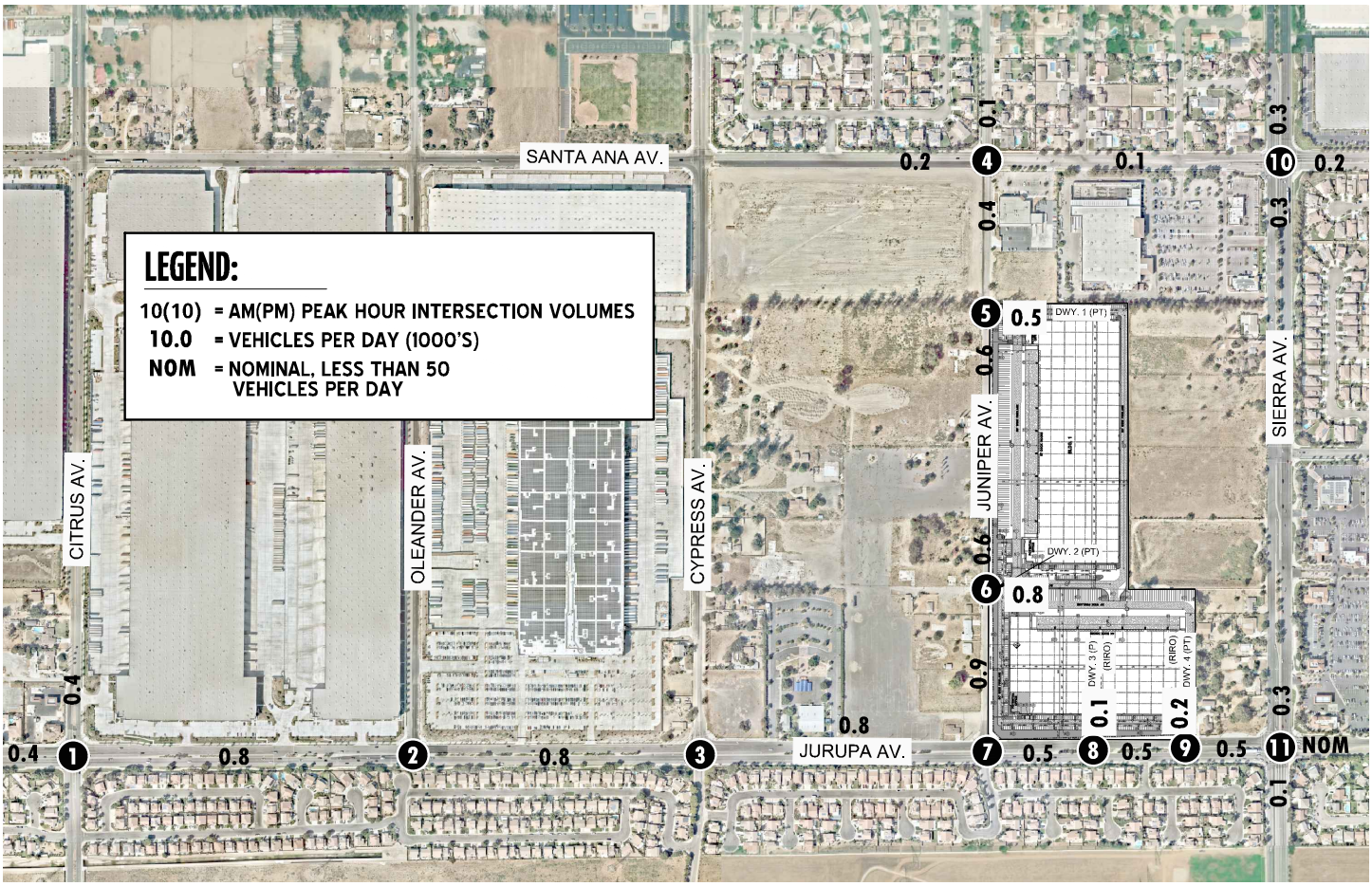
= OUTBOUND

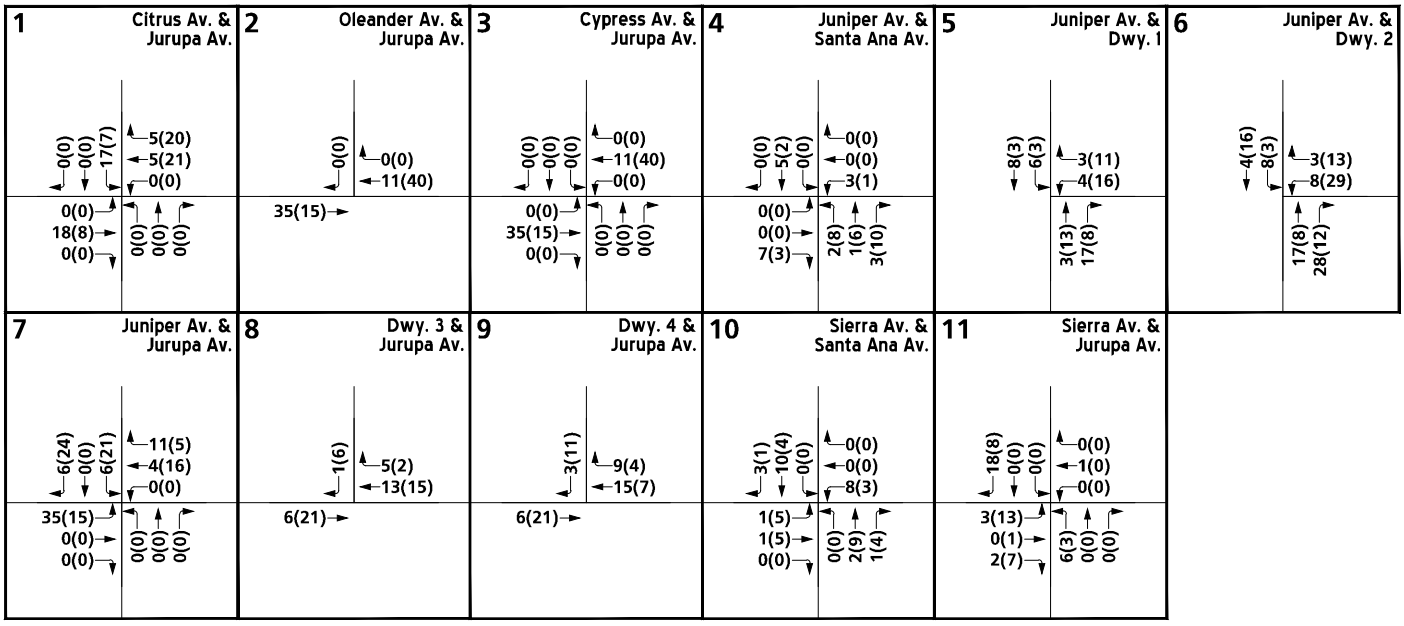
= INBOUND

N

URBAN CROSSROADS

EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES (IN PCE)





4.5 BACKGROUND TRAFFIC

The currently adopted SCAG 2016 RTP/SCS (April 2016) growth forecasts City of Fontana identifies projected growth in population of 200,200 in 2012 to 280,900 in 2040, or a 40.31% increase over the 28-year period. (4) The change in population equates to roughly a 1.22 percent growth rate compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 49.19 percent, or 1.44 percent growth rate, compounded annually. Finally, growth in employment over the same 28-year period is projected to increase by 50.6 percent, or a 1.47 percent annual growth rate. The average annual growth rate between population, households, and employment is 1.38 percent per year and has been used for the purposes of this analysis.

Based on a comparison of Existing (2019) traffic volumes to the Horizon Year (2040) forecasts, the average growth rate is estimated at approximately 2.0 percent per year, compounded annually between Existing (2019) and Horizon Year (2040) traffic conditions. The annual growth rate at each individual intersection is not lower than 1.35 percent per year to as high as 4.25 percent per year, compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Fontana for Horizon Year (2040) traffic conditions. As such, the growth in traffic volumes assumed in this traffic impact analysis would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

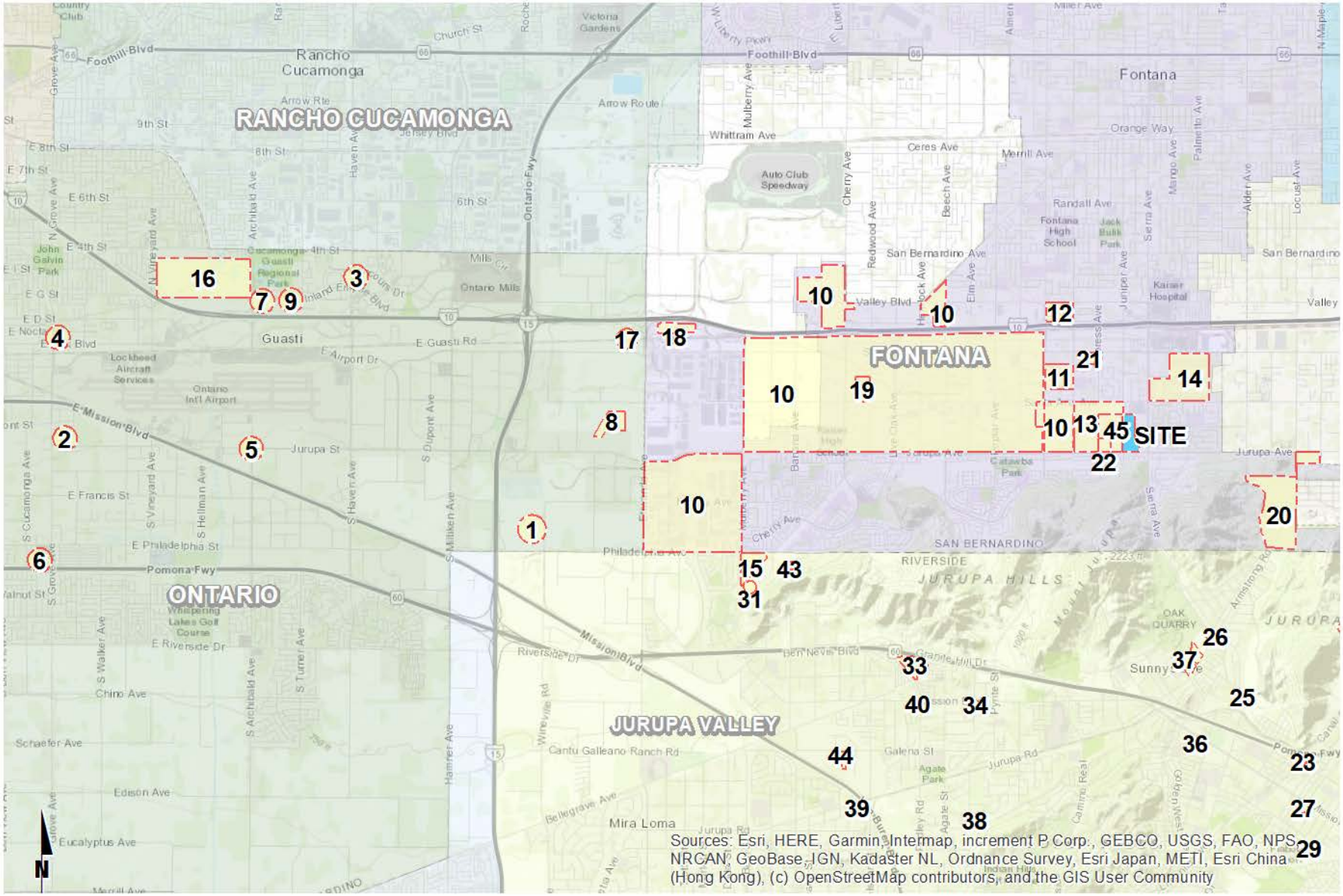
4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Fontana, City of Jurupa Valley, County of San Bernardino, and County of Riverside. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e. 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate EAPC forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-4, listed on Table 4-3, and have been considered for inclusion.

Although it is unlikely that all of these cumulative projects would be fully built and occupied by Year 2022, they have been included in an effort to conduct a conservative analysis and overstate as opposed to understate potential traffic impacts.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP



URBAN CROSSROADS

Table 4-3

Cumulative Development Land Use Summary

TAZ	Project	Land Use	Quantity [2]	
1	PDEV14-007	Industrial	910.119	TSF
2	PDEV14-010	Industrial	21.726	TSF
3	PCUP13-034	Hotel	122	RMS
4	PCUP13-028	Body Shop	0.79	AC
5	PDEV13-019	Industrial	569.200	TSF
6	PDEV13-014	Residential Condo	139	DU
7	PDEV13-012	Residential Condo	20	DU
8	PDEV13-007	General Industrial	618.536	TSF
9	PDEV13-008	Residential Condo	52	DU
10	Southwest Industrial Park (SWIP)[1]	Freeway Industrial Commercial (Central)		
		Warehousing	761.067	TSF
		Office	147.786	TSF
		Office Park	152.213	TSF
		Commercial Retail	456.640	TSF
		Freeway Industrial Commercial (East)		
		Warehousing	886.410	TSF
		Office	172.125	TSF
		Office Park	177.282	TSF
		Commercial Retail	531.846	TSF
		Freeway Industrial Commercial (North)		
		Warehousing	335.885	TSF
		Office	65.223	TSF
		Office Park	67.177	TSF
		Commercial Retail	201.531	TSF
		Freeway Industrial Commercial (West)		
		Warehousing	747.959	TSF
		Office	145.241	TSF
		Office Park	149.592	TSF
		Commercial Retail	448.776	TSF
		Jurupa North Research & Development (West)		
		Light Industrial	1344.901	TSF
		Office	478.407	TSF
		Office Park	847.485	TSF
		Research & Development	677.988	TSF
		Jurupa North Research & Development (Central)		
		Light Industrial	964.045	TSF
		Office	342.930	TSF
		Office Park	607.490	TSF
		Research & Development	485.992	TSF

Table 4-3

Cumulative Development Land Use Summary

TAZ	Project	Land Use	Quantity [2]	
10	Southwest Industrial Park (SWIP)[1]	Jurupa North Research & Development (East)		
		Light Industrial	917.459	TSF
		Office	326.358	TSF
		Office Park	578.134	TSF
		Research & Development	462.506	TSF
		Jurupa South Industrial		
		Light Industrial	70.985	TSF
		Warehousing	1799.899	TSF
		Slover Central Manufacturing/Industrial		
		Manufacturing	1113.002	TSF
		Warehousing	2597.004	TSF
		Slover East Industrial		
		Light Industrial	719.464	TSF
		Warehousing	1006.149	TSF
		Office Park	503.074	TSF
		Slover West Industrial		
		Light Industrial	1384.886	TSF
		Warehousing	3518.167	TSF
		Speedway Industrial		
		Light Industrial	930.121	TSF
		Warehousing	762.191	TSF
		Office Park	13.264	TSF
		SWIP Residential Trucking (1,3 and 4)		
		Single Family Detached Residential	84	DU
11	Citrus Center	Office	47.000	TSF
		Retail	44.500	TSF
		Fast Food w/ Drive-Thru	8.658	TSF
12	ASP 16-018	Retail w/ Gas Station	18.800	TSF
13	Southwest Fontana Logistics Center Project	Warehousing	1,628.936	TSF
		City Park	17.45	AC
14	Walmart Shopping Center	Free-Standing Discount Superstore	200.000	TSF
		Specialty Retail Center	9.490	TSF
		Fast Food w/o Drive-Thru	9.490	TSF
15	Country Village Shopping Center	Shopping Center	140.894	TSF
16	PM 19612	Industrial	30000.000	TSF
		Commercial Retail	1130.000	TSF
		Multi-Family	800	DU
		Hotel	600	RMS
17	PDEV16-001	Industrial	109.197	TSF
18	Pacific Freeway Center	High-Cube Warehouse / Distribution Center	477.500	TSF
		Manufacturing	44.500	TSF
19	First Redwood Logistics	High-Cube Warehouse / Distribution Center	360.000	TSF
		General Light Industrial	41.436	TSF
20	West Valley Logistics Center	High-Cube Warehouse / Distribution Center	3,183.100	TSF
		Warehousing	290.590	TSF

Table 4-3

Cumulative Development Land Use Summary

TAZ	Project	Land Use	Quantity [2]	
21	Gateway Logistics Center	High-Cube Warehouse (Cold Storage)	38.558	TSF
		Warehousing	154.232	TSF
22	St. Mary's Catholic Church	Church	19.508	TSF
23	Avalon Court (Tentative Tract 33649)	SFDR	24	DU
24	Emerald Ridge South	SFDR	97	DU
		Condo/Townhomes	118	DU
25	Highland Park	SFDR	398	DU
26	Tentative Tract Map 33373 (KR Land)	SFDR	97	DU
27	Palm Communities	Apartment	49	DU
28	New Rio Vista Specific Plan 243	SFDR	579	DU
		Condo/Townhomes	290	DU
		Apartment	346	DU
		Active Park	22.2	AC
		School (K-8)	600	STU
29	Flabob-River Springs Charter School	7th-12th Grade School	200	STU
30	Inland Empire Cold Storage	Cold Storage Facility	40.800	TSF
31	Country Village Shopping Center	Shopping Center	140.894	TSF
32	Market Street Commercial	High Turnover Sit-down Restaurant	4.750	TSF
		Fast Food w/ Drive-thru	2.860	TSF
		Gas station w/ foot mart and car wash	16	VFP
33	Pedley Crossing Shopping Center	Shopping Center	255.978	TSF
34	Mission Pyrite Plaza	Shopping Center	21.600	TSF
		High Turnover Sit-down Restaurant	3.000	TSF
		Gas/Service Station w/ Food and Car Wash	20	VFP
35	Rubidoux Commercial Development LLC	General Light Industrial	306.894	TSF
36	99-Cent Only Store	Free Standing Discount Store	18.012	TSF
37	Monarch at the Quarry (Armada Armstrong)	SFDR	86	DU
38	Stone Avenue (Tentative Tract 36702)	SFDR	17	DU
39	Karaki-Western States	Gas/Service Station w/ Food and Car Wash	7.246	TSF
40	Boureston Medical Clinic	Medical Clinic	40.000	TSF
41	Northtown Housing Development Group	Apartments	68	DU
		Commercial Retail	31.375	TSF
42	Agua Mansa Commerce Park Specific Plan	High-Cube Warehouse	4277.000	TSF
		General Light Industrial	150.000	TSF
		Commercial Retail	25.000	TSF
43	Philadelphia Subdivision (Tentative Tract 37214)	SFDR	44	DU
44	Galena Business Park Bldg.	General Light Industrial	47.500	TSF
45	Goodman Industrial Park Fontana III	Warehousing	894.768	TSF
		High-Cube Cold Storage Warehouse	223.692	TSF

[1] Source: Southwest Industrial Park (SWIP) Project TIA, RBF Consulting, September 29, 2011.

[2] TSF = Thousand Square Feet; RMS = Rooms; AC = Acres; DU = Dwelling Units

Any other cumulative projects located beyond the cumulative study area that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative Only traffic volumes in PCE are shown on Exhibit 4-5.

4.7 HORIZON YEAR (2040) VOLUME DEVELOPMENT

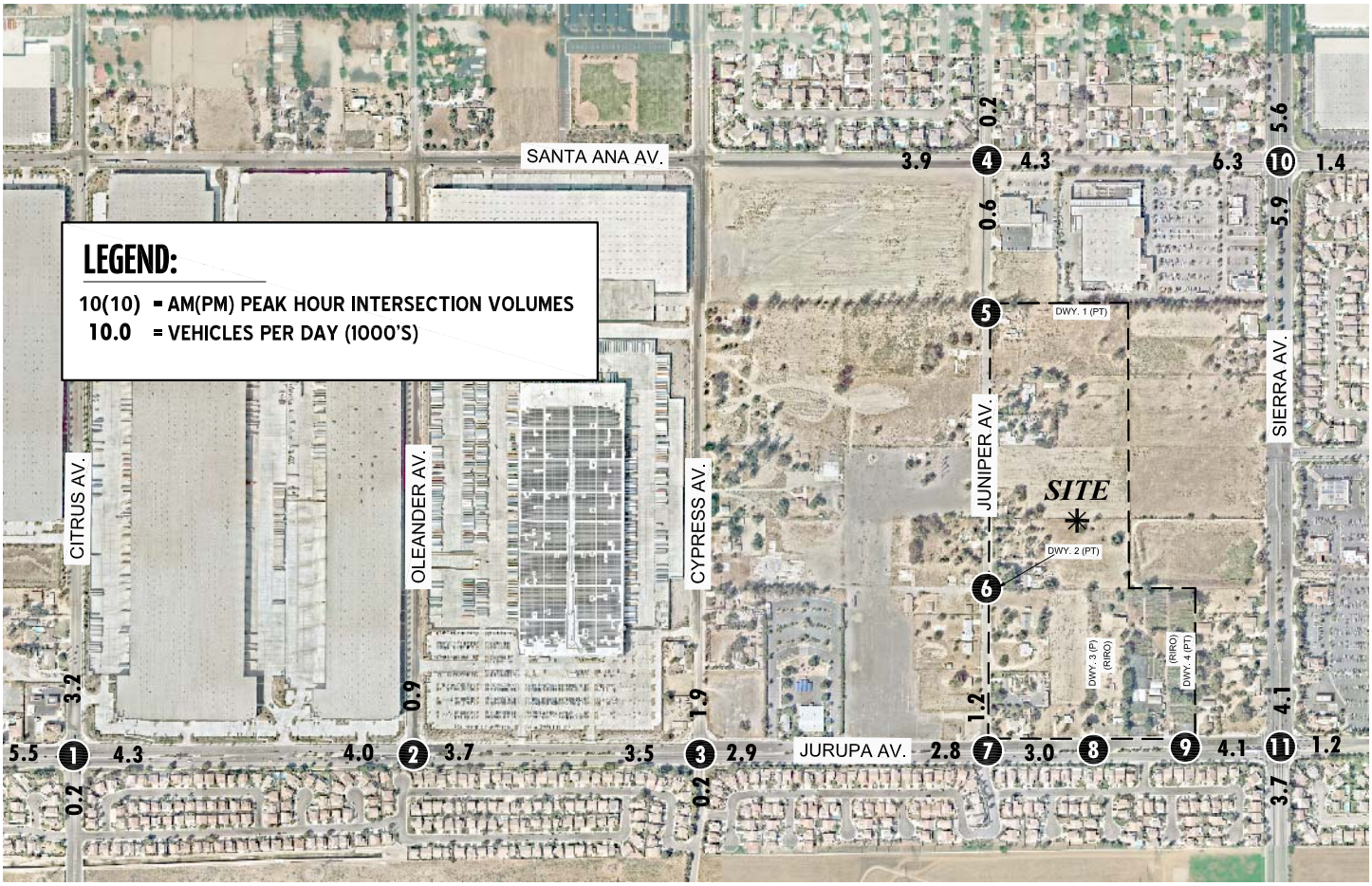
Traffic projections for Horizon Year (2040) without Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the City of Fontana.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2019) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location in March 2019. The SBTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.27. These factors represent the relationship of the highest single AM peak hour to the modeled 3-hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4-hour PM peak period (an even distribution would result in a factor of 0.25).

EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av. 25(46) 0(0) 46(14) → 18(55) 95(259) 5(9) 316(106) 78(64) 0(0) → 0(0) 0(0) 13(11)	**2** Oleander Av. & Jurupa Av. 25(84) → 35(32) 77(215) 138(93) →	**3** Cypress Av. & Jurupa Av. 31(90) 8(6) 17(53) → 28(12) 86(100) 2(5) 74(26) 69(81) 0(2) → 2(1) 12(9) 3(5)	**4** Juniper Av. & Santa Ana Av. 5(4) 13(6) 0(0) → 0(0) 338(112) 27(12) 3(2) 93(233) 0(0) → 0(0) 4(16) 8(33)	**5** Juniper Av. & Dwy. 1 Future Intersection	**6** Juniper Av. & Dwy. 2 Future Intersection
7 Juniper Av. & Jurupa Av. 10(28) 0(0) 15(38) → 49(14) 101(83) 0(0) 32(10) 55(123) 0(0) → 0(0) 0(0) 0(0)	**8** Dwy. 3 & Jurupa Av. Future Intersection	**9** Dwy. 4 & Jurupa Av. Future Intersection	**10** Sierra Av. & Santa Ana Av. 258(79) 116(183) 0(0) → 0(0) 79(35) 18(7) 51(158) 35(66) 17(45) → 29(12) 134(233) 9(23)	**11** Sierra Av. & Jurupa Av. 63(52) 49(130) 29(25) → 39(36) 23(21) 0(0) 38(107) 24(23) 9(37) → 50(41) 79(97) 0(0)	

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts. Horizon Year (2040) turning volumes were compared to Opening Year Cumulative (2022) volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative (2022) and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2019) and Opening Year Cumulative (2022) conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis.

The SBTAM either does not include a truck component or has truck data that is unusually low. As such, in an effort to conduct a conservative analysis, the presence of trucks has been accounted for based on the manual volume adjustments made to demonstrate growth above Opening Year Cumulative (2022) traffic forecasts, which are presented and evaluated in PCE (see Section 3.6 *Existing Traffic Counts* for discussion on PCE). As such, the Horizon Year (2040) forecasts are also assumed to be in PCE for the purposes of this analysis. Post-processing worksheets for Horizon Year (2040) Without Project traffic conditions are provided in Appendix 4.1.

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5 E+P TRAFFIC CONDITIONS

In an effort to satisfy the CEQA Guideline section 15125(a), an analysis of existing traffic volumes plus traffic generated by the proposed Project (E+P) has been included in this analysis. This section discusses the traffic forecasts for E+P conditions and the resulting intersection operations, roadway segment, and traffic signal warrant analyses. Project impacts to baseline traffic conditions (i.e., existing conditions) have been identified along with mitigation measures necessary to reduce project-related impacts to less than significant.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1. In other words, no other off-site improvements are assumed to be in place beyond those that currently exist.

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing (2019) traffic volumes plus Project traffic (as shown on Table 4-2). The ADT volumes and AM and PM peak hour intersection turning movement volumes are shown on Exhibit 5-1.

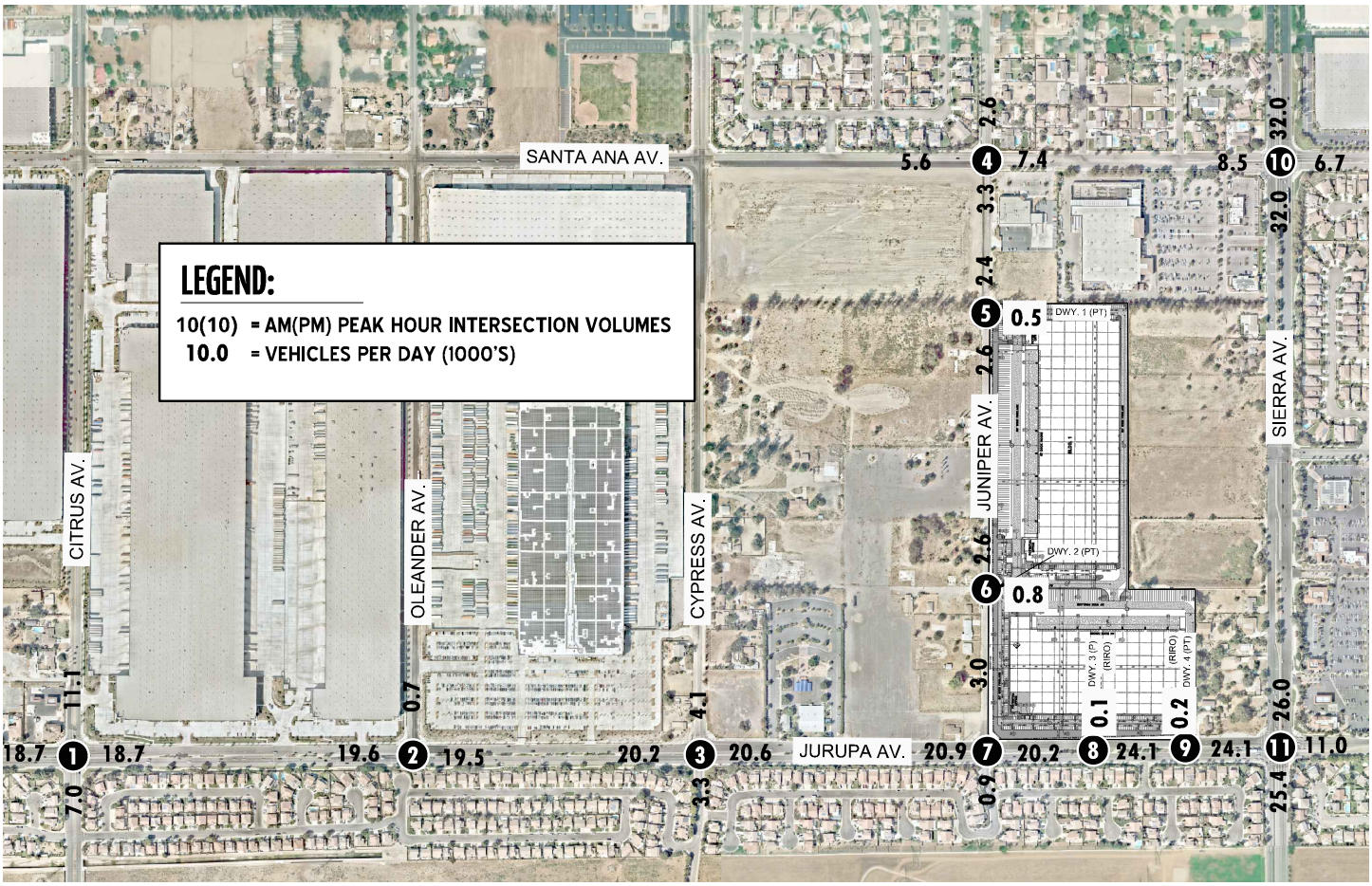
5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized on Table 5-1, which indicates the study area intersections are anticipated to continue to operate at an acceptable LOS, consistent with Existing (2019) traffic conditions. A summary of the peak hour intersection LOS for E+P conditions are shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic Signal warrants for E+P traffic conditions are based on existing peak hour intersection turning volumes and the addition of Project traffic. For E+P traffic conditions, no study area intersections are anticipated to meet planning level (average daily traffic or ADT) or peak hour volume-based traffic signal warrants (see Appendix 5.2).

EXHIBIT 5-1: E+P TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av.	2 Oleander Av. & Jurupa Av.	3 Cypress Av. & Jurupa Av.	4 Juniper Av. & Santa Ana Av.	5 Juniper Av. & Dwy. 1	6 Juniper Av. & Dwy. 2
159(100) 113(202) 79(81) 110(135) 522(411) 63(129) 181(328) 400(830) 13(51) 59(18) 291(147) 99(82)	35(32) 37(27) 684(665) 586(1048)	54(69) 23(44) 36(61) 40(57) 630(620) 46(115) 82(122) 500(954) 14(22) 26(9) 65(49) 122(61)	10(2) 39(50) 37(62) 14(52) 134(227) 29(50) 3(6) 136(199) 30(26) 25(38) 26(58) 23(74)	91(123) 6(3) 3(11) 4(16) 71(159) 17(8)	87(136) 8(3) 3(13) 8(29) 85(154) 28(12)

7 Juniper Av. & Jurupa Av.	8 Dwy. 3 & Jurupa Av.	9 Dwy. 4 & Jurupa Av.	10 Sierra Av. & Santa Ana Av.	11 Sierra Av. & Jurupa Av.
48(88) 6(22) 41(55) 38(59) 658(687) 12(28) 71(92) 574(980) 3(5) 5(7) 5(15) 17(5)	1(6) 5(2) 706(768) 632(1040)	3(11) 9(4) 708(760) 632(1040)	66(95) 669(1093) 90(127) 87(79) 73(129) 41(77) 86(125) 68(131) 68(115) 75(172) 1107(1352) 48(54)	210(253) 422(576) 24(88) 98(84) 264(261) 130(140) 225(417) 220(319) 212(286) 249(263) 671(911) 54(98)

EXHIBIT 5-2: E+P SUMMARY OF LOS

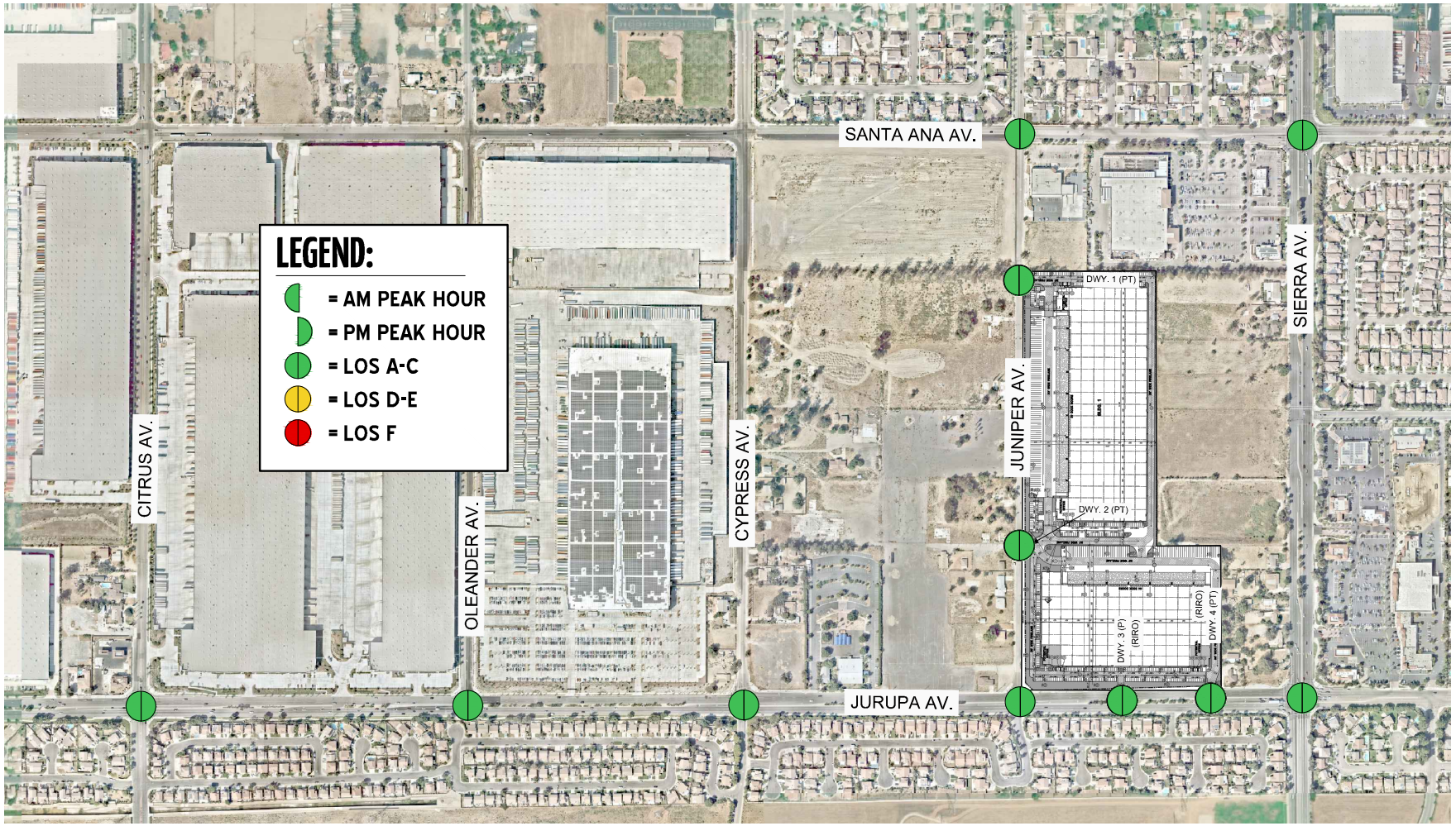


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Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019)				E+P				Difference in Delay (sec.)	Difference in Delay (sec.)	Significant Impact?[3]
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service				
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1	Citrus Av. & Jurupa Av.	TS	20.2	21.0	C	C	20.6	21.2	C	C	0.4	0.2	No
2	Oleander Av. & Jurupa Av.	CSS	12.2	11.9	B	B	12.3	12.2	B	B	0.1	0.3	No
3	Cypress Av. & Jurupa Av.	TS	12.8	14.4	B	B	12.8	14.4	B	B	0.0	0.0	No
4	Juniper Av. & Santa Ana Av.	AWS	9.9	11.4	A	B	10.1	11.7	B	B	0.2	0.3	No
5	Juniper Av. & Driveway 1	**CSS**	Future Intersection				9.2	10.0	A	B	--	--	No
6	Juniper Av. & Driveway 2	**CSS**	Future Intersection				9.5	10.3	A	B	--	--	No
7	Juniper Av. & Jurupa Av.	TS	11.7	12.5	B	B	12.0	12.8	B	B	0.3	0.3	No
8	Driveway 3 & Jurupa Av.	**CSS**	Future Intersection				11.8	12.3	B	B	--	--	No
9	Driveway 4 & Jurupa Av.	**CSS**	Future Intersection				11.9	12.3	B	B	--	--	No
10	Sierra Av. & Santa Ana Av.	TS	17.8	20.5	B	C	17.9	20.7	B	C	0.1	0.2	No
11	Sierra Av. & Jurupa Av.	TS	20.2	25.6	C	C	20.3	25.9	C	C	0.1	0.3	No

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal

[3] Significant near-term impacts have been identified based on each applicable agency's threshold of significance and if the Project contributes 50 or more peak hour trips.

5.5 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the E+P conditions roadway segment capacity analysis based on the City of Fontana Roadway Segment Capacity Thresholds. As shown on Table 5-2, the study area roadway segments are anticipated to continue to operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds, consistent with Existing (2019) traffic conditions.

5.6 IMPACTS AND MITIGATION MEASURES

Improvement strategies have been recommended at intersections and roadway segments that have been identified as impacted under E+P traffic conditions in an effort to achieve an acceptable LOS.

5.6.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance* and the 50 peak hour trip threshold, the addition of Project traffic is not anticipated to result in a significant impact at any study area intersection. As such, no mitigation measures have been identified.

5.6.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

As shown previously on Table 5-2, there are no roadway segment deficiencies anticipated for E+P traffic conditions. As such, no improvements have been recommended.

Table 5-2

Roadway Segment Capacity Analysis for E+P Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2019	V/C[2]	LOS[3]	E+P	V/C[2]	LOS[3]	Acceptable LOS
1	Jurupa Av.	Citrus Av. & Oleander Av.	6D	54,000	18,811	0.35	A	19,587	0.36	A	C
2		Oleander Av. & Cypress Av.	6D	54,000	19,390	0.36	A	20,166	0.37	A	C
3		Cypress Av. & Juniper Av.	6D	54,000	19,790	0.37	A	20,566	0.38	A	C
4		Juniper Av. & Sierra Av.	6D	54,000	19,741	0.37	A	20,219	0.37	A	C
5	Santa Ana Av.	Juniper Av. & Sierra Av.	4D	36,000	8,411	0.23	A	8,539	0.24	A	C
6	Juniper Av.	Santa Ana Av. & Jurupa Av.	2U	18,000	4,073	0.23	A	5,009	0.28	A	C
7	Sierra Av.	Santa Ana Av. & Jurupa Av.	6D	54,000	31,761	0.59	A	32,080	0.59	A	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6 OPENING YEAR CUMULATIVE (2022) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2022) Without and With Project traffic forecasts, and the resulting intersection operations, roadway segment, and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2022) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of Project driveways and those facilities assumed to be constructed by the Project and cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative (2022) traffic conditions.

6.2 OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT and AM and PM peak hour traffic volumes which can be expected for Opening Year Cumulative (2022) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT and AM and PM peak hour traffic volumes which can be expected for Opening Year Cumulative (2022) With Project traffic conditions are shown on Exhibit 6-2.

6.4 INTERSECTION OPERATIONS ANALYSIS

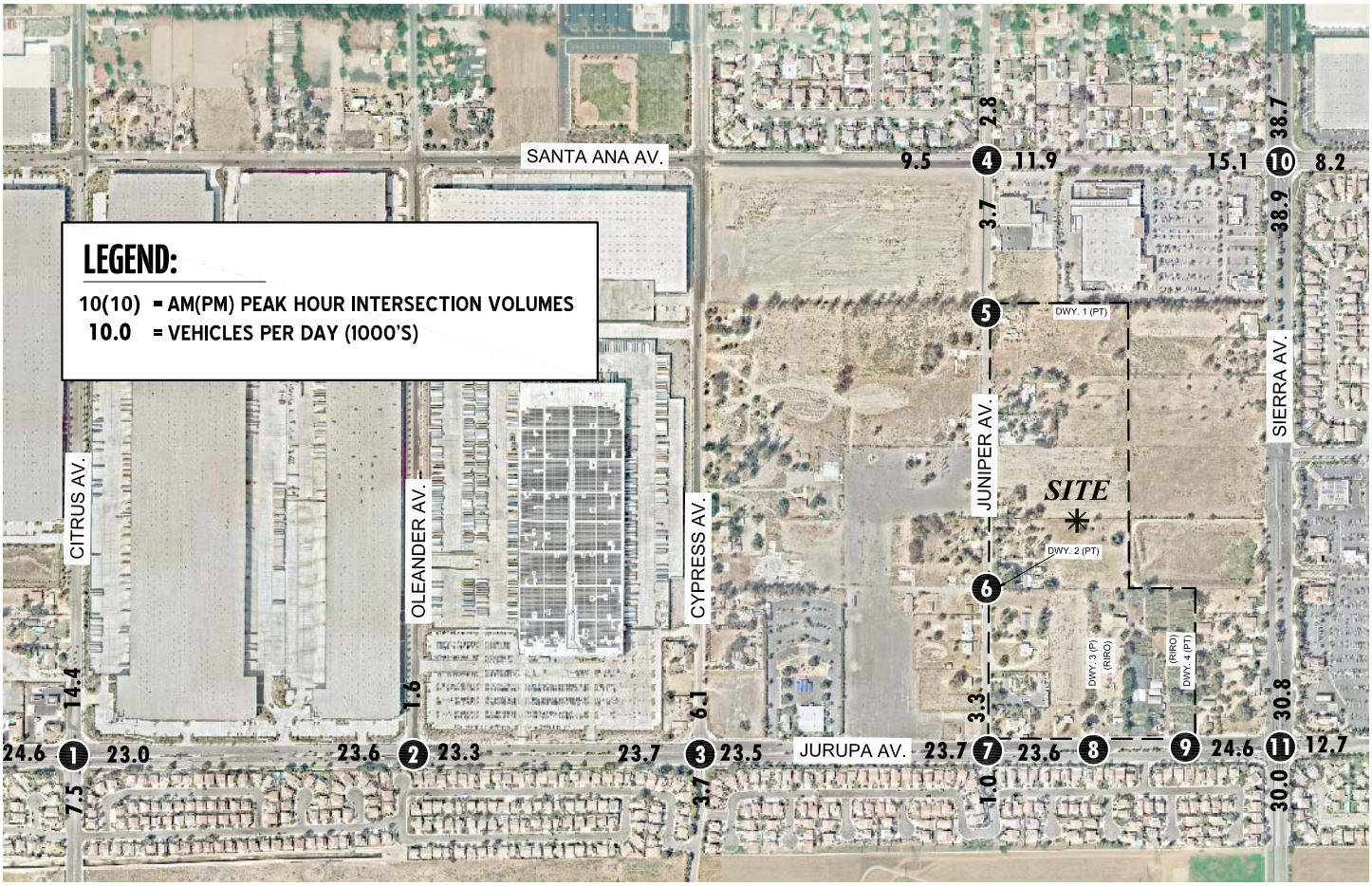
6.4.1 OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2022) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown on Table 6-1, the following study area intersections are anticipated to operate at a deficient LOS (i.e., LOS D or worse) during one or more peak hours for Opening Year Cumulative (2022) Without Project traffic conditions:

- Citrus Avenue & Jurupa Avenue (#1) – LOS D AM peak hour only
- Juniper Avenue & Santa Ana Avenue (#4) – LOS D PM peak hour only
- Sierra Avenue & Jurupa Avenue (#11) – LOS D PM peak hour only

A summary of the peak hour intersection LOS for Opening Year Cumulative (2022) Without Project conditions are shown on Exhibit 6-3. The intersection operations analysis worksheets for Opening Year Cumulative (2022) Without Project traffic conditions are included in Appendix 6.1 of this TIA.

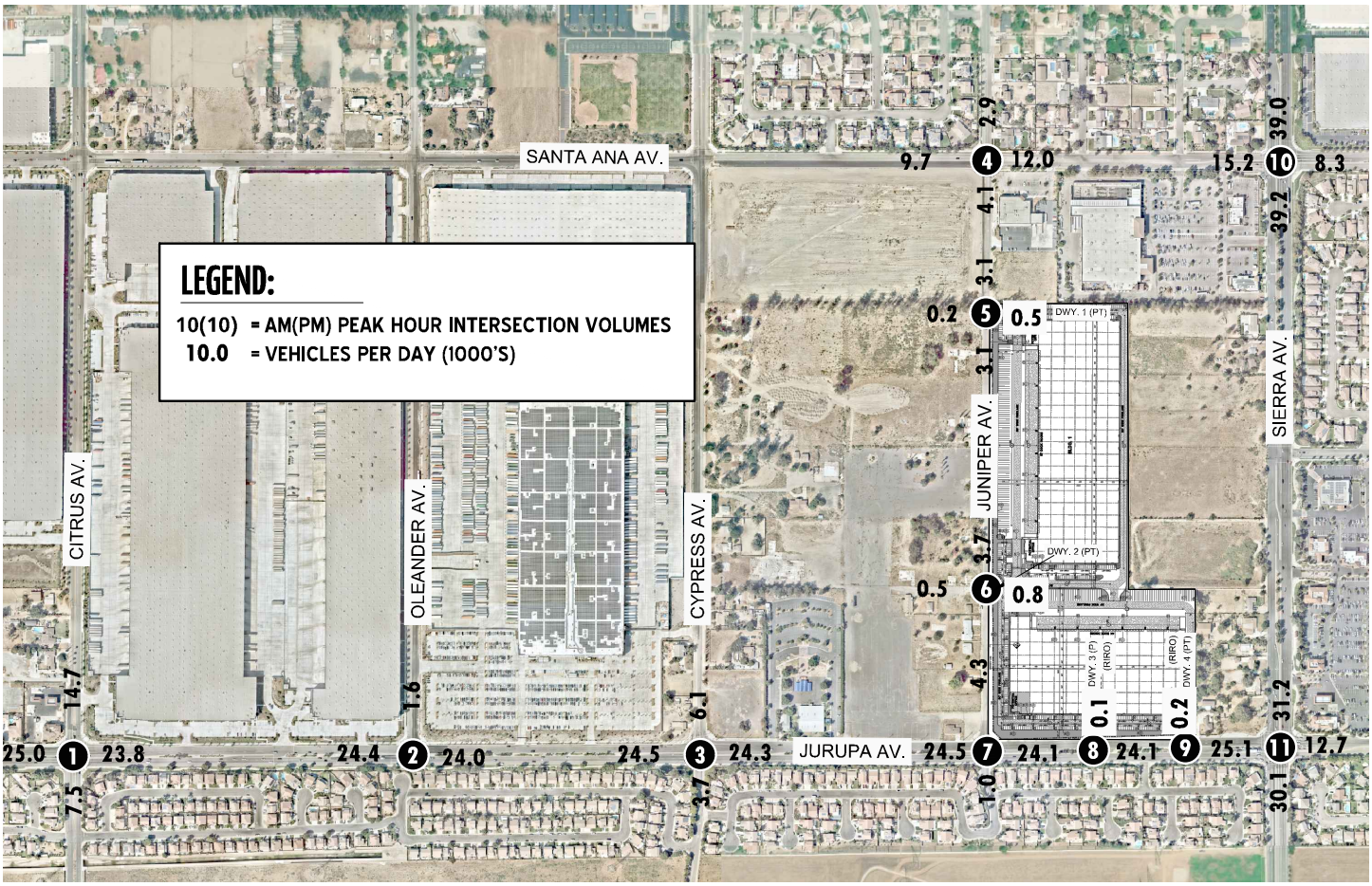
EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av.	2 Oleander Av. & Jurupa Av.	3 Cypress Av. & Jurupa Av.	4 Juniper Av. & Santa Ana Av.	5 Juniper Av. & Dwy. 1	6 Juniper Av. & Dwy. 2
191(150) 118(210) 111(91) → 127(174) ← 634(665) ← 70(143) 504(447) → 476(920) → 14(53) → 61(19) ↑ 303(153) ↑ 116(96) ←	61(117) → 74(60) ← 778(866) 712(1169) →	87(162) 32(52) 55(117) → 70(71) ← 731(704) ← 50(125) 159(153) → 553(1059) → 15(25) → 29(10) ↑ 80(60) ↑ 130(69) ←	15(6) 48(56) 38(65) → 15(54) ← 478(348) ← 54(63) 6(8) → 235(440) → 24(24) → 24(31) ↑ 30(70) ↑ 29(100) ←	Future Intersection	Future Intersection

7 Juniper Av. & Jurupa Av.	8 Dwy. 3 & Jurupa Av.	9 Dwy. 4 & Jurupa Av.	10 Sierra Av. & Santa Ana Av.	11 Sierra Av. & Jurupa Av.
54(94) 6(23) 51(73) → 77(70) ← 782(782) ← 13(29) 70(90) → 653(1144) → 3(5) → 5(7) ↑ 5(16) ↑ 18(5) ←	Future Intersection	Future Intersection	323(177) 803(1317) 94(132) → 91(82) ← 155(169) ← 52(84) 140(283) → 105(197) → 88(165) → 107(191) ↑ 1285(1632) ↑ 58(75) ←	263(307) 489(730) 54(117) → 141(124) ← 297(293) ← 135(146) 269(528) → 253(354) → 228(328) → 303(312) ↑ 778(1046) ↑ 56(102) ←

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av.	2 Oleander Av. & Jurupa Av.	3 Cypress Av. & Jurupa Av.	4 Juniper Av. & Santa Ana Av.	5 Juniper Av. & Dwy. 1	6 Juniper Av. & Dwy. 2
191(150) 118(210) 128(98)	61(117)	87(162) 32(52) 55(117)	15(6) 53(58) 38(65)	11(5) 123(141) 6(3)	7(3) 112(185) 8(3)
132(194) 639(686) 70(143)	74(60) 789(906)	70(71) 742(744) 50(125)	15(54) 478(348) 57(64)	3(11) 0(0) 4(16)	3(13) 0(0) 8(29)
504(447) 494(928) 14(53)	747(1184)	159(153) 588(1074) 15(25)	6(8) 235(440) 31(27)	3(13) 0(0) 1(2)	2(8) 0(0) 8(20)
61(19) 303(153) 116(96)		29(10) 80(60) 130(69)	26(39) 31(76) 32(110)	2(1) 83(200) 17(8)	25(7) 141(183) 28(12)

7 Juniper Av. & Jurupa Av.	8 Dwy. 3 & Jurupa Av.	9 Dwy. 4 & Jurupa Av.	10 Sierra Av. & Santa Ana Av.	11 Sierra Av. & Jurupa Av.
60(118) 6(23) 57(94)	1(6)	3(11)	326(178) 813(1321) 94(132)	281(315) 489(730) 54(117)
88(75) 786(798) 13(29)	5(2) 885(897)	9(4) 887(889)	91(82) 155(169) 60(87)	141(124) 298(293) 135(146)
105(105) 653(1144) 3(5)	728(1244)	728(1244)	141(288) 106(202) 88(165)	272(541) 253(355) 230(335)
5(7) 5(16) 18(5)			107(191) 1287(1641) 59(79)	309(315) 778(1046) 56(102)

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT SUMMARY OF LOS

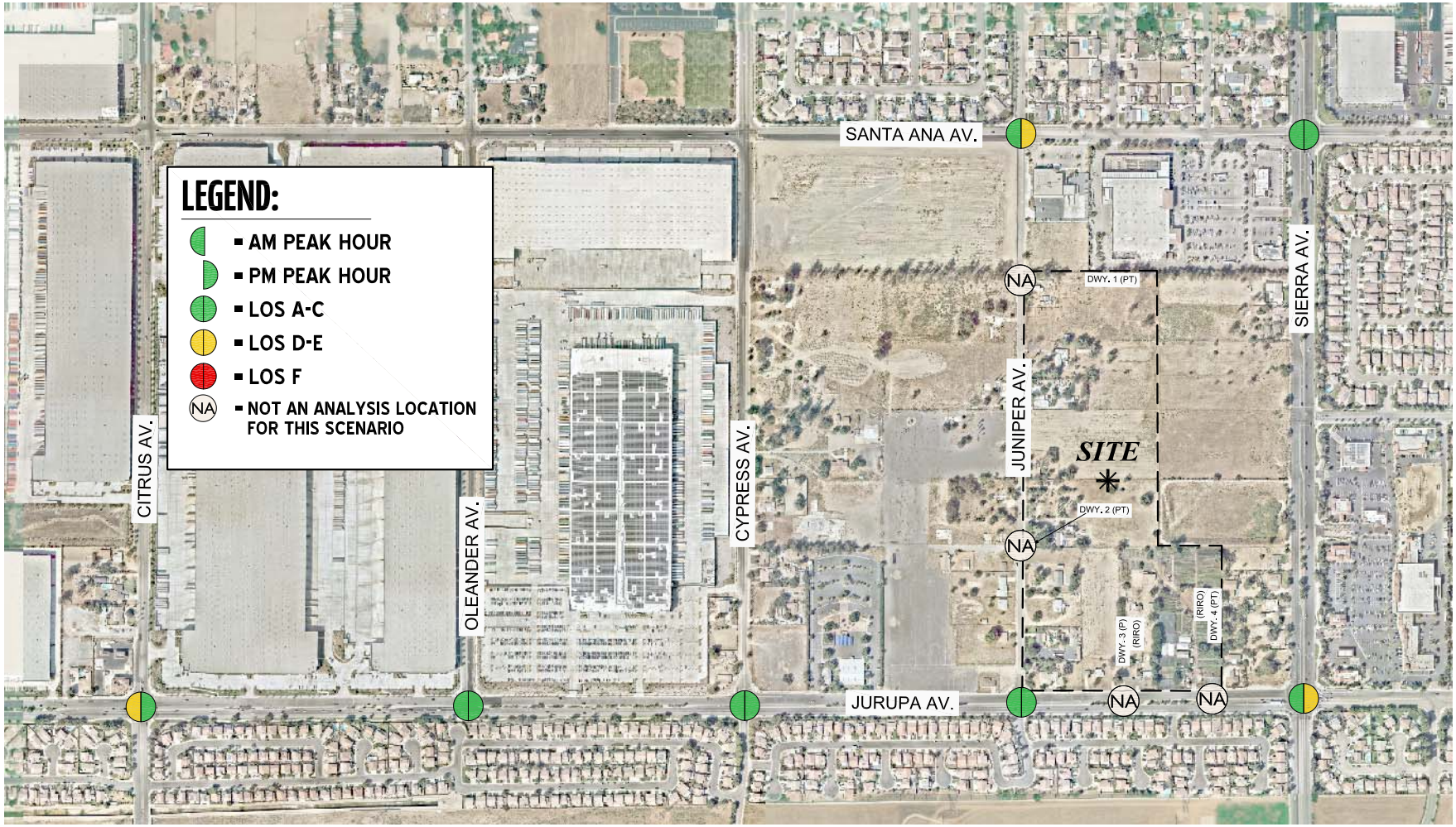


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Table 6-1

Intersection Analysis for Opening Year Cumulative (2022) Conditions

#	Intersection	Traffic Control[2]	2022 Without Project Delay[1] (secs.) AM	2022 Without Project Delay[1] (secs.) PM	2022 Without Project Level of Service AM	2022 Without Project Level of Service PM	2022 With Project Delay[1] (secs.) AM	2022 With Project Delay[1] (secs.) PM	2022 With Project Level of Service AM	2022 With Project Level of Service PM	Difference in Delay (sec.) AM	Difference in Delay (sec.) PM	Significant Impact?[3]
1	Citrus Av. & Jurupa Av.	TS	**36.0**	28.1	**D**	C	**37.6**	28.7	**D**	C	1.6	0.6	No
2	Oleander Av. & Jurupa Av.	CSS	13.7	16.3	B	C	13.8	16.9	B	C	0.1	0.6	No
3	Cypress Av. & Jurupa Av.	TS	14.6	15.6	B	B	14.6	15.7	B	B	0.0	0.1	No
4	Juniper Av. & Santa Ana Av.	AWS	17.8	**34.1**	C	**D**	18.6	**37.0**	C	**E**	0.8	2.9	**Yes**
5	Juniper Av. & Driveway 1	**CSS**	Future Intersection				9.9	11.3	A	B	--	--	No
6	Juniper Av. & Driveway 2	**CSS**	Future Intersection				10.8	11.7	B	B	--	--	No
7	Juniper Av. & Jurupa Av.	TS	11.9	12.8	B	B	12.3	13.0	B	B	0.4	0.2	No
8	Driveway 3 & Jurupa Av.	**CSS**	Future Intersection				12.9	13.1	B	B	--	--	No
9	Driveway 4 & Jurupa Av.	**CSS**	Future Intersection				13.0	13.1	B	B	--	--	No
10	Sierra Av. & Santa Ana Av.	TS	21.9	29.7	C	C	22.1	30.0	C	C	0.2	0.3	No
11	Sierra Av. & Jurupa Av.	TS	23.6	**38.2**	C	**D**	23.9	**40.0**	C	**D**	0.3	1.8	No

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal

[3] Significant near-term impacts have been identified based on each applicable agency's threshold of significance and if the Project contributes 50 or more peak hour trips.

6.4.2 OPENING YEAR CUMULATIVE (2022) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 6-1 and illustrated on Exhibit 6-4, the addition of Project traffic is not anticipated to cause any additional study area intersection to operate at an unacceptable LOS, in addition to those previously identified under Opening Year Cumulative (2022) Without Project conditions.

The intersection operations analysis worksheets for Opening Year Cumulative (2022) With Project conditions are included in Appendix 6.2 of this TIA. Measures to address deficiencies for Opening Year Cumulative (2022) traffic conditions are discussed in Section 6.7 *Opening Year Cumulative (2022) Impacts and Recommended Improvements*.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no study area intersections anticipated to meet planning level (average daily traffic or ADT) or peak hour volume-based traffic signal warrants under Opening Year Cumulative (2022) Without and With Project traffic conditions (see Appendix 6.3 and 6.4).

6.6 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 6-2 provides a summary of the Opening Year Cumulative (2022) conditions roadway segment capacity analysis based on the City of Fontana Roadway Segment Capacity Thresholds. As shown on Table 6-2, the study area roadway segments are anticipated to continue to operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds, consistent with Existing (2019) traffic conditions.

6.7 OPENING YEAR CUMULATIVE (2022) IMPACTS AND RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections and roadway segments that have been identified as impacted under Opening Year Cumulative (2022) traffic conditions in an effort to achieve an acceptable LOS.

6.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance*, the following intersection is anticipated to be cumulatively impacted by the Project during one or more peak hours:

- Juniper Avenue & Santa Ana Avenue (#4)

The effectiveness of the recommended improvements to address Opening Year Cumulative (2022) traffic impacts are presented on Table 6-3. Improvement strategies identified on Table 6-3 have been recommended at intersections that have been identified as cumulatively impacted to reduce each location's peak hour delay to acceptable levels.

EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2022) WITH PROJECT SUMMARY OF LOS

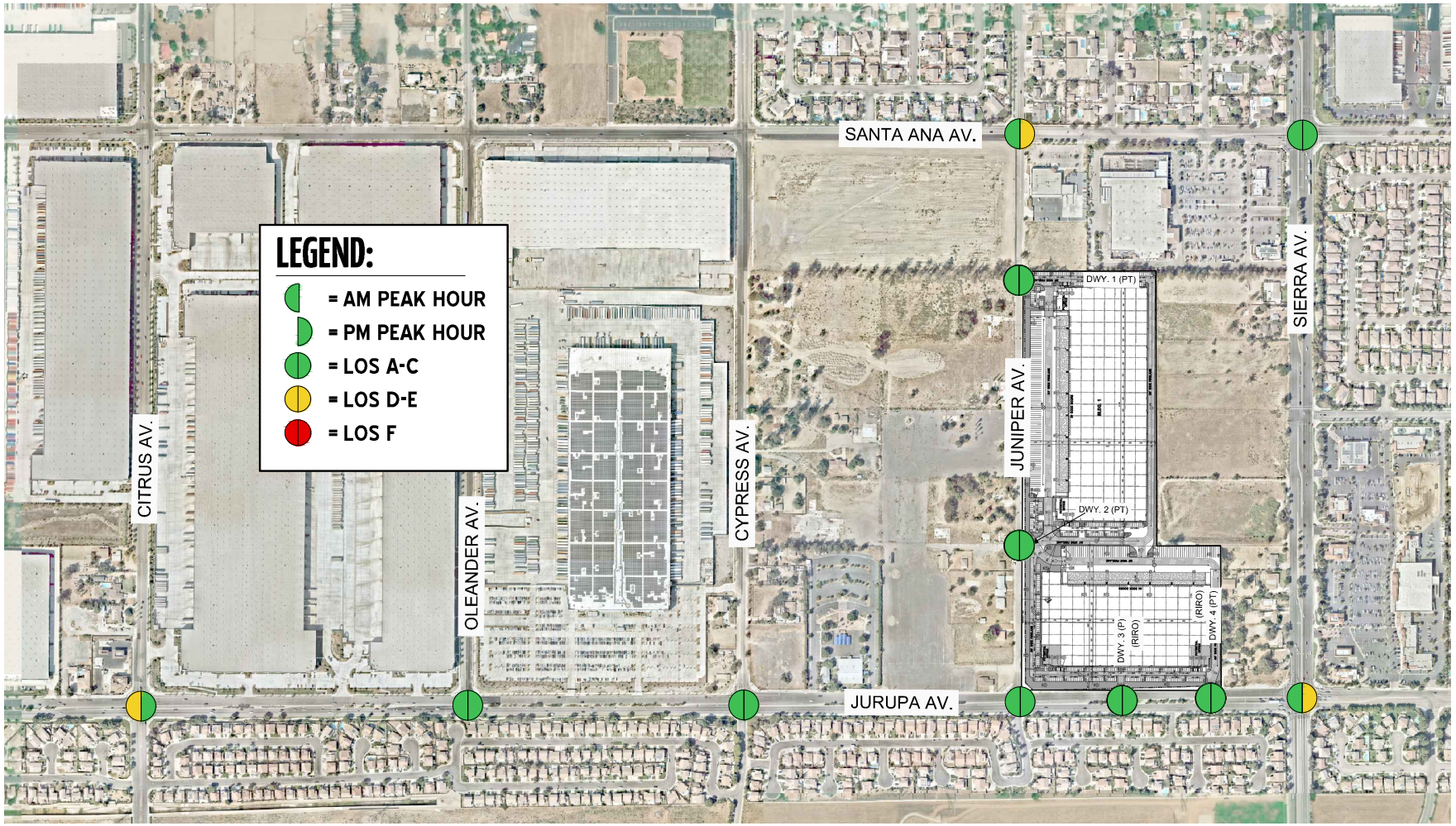


Table 6-2

Roadway Segment Capacity Analysis for Opening Year Cumulative (2022) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2022 NP	V/C[2]	LOS[3]	2022 WP	V/C[2]	LOS[3]	Acceptable LOS
1	Jurupa Av.	Citrus Av. & Oleander Av.	6D	54,000	23,901	0.44	A	24,677	0.46	A	C
2		Oleander Av. & Cypress Av.	6D	54,000	23,915	0.44	A	24,691	0.46	A	C
3		Cypress Av. & Juniper Av.	6D	54,000	23,521	0.44	A	24,297	0.45	A	C
4		Juniper Av. & Sierra Av.	6D	54,000	24,693	0.46	A	25,171	0.47	A	C
5	Santa Ana Av.	Juniper Av. & Sierra Av.	4D	36,000	15,093	0.42	A	15,221	0.42	A	C
6	Juniper Av.	Santa Ana Av. & Jurupa Av.	2U	18,000	5,474	0.30	A	6,410	0.36	A	C
7	Sierra Av.	Santa Ana Av. & Jurupa Av.	6D	54,000	39,006	0.72	C	39,325	0.73	C	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

Table 6-3

Intersection Analysis for Opening Year Cumulative (2022) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
4	Juniper Av. & Santa Ana Av.																	
	- Without Improvements	AWS	0	1	d	0	1	1	0	1	0	0	2	0	18.6	**37.0**	C	**E**
	- With Improvements	AWS	0	1	d	0	1	1	0	**2**	0	0	2	0	16.2	15.8	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All Way Stop

Juniper Avenue & Santa Ana Avenue (#4) – The following improvement is necessary to improve the intersection's peak hour operations to pre-project conditions or better, thus reducing the cumulative impact to less than significant:

- Contribute fair share towards a 2nd eastbound through lane.

The intersection operations analysis worksheets for Opening Year Cumulative (2022) With Project traffic conditions, with improvements, are included in Appendix 6.5 of this TIA.

6.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

As shown previously on Table 6-2, there are no roadway segment deficiencies anticipated for Opening Year Cumulative (2022) traffic conditions. As such, no improvements have been recommended.

7 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations, roadway segment, and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of Project driveways and those facilities assumed to be constructed by the Project and cumulative developments to provide site access are also assumed to be in place for Horizon Year (2040) traffic conditions.

Although not evaluated, other future regional infrastructure improvements have also been assumed to be in place. The Horizon Year (2040) forecasts are based on the SBTAM traffic model which assumes future facilities such as the interchange connections at the I-10 Freeway and Beech Avenue and I-10 Freeway and Alder Avenue. These new regional connections will likely result in reduced traffic volumes at other adjacent interchanges, such as the I-10 Freeway and Citrus Avenue interchange.

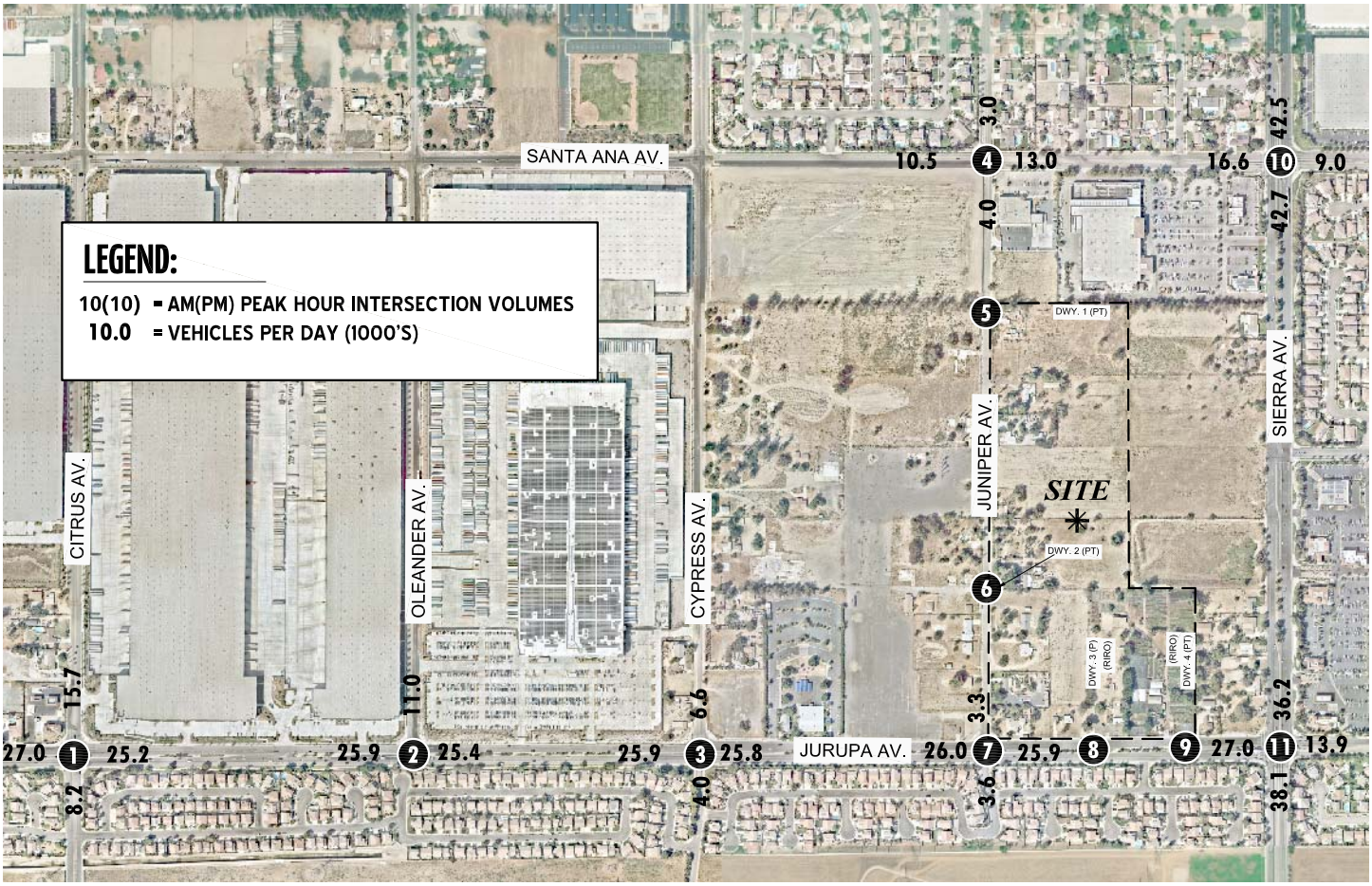
7.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the SBTAM (see Section 4.7 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The ADT and AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

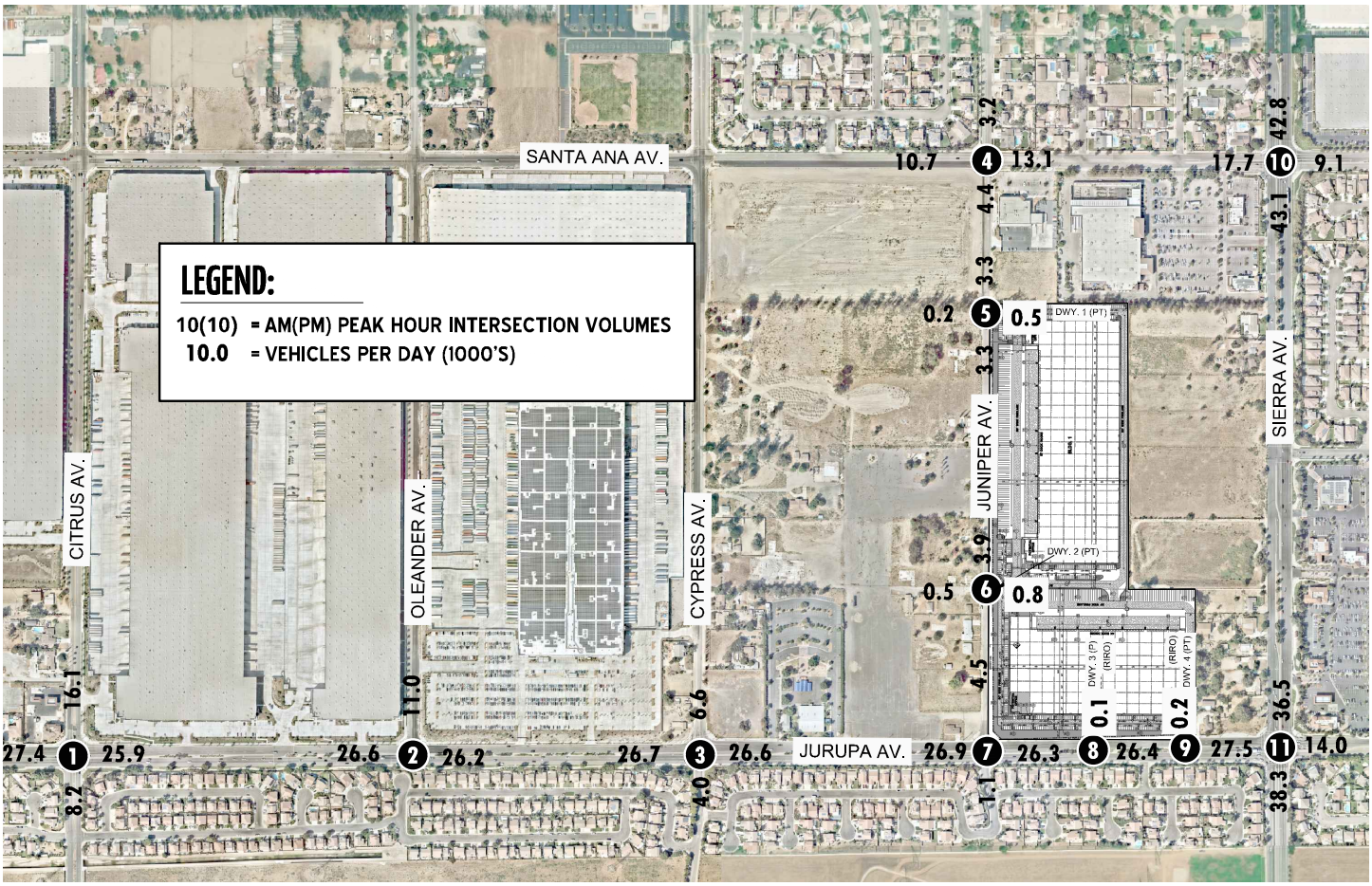
This scenario includes the refined post-processed volumes obtained from the SBTAM, plus Project traffic. The ADT and AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibit 7-2.

EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av. 210(179) 130(237) 121(137) → 160(188) ← 696(727) ← 77(158) 554(492) → 519(1010) → 15(58) → 68(21) ↑ 334(168) ↑ 128(106) →	**2** Oleander Av. & Jurupa Av. 244(173) → 111(280) ← 853(944) 773(1283) →	**3** Cypress Av. & Jurupa Av. 94(172) 35(57) 60(128) → 77(78) ← 803(775) ← 55(137) 169(166) → 605(1164) → 16(27) → 32(11) ↑ 88(66) ↑ 143(75) →	**4** Juniper Av. & Santa Ana Av. 17(7) 52(61) 42(71) → 16(60) ← 525(383) ← 90(87) 7(10) → 258(484) → 31(39) → 26(49) ↑ 33(76) ↑ 42(112) →	**5** Juniper Av. & Dwy. 1 Future Intersection	**6** Juniper Av. & Dwy. 2 Future Intersection
7 Juniper Av. & Jurupa Av. 77(117) 7(25) 74(93) → 85(84) ← 860(860) ← 14(32) 79(110) → 718(1258) → 3(6) → 6(8) ↑ 6(17) ↑ 19(6) →	**8** Dwy. 3 & Jurupa Av. Future Intersection	**9** Dwy. 4 & Jurupa Av. Future Intersection	**10** Sierra Av. & Santa Ana Av. 354(194) 913(1448) 108(185) → 100(92) ← 169(186) ← 57(92) 153(310) → 115(215) → 103(181) → 122(210) ↑ 1413(1794) ↑ 63(82) →	**11** Sierra Av. & Jurupa Av. 286(337) 651(803) 59(128) → 155(136) ← 326(322) ← 153(160) 295(578) → 278(389) → 271(359) → 332(343) ↑ 855(1151) ↑ 62(112) →	

EXHIBIT 7-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



1 Citrus Av. & Jurupa Av.	2 Oleander Av. & Jurupa Av.	3 Cypress Av. & Jurupa Av.	4 Juniper Av. & Santa Ana Av.	5 Juniper Av. & Dwy. 1	6 Juniper Av. & Dwy. 2
210(179) 130(237) 138(144) — 165(208) 701(748) 77(158)	244(173) — 111(280) 864(984)	94(172) 35(57) 60(128) — 77(78) 814(815) 55(137)	17(7) 57(63) 42(71) — 16(60) 525(383) 93(88)	11(5) 170(153) 6(3) — 3(11) 0(0) 4(16)	7(3) 159(229) 8(3) — 3(13) 0(0) 8(29)
554(492) 537(1018) 15(58) — 68(21) 334(168) 128(106)	808(1298)	169(166) 640(1179) 16(27) — 32(11) 88(66) 143(75)	7(10) 258(484) 38(42) — 28(57) 34(82) 45(122)	3(13) 0(0) 1(2) — 2(1) 101(215) 17(8)	2(8) 0(0) 8(20) — 25(7) 159(218) 28(12)
7 Juniper Av. & Jurupa Av.	**8 Dwy. 3 & Jurupa Av.**	**9 Dwy. 4 & Jurupa Av.**	**10 Sierra Av. & Santa Ana Av.**	**11 Sierra Av. & Jurupa Av.**	
83(141) 7(25) 80(114) — 96(89) 864(876) 14(32)	1(6) — 5(2) 972(991)	3(11) — 9(4) 974(983)	357(195) 923(1452) 108(185) — 100(92) 169(186) 65(95)	304(345) 651(803) 59(128) — 155(136) 327(322) 153(160)	
114(125) 718(1258) 3(6) — 6(8) 6(17) 19(6)	817(1378)	817(1378)	154(315) 116(220) 103(181) — 122(210) 1415(1803) 64(86)	298(591) 278(390) 273(366) — 338(346) 855(1151) 62(112)	

7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown on Table 7-1, the following intersections are anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2040) Without Project traffic conditions:

- Citrus Avenue & Jurupa Avenue (#1) – LOS D AM peak hour only
- Oleander Avenue & Jurupa Avenue (#2) – LOS D PM peak hour only
- Juniper Avenue & Santa Ana Avenue (#4) – LOS D AM peak hour; LOS F PM peak hour
- Sierra Avenue & Santa Ana Avenue (#10) – LOS D PM peak hour only
- Sierra Avenue & Jurupa Avenue (#11) – LOS D PM peak hour only

A summary of the peak hour intersection LOS for Horizon Year (2040) Without Project conditions are shown on Exhibit 7-3. The intersection operations analysis worksheets for Horizon Year (2040) Without Project traffic conditions are included in Appendix 7.1 of this TIA.

7.4.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 7-1 and illustrated on Exhibit 7-4, there are no additional intersections anticipated to operate at an unacceptable LOS with the addition of Project traffic, in addition to those intersections previously identified under Horizon Year (2040) Without Project conditions. The intersection operations analysis worksheets for Horizon Year (2040) With Project conditions are included in Appendix 7.2 of this TIA. Measures to address deficiencies for Horizon Year (2040) traffic conditions are discussed in Section 7.7 *Horizon Year (2040) Impacts and Recommended Improvements*.

Table 7-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project				Difference in Delay (sec.)	Difference in Delay (sec.)	Significant Impact?[3]
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service				
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1	Citrus Av. & Jurupa Av.	TS	**45.0**	32.5	**D**	C	**47.5**	34.0	**D**	C	2.5	1.5	No
2	Oleander Av. & Jurupa Av.	CSS	24.6	**26.7**	C	**D**	24.9	**28.2**	C	**D**	0.3	1.5	No
3	Cypress Av. & Jurupa Av.	TS	15.1	18.1	B	B	15.3	18.1	B	B	0.2	0.0	No
4	Juniper Av. & Santa Ana Av.	AWS	**26.6**	**57.7**	**D**	**F**	**29.0**	**61.9**	**D**	**F**	2.4	4.2	**Yes**
5	Juniper Av. & Driveway 1	**CSS**	Future Intersection				10.4	11.5	B	B	--	--	No
6	Juniper Av. & Driveway 2	**CSS**	Future Intersection				11.4	12.6	B	B	--	--	No
7	Juniper Av. & Jurupa Av.	TS	17.6	13.2	B	B	22.6	34.9	C	C	5.0	21.7	**Yes**
8	Driveway 3 & Jurupa Av.	**CSS**	Future Intersection				13.5	13.7	B	B	--	--	No
9	Driveway 4 & Jurupa Av.	**CSS**	Future Intersection				13.6	13.8	B	B	--	--	No
10	Sierra Av. & Santa Ana Av.	TS	24.2	**35.9**	C	**D**	24.5	**36.4**	C	**D**	0.3	0.5	No
11	Sierra Av. & Jurupa Av.	TS	27.1	**53.5**	C	**D**	27.6	**54.5**	C	**D**	0.5	1.0	No

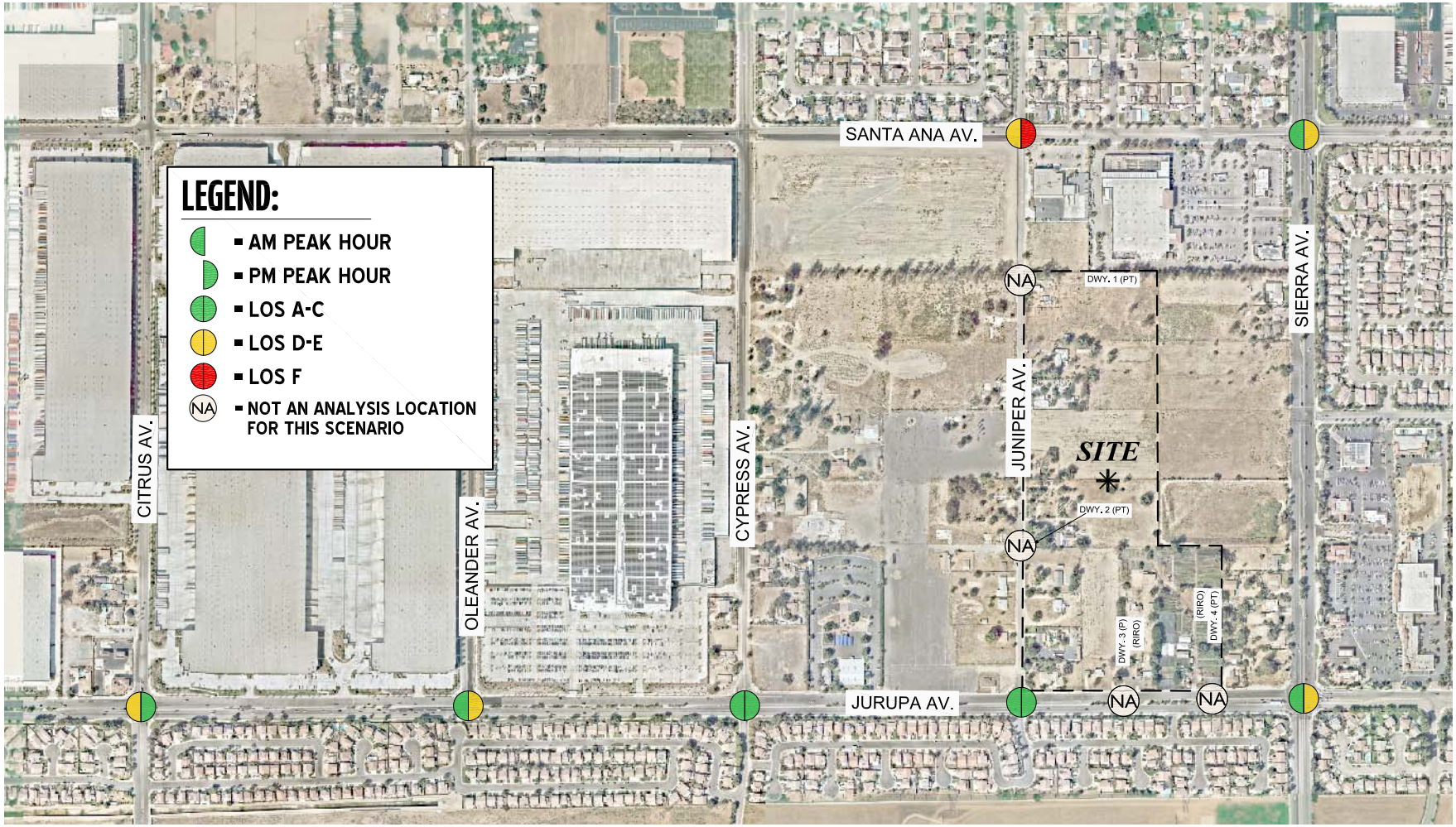
* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal

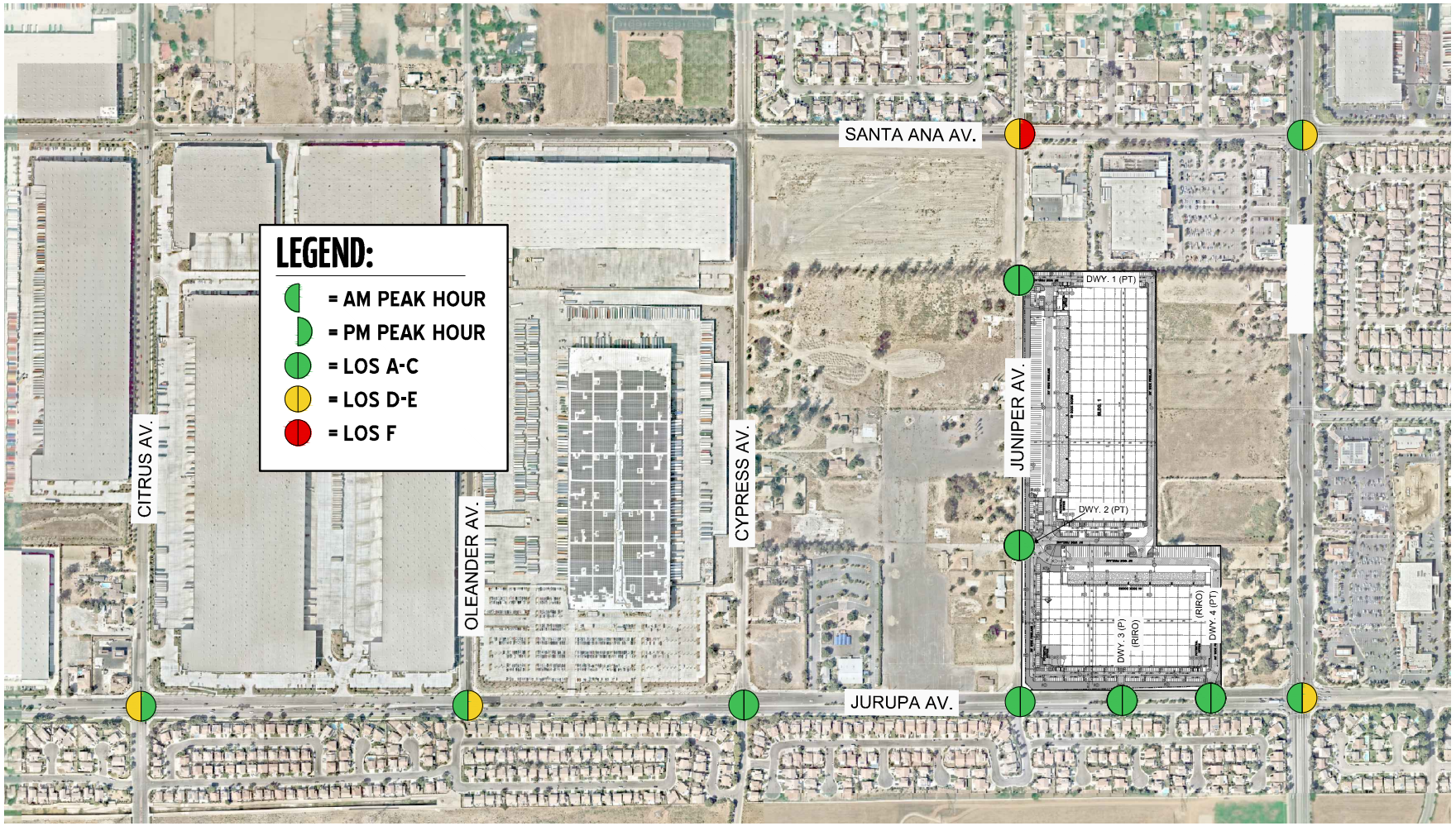
[3] Significant near-term impacts have been identified based on each applicable agency's threshold of significance and if the Project contributes 50 or more peak hour trips.

EXHIBIT 7-3: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS



URBAN CROSSROADS

EXHIBIT 7-4: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS



7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

The intersection of Juniper Avenue and Santa Ana Avenue is anticipated to meet a peak hour volume-based traffic signal warrant under Horizon Year (2040) Without Project traffic conditions (see Appendix 7.3). There are no additional study area intersections anticipated to meet planning level (average daily traffic or ADT) or peak hour volume-based traffic signal warrants under Horizon Year (2040) With Project traffic conditions (see Appendix 7.4).

7.6 ROADWAY SEGMENT ANALYSIS

7.6.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 7-2 provides a summary of the Horizon Year (2040) Without Project conditions roadway segment capacity analysis based on the City of Fontana Roadway Segment Capacity Thresholds. As shown on Table 7-2, the following roadway segment is anticipated to operate at an unacceptable LOS based on the City's planning level daily roadway capacity thresholds for Horizon Year (2040) Without Project traffic conditions:

- Sierra Avenue, from Santa Ana Avenue to Jurupa Avenue (#7) – LOS D

7.6.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

The addition of Project traffic is not anticipated to result in any additional deficiencies along the study area roadway segments in addition to those previously identified for Horizon Year (2040) Without Project traffic conditions.

7.7 HORIZON YEAR (2040) CUMULATIVE IMPACTS AND RECOMMENDED IMPROVEMENTS

Improvement strategies have been recommended at intersections and roadway segments that have been identified as impacted under Horizon Year (2040) traffic conditions in an effort to achieve an acceptable LOS.

7.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Based on the City of Fontana's significance criteria as discussed in Section 2.9 *Thresholds of Significance*, the following intersections are anticipated to be cumulatively impacted by the Project during one or more peak hours:

- Juniper Avenue & Santa Ana Avenue (#4)
- Juniper Avenue & Jurupa Avenue (#7)

The effectiveness of the recommended improvements to address Horizon Year (2040) traffic impacts are presented on Table 7-3. Improvement strategies identified on Table 7-3 have been recommended at intersections that have been identified as cumulatively impacted to reduce each location's peak hour delay to acceptable levels.

Table 7-2

Roadway Segment Capacity Analysis for Horizon Year (2040) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2040 NP	V/C[2]	LOS[3]	2040 WP	V/C[2]	LOS[3]	Acceptable LOS
1	Jurupa Av.	Citrus Av. & Oleander Av.	6D	54,000	25,859	0.48	A	26,635	0.49	A	C
2		Oleander Av. & Cypress Av.	6D	54,000	25,943	0.48	A	26,719	0.49	A	C
3		Cypress Av. & Juniper Av.	6D	54,000	26,006	0.48	A	26,782	0.50	A	C
4		Juniper Av. & Sierra Av.	6D	54,000	25,866	0.48	A	26,344	0.49	A	C
5	Santa Ana Av.	Juniper Av. & Sierra Av.	4D	36,000	16,562	0.46	A	16,690	0.46	A	C
6	Juniper Av.	Santa Ana Av. & Jurupa Av.	2U	18,000	3,982	0.22	A	4,918	0.27	A	C
7	Sierra Av.	Santa Ana Av. & Jurupa Av.	6D	54,000	**46,040**	**0.85**	**D**	**46,359**	**0.86**	**D**	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

Table 7-3

Intersection Analysis for Horizon Year (2040) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
4	Juniper Av. & Santa Ana Av.																	
	- *Without Improvements*	AWS	0	1	d	0	1	1	0	1	0	0	2	0	**29.0**	**61.9**	**D**	**F**
	- *With Improvements*	AWS	0	1	d	0	1	1	0	**2**	0	0	2	0	24.3	19.8	C	C
7	Juniper Av. & Jurupa Av.																	
	- *Without Improvements*	TS	0	1	d	0	1	d	1	3	0	1	3	0	22.6	34.9	C	C
	- *With Improvements*[5]	TS	**1**	1	**0**	**1**	1	**0**	1	3	0	1	3	0	12.4	12.0	B	B

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d= Defacto Right Turn Lane; **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] AWS = All-Way Stop; TS = Traffic Signal

[4] Improvement consists of modifying the cycle length to 130-seconds. No other physical improvements are recommended.

[5] Improvements include restriping the northbound and southbound approaches to accommodate a left turn lane and shared through-right turn lane.

Juniper Avenue & Santa Ana Avenue (#4) – The following improvement is necessary to improve the intersection's peak hour operations to pre-project conditions or better, thus reducing the cumulative impact to less than significant:

- Contribute fair share towards a 2nd eastbound through lane.

Juniper Avenue & Jurupa Avenue (#7) – The following improvement is necessary to improve the intersection's peak hour operations to pre-project conditions or better, thus reducing the cumulative impact to less than significant:

- Contribute fair share towards restriping the northbound and southbound approaches to accommodate a left turn lane and shared through-right turn lane.

The intersection operations analysis worksheets for Horizon Year (2040) With Project, with improvements, traffic conditions are included in Appendix 7.5 of this TIA.

7.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS ROADWAY SEGMENTS

Sierra Avenue is currently a 6-lane divided roadway between Santa Ana Avenue and Jurupa Avenue, which is consistent with its General Plan classification as a major highway. As shown on Table 7-4, an 8-lane facility would improve the segment's LOS to acceptable levels, however, the peak hour intersection operations analysis shown on Tables 7-1 and 7-3 indicate additional roadway widening may not be necessary as the intersections can process the peak hour traffic flows without the additional roadway widening.

Table 7-4

Roadway Segment Capacity Analysis for Horizon Year (2040) Conditions With Improvements

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2040 NP	V/C[2]	LOS[3]	2040 WP	V/C[2]	LOS[3]	Acceptable LOS
7	Sierra Av.	Santa Ana Av. & Jurupa Av.	**8D**	72,000	46,040	0.64	B	46,359	0.64	B	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

8 REFERENCES

1. **City of Fontana.** *Draft Traffic Study Guidelines.* City of Fontana : s.n., October 2019.

2. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.

3. **Institute of Transportation Engineers.** *Trip Generation.* 10th Edition. 2017.

4. **Southern California Association of Governments.** *2016 Regional Transportation Plan.* April 2016.

5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.

6. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014.

7. **Institute of Transportation Engineers.** *High Cube Warehouse Vehicle Trip Generation Analysis.* Washington, DC : ITE, October 2016.

8. **South Coast Air Quality Management District.** *Warehouse Truck Trip Study Data Results and Usage.* 2014.

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APPENDIX 1.1:

APPROVED SCOPING AGREEMENT

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EXHIBIT B

SCOPING AGREEMENT FOR TRAFFIC IMPACT ANALYSIS

This letter acknowledges the City of Fontana Engineering Department requirements for traffic impact analysis of the following project. The analysis must follow the SBCTA Traffic Study Guidelines, Updated 2016.

Case No. DPR19-000036; TPM19-000018
Related Cases-
SP No. SPA19-000011
EIR No.
GPA No. SPA19-000007
CZ No. ZCA19-000005
Project Name: Fontana Foothills Commerce Center
Project Address: Northeast corner of Juniper Avenue and Jurupa Avenue
Project Description: 754,408 sf of high-cube transload and short-term storage warehouse use

	Consultant	Developer Representative
Name:	Urban Crossroads Inc.	EPD
Address:	260 E. Baker Street, Suite 200	2 Park Plaza, Suite 1120
	Costa Mesa, CA 92626	Irvine, CA 92614
Telephone:	(949) 336-5982	949-794-1180
Fax:		

A. Trip Generation Source: ITE 10th Edition (2017) (See Table 1)

Current GP Land Use	R-PC		Proposed Land Use	Industrial	
Current Zoning	R-PC		Proposed Zoning	SWIP SP	

	Current Trip Generation			Proposed Trip Generation (In PCE)		
	In	Out	Total	In	Out	Total
AM Trips	**0**	**0**	**0**	**74**	**22**	**96**
PM Trips	**0**	**0**	**0**	**32**	**85**	**117**

Internal Trip Allowance ☐ Yes ■ No (0 % Trip Discount)
Pass-By Trip Allowance ☐ Yes ■ No (0 % Trip Discount)

The pass-by trips at adjacent study area intersections and project driveways shall be indicated on a report figure.

B. Trip Geographic Distribution: (See attached Exhibits 3 and 4 for detailed assignment)
N **Varies** % S **Varies** % E **Varies** % W **Varies** %

C. Background Traffic
Project Build-out Year: 2022 Annual Ambient Growth Rate: 1.38 %
Phase Year(s) No Phasing

Other area Projects to be analyzed: See Exhibit 5 and Table 3 - provide updates if applicable
Model/Forecast Methodology: Existing, E+P, OYC (2022) Without and With Project, 2040 Without and With Project, cumulative projects: SBTAM

Exhibit B - Scoping Agreement - Page 2

D. Study Intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies).* (See Exhibit 2)

1. Citrus Av. & Jurupa Av.
2. Oleander Av. & Jurupa Av.
3. Cypress Av. & Jurupa Av.
4. Juniper Av. & Santa Ana Av.
5. Juniper Av. & Driveway 1 - Future Intersection
6. Juniper Av. & Driveway 2 - Future Intersection
7. Juniper Av. & Jurupa Av.
8. Driveway 3 & Jurupa Av. - Future Intersection
9. Driveway 4 & Jurupa Av. - Future Intersection
10. Sierra Av. & Santa Ana Av.
11. Sierra Av. & Jurupa Av.
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E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).*

1. Jurupa Av. Between Citrus Av. & Oleander Av.
2. Jurupa Av. Between Oleander Av. & Cypress Av.
3. Jurupa Av. Between Cypress Av. & Juniper Av.
4. Jurupa Av. Between Juniper Av. & Sierra Av.
5. Juniper Av. Between Santa Ana Av. & Jurupa Av.
6. Santa Ana Av. Between Juniper Av. & Sierra Av.
7. Siera Av. Between Santa Ana Av. & Jurupa Av.
8.
9.
10.
11.
12.
13.
14.

F. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ■ Yes ☐ No

If so, name of City Jurisdiction: Caltrans (I-10 Freeway @ Sierra Avenue)

G. Site Plan (please attach reduced copy) (see Exhibit 1)

H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Engineering Department)

I. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

Date of counts *March 2019 counts to be used plus 1.38 growth factor for 2020 conditions*

Recommended by:

Charlene So — 12/16/2019

Consultant's Representative — Date

Approved Scoping Agreement:

1/7/20

City of Fontana Project Engineer — Date

Scoping Agreement Revised on _____

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

December 16, 2019

Mr. Ricardo Sandoval
City of Fontana
8353 Sierra Avenue
Fontana, CA 92335

SUBJECT: SCOPING AGREEMENT FOR THE FONTANA FOOTHILLS COMMERCE CENTER TRAFFIC IMPACT ANALYSIS

Dear Mr. Ricardo Sandoval:

The firm of Urban Crossroads, Inc. is pleased to submit this letter documenting the recommended Scope of Work for the proposed Fontana Foothills Commerce Center development ("Project") which is located on the northeast corner of Juniper Avenue and Jurupa Avenue, in the City of Fontana. It is our understanding that the Project is to consist of 754,408 square feet of high-cube transload and short-term storage warehouse use within two buildings.

A preliminary site plan for the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed Project in relation to the existing roadway network. It is anticipated that the Project would be developed in a single phase for the purposes of the traffic impact analysis and would have an opening year of 2022. As indicated on Exhibit 1, access to the Project site will be provided to Juniper Avenue (via Driveways 1 and 2) and Jurupa Avenue via (Driveways 3 and 4). All driveways on Juniper Avenue are proposed to allow for full access and driveways on Jurupa Avenue which will be restricted to right-in/right-out access only. All driveways are to serve both passenger cars and trucks with the exception of Driveway 3 which will serve passenger cars only.

Our goal is to obtain comments from City of Fontana staff, to ensure that the traffic study fully addresses the potential impacts of the proposed Project. The remainder of this letter describes the draft proposed analysis methodology, project trip generation, trip distribution, and project traffic assignment/project trips on the surrounding roadway network, which have been used to establish the draft proposed project study area and analysis locations.

STUDY AREA

Per the City of Fontana traffic study guidelines, intersections where the Project is expected to add at least 50 peak hour trips should be analyzed. Based on this criterion, and the anticipated trip generation and trip distribution patterns (presented subsequently), the following study area intersections are proposed to be evaluated. Exhibit 2 presents the study area intersection analysis locations. Study area intersections will be evaluated using the HCM 6th Edition methodology. Count data will be conducted during the weekday AM and weekday PM peak hours.

ANALYSIS SCENARIOS

The analysis of peak hour operations at study area intersections and roadway segments will be provided for the following analysis scenarios:

- Existing (2020) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative (2022) Without Project Conditions
- Opening Year Cumulative (2022) With Project Conditions
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

AMBIENT GROWTH ASSUMPTIONS

An ambient growth rate of 1.38 percent per year is proposed for the study area intersections, which will be compounded for each year to the Project's Opening Year of 2022. The growth rate is based on the average growth for population (1.21% per year), households (1.44% per year), and employment (1.47% per year) between 2012 and 2040 in the 2016 SCAG RTP/SCS for the City of Fontana.

TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. Trip generation rates and trip generation summary for the Project are shown in Table 1 based on actual vehicles. The trip generation rates and summary for the proposed Project in passenger car equivalent (PCE) are shown on Table 2. The trip generation rates used for this analysis are based upon trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) have been utilized. Brief descriptions of the proposed uses are provided below:

High-Cube Transload and Short-term Storage Warehouse (ITE 154): High-cube cold storage warehouses include warehouses characterized by the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical high-cube warehouse has a high level of on-site automation and logistics management. The automation and logistics enable highly efficient processing of goods.

Although the high-cube fulfillment center use was considered, the proposed buildings are not anticipated to be occupied by a fulfillment user. The site plan, as currently designed, does not lend itself to fulfillment center use due to the lack of employee parking.

The following vehicle mix (passenger cars versus trucks) has been obtained from the ITE's High Cube Warehouse Vehicle Trip Generation Analysis (dated October 2016):

- Without Cold Storage Warehouses: AM Peak Hour: 69.2% passenger cars and 30.8% trucks; PM Peak Hour: 78.3% passenger cars and 21.7% trucks; Weekday Daily: 67.8% passenger cars and 32.2% trucks

The above truck percentage was then further broken down by axle type per the following South Coast Air Quality Management District's (SCAQMD) recommended truck mix, for high-cube warehouse uses:

- Without Cold Storage: 2-Axle = 16.7%; 3-Axle = 20.7%; 4+-Axle = 62.6%

Finally, PCE factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in the City's traffic study guidelines: 2.0 for 2-Axle, 2.5 for 3-Axle, and 3.0 for 4+-Axle.

As shown on Table 2, the Project is anticipated to generate a total of 1,640 PCE trip-ends per day with 96 PCE AM peak hour trips and 117 PCE PM peak hour trips.

TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. The trip distribution pattern of passenger cars is heavily influenced by the geographical location of the site, the location of surrounding uses, and the proximity to the regional freeway system. The trip distribution pattern for truck traffic is also influenced by the local truck routes approved by the City of Fontana. Given these differences, separate trip distributions were generated for both passenger cars and truck trips.

Exhibit 3 illustrates the passenger car trip distribution patterns which is based on a select zone run of the Project from the San Bernardino Transportation Analysis Model (SBTAM). Exhibit 4 illustrates the truck trip distribution patterns. Truck trip distribution patterns have been derived based on the City's truck routes within the study area.

LEVEL OF SERVICE (LOS) CRITERIA

The City of Fontana has set the goal for acceptable LOS as LOS C or better, wherever feasible (see Goal #1, Policy #12 of the City of Fontana General Plan Circulation Element). However, in some instances maintaining the LOS C threshold within a built environment may require extensive roadway widening

that could affect existing uses, property rights and substantial costs associated with implementing these improvements. In the event that the improvements required to maintain LOS C is determined to be infeasible, the City of Fontana recognizes that LOS D may be considered the worst acceptable level of service in urbanized areas of the City.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on SHS facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing LOS should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is LOS D. As such, LOS D will be used as the target LOS for freeway ramps, freeway segments, and freeway merge/diverge ramp junctions.

THRESHOLDS OF SIGNIFICANCE – INTERSECTIONS

For the intersections that lie within the City of Fontana, determination of significant impacts will be based on a comparison of without and with project levels of service for each analysis year. A Significant Impact occurs if project traffic increases the average delay at an intersection by more than the thresholds identified on the table below. The thresholds for LOS A, B, and C do not apply to projects consistent with the General Plan.

THRESHOLDS OF SIGNIFICANT IMPACT

Pre-Project LOS	Significant Impact Threshold[1]
A/B	10.0 Seconds
C	8.0 Seconds
D	5.0 Seconds
E	2.0 Seconds
F	1.0 Second

[1] Increase in delay

EXISTING COUNT DATA

Intersection turning movement counts conducted in March 2019 will be utilized with a growth factor of 1.38 applied to reflect 2020 traffic conditions.

CUMULATIVE DEVELOPMENT PROJECTS

Table 3 and Exhibit 5 show a list of cumulative projects. If necessary, it is requested that the City of Fontana provide Urban Crossroads with any new cumulative development projects to be included in

the traffic study for cumulative traffic conditions in addition to those shown on Table 3 or any other additional changes.

SPECIAL ISSUES

The following special issues will also be addressed as part of the TIA:

- Truck turning templates will be used to address how Project truck traffic (e.g., large trucks such as a WB-67) would enter and exit applicable Project driveways.
- Conduct a queuing analysis at Project driveways.
- Conduct traffic signal warrant analysis for all applicable unsignalized intersections.

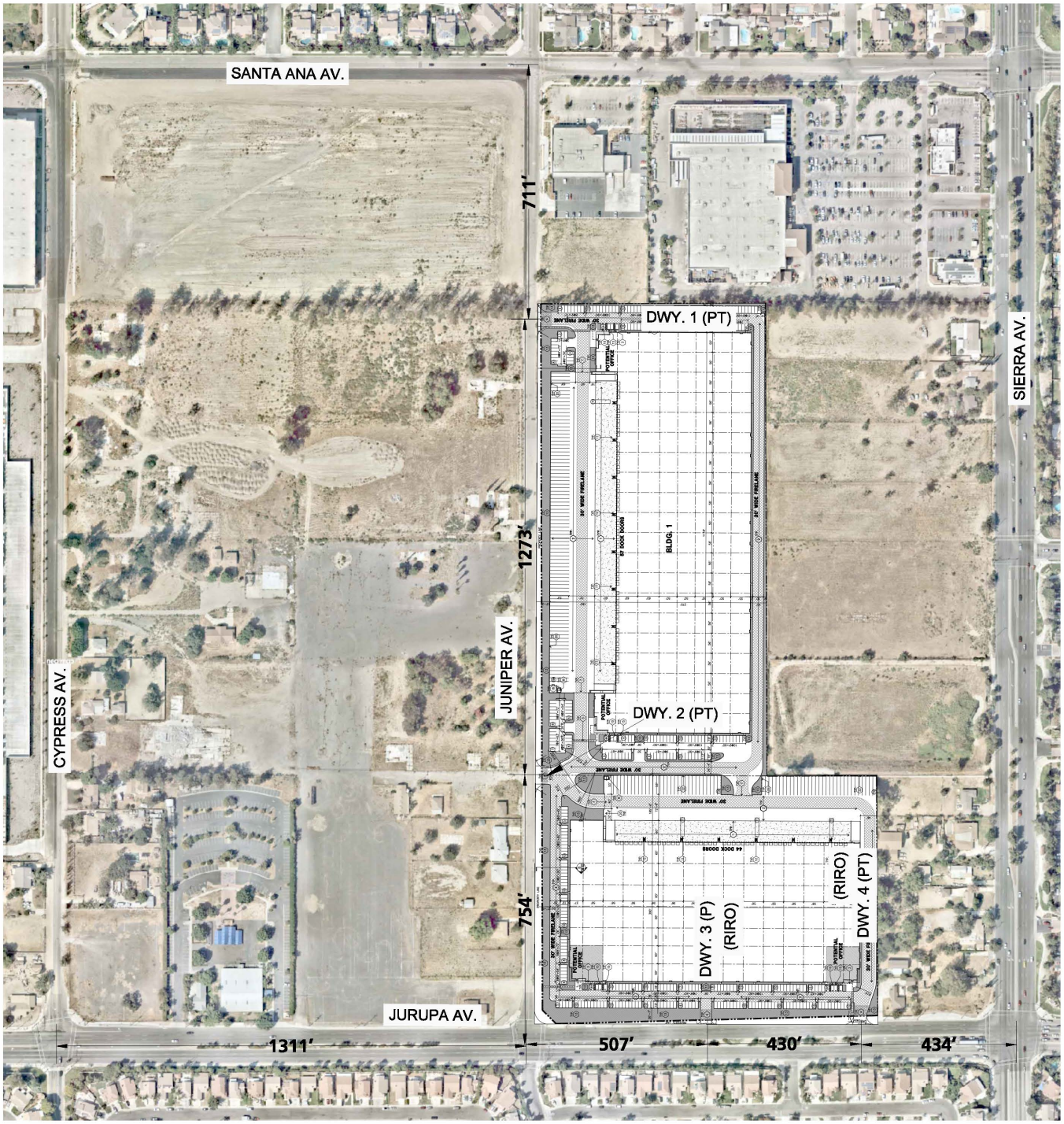
If you have any questions, please contact me directly at (949) 336-5982.

Respectfully submitted,

Charlene So

Charlene So, PE
Associate Principal

EXHIBIT 1: PRELIMINARY SITE PLAN



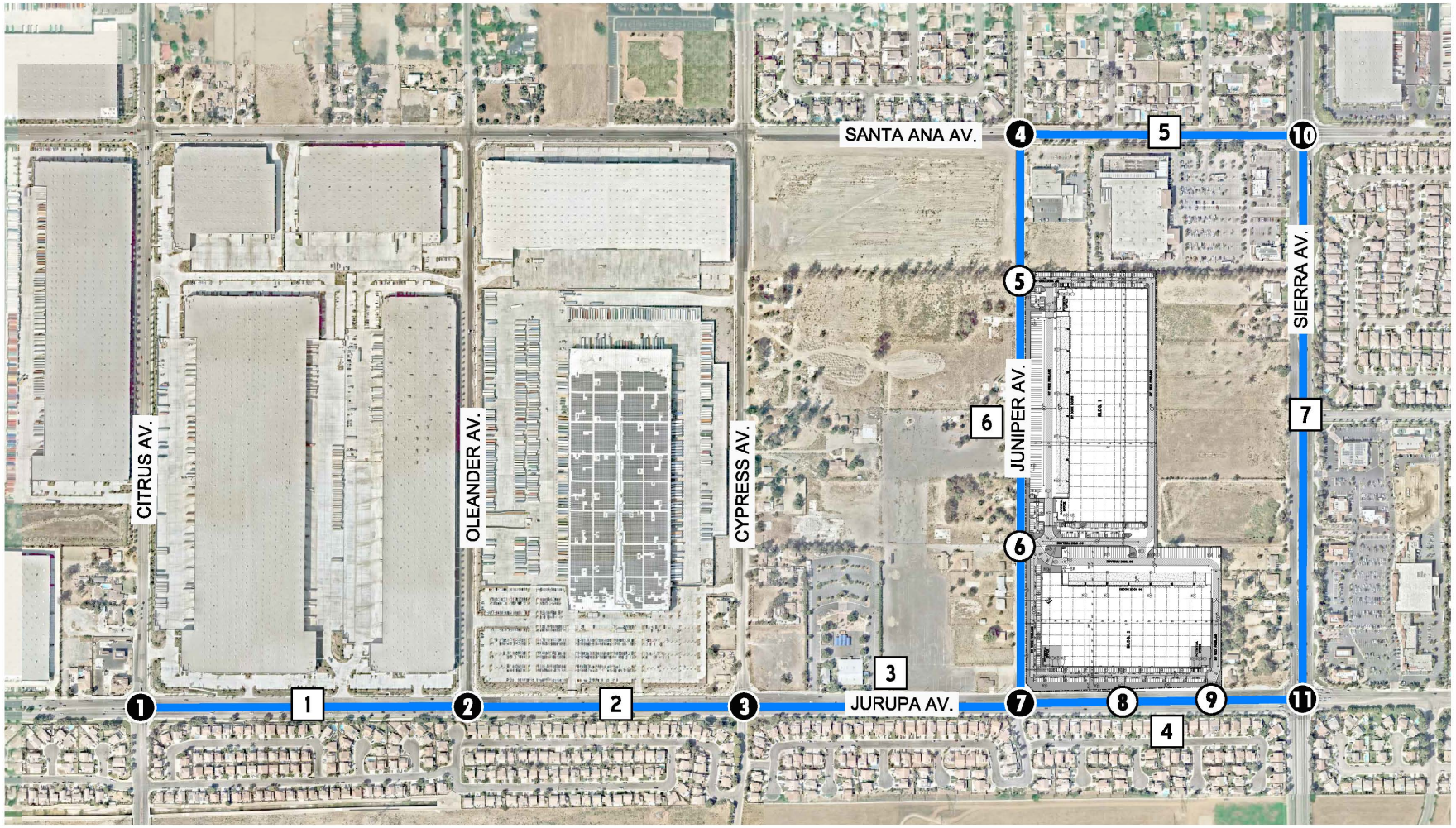
LEGEND:

RIRO	**= RIGHT-IN/RIGHT-OUT ONLY ACCESS**
P	**= PASSENGER CARS ONLY**
PT	**= PASSENGER CARS AND TRUCKS**

N

12997 - siteplan.dwg

EXHIBIT 2: LOCATION MAP



LEGEND:

- (0) = EXISTING INTERSECTION ANALYSIS LOCATION
- (0) = FUTURE INTERSECTION ANALYSIS LOCATION
- 00 = ROADWAY SEGMENT ANALYSIS LOCATION

N

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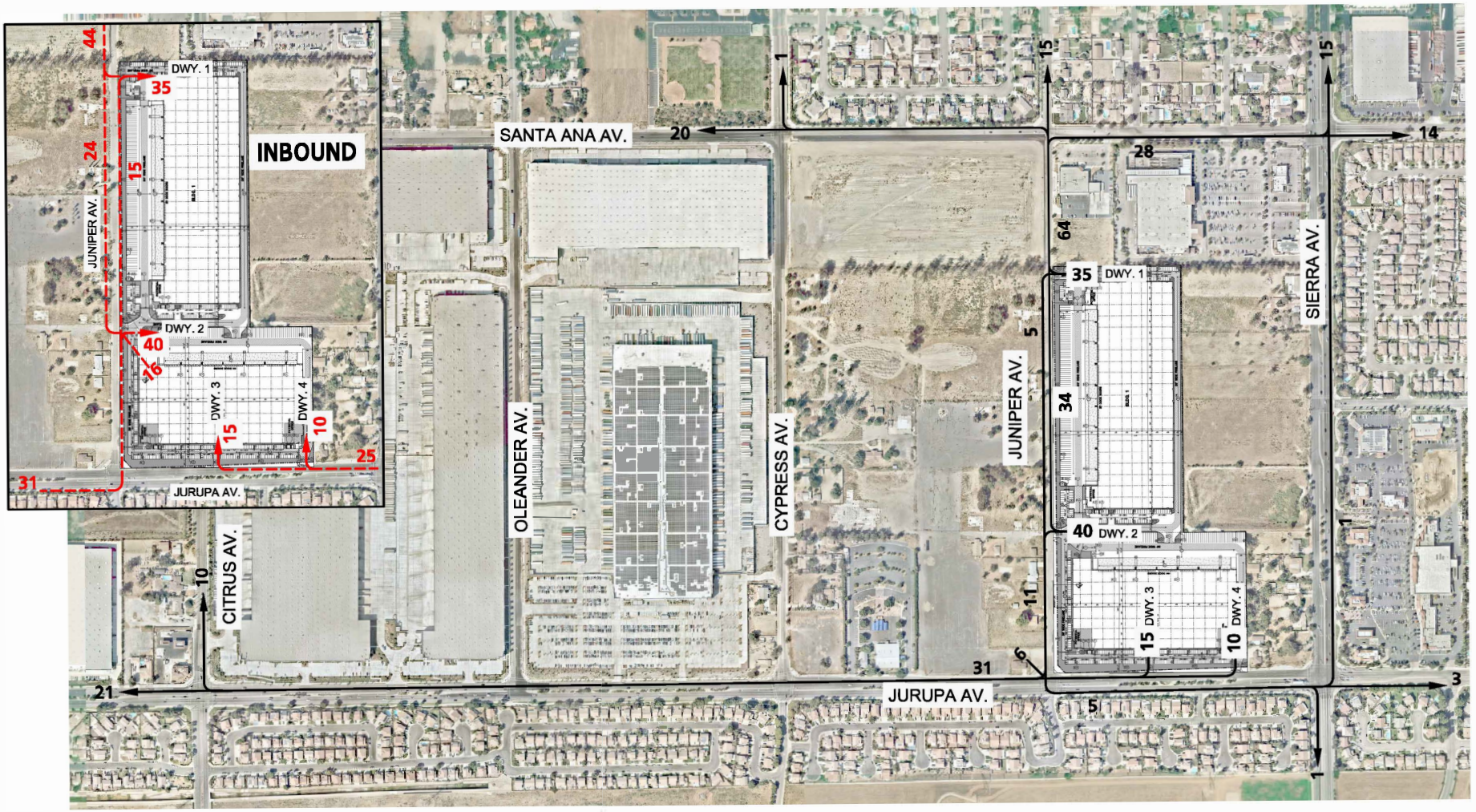
EXHIBIT 3: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

⟵ = OUTBOUND

⟵ - - = INBOUND

N

12997 - trip.dwg

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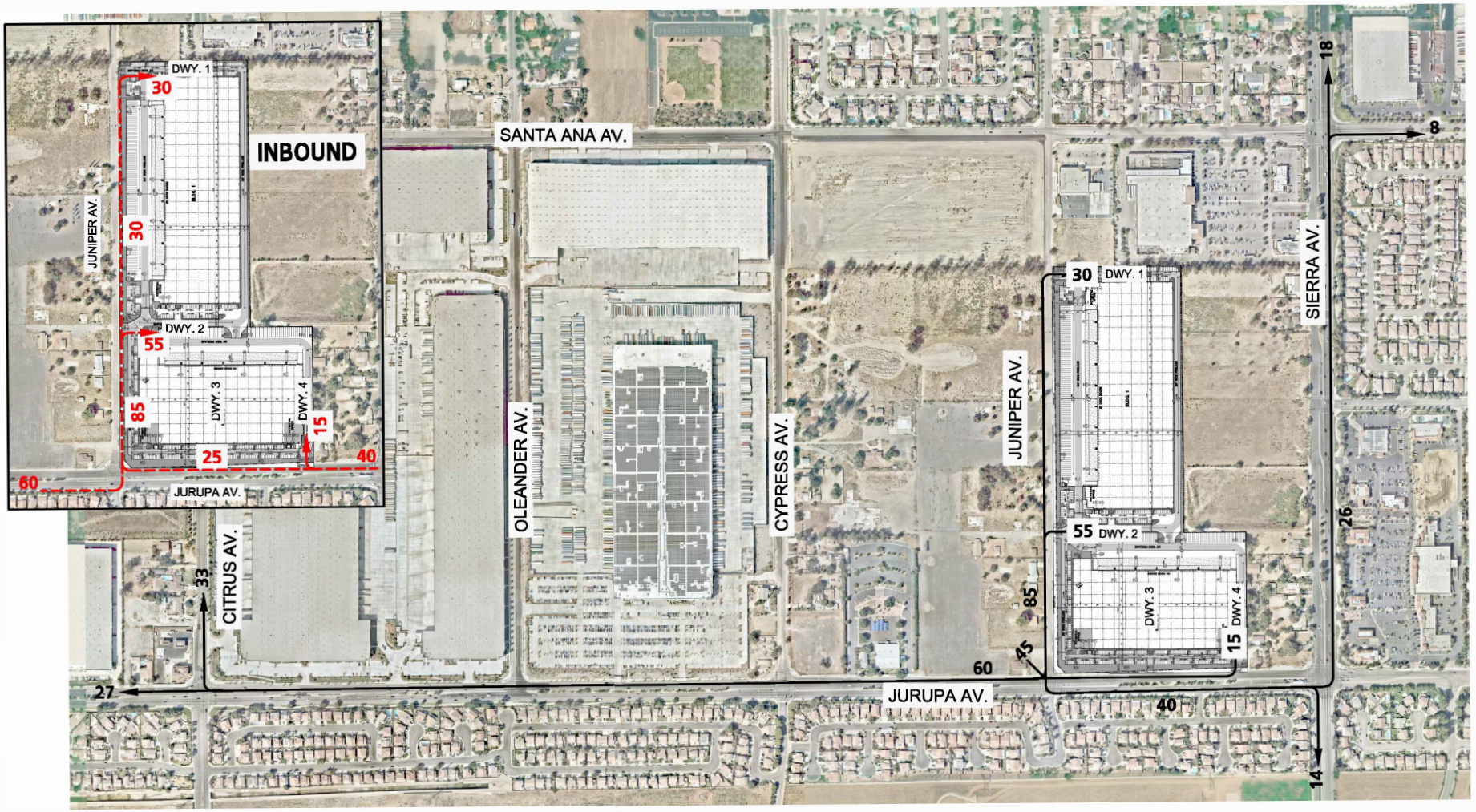
EXHIBIT 4: PROJECT (TRUCKS) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

12997 - trip.dwg

URBAN CROSSROADS

1.1-11

EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP

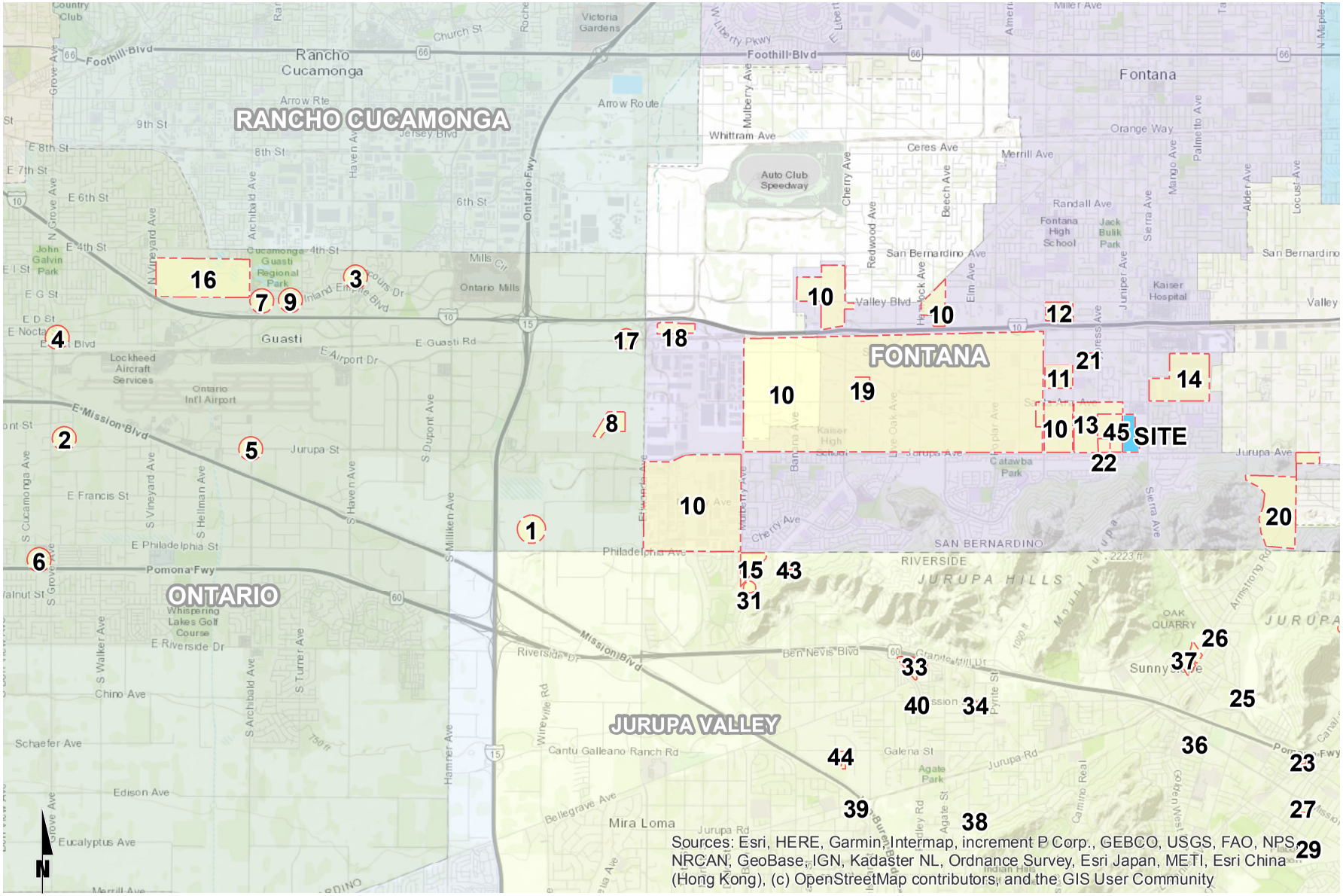


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Table 1

Project Trip Generation Summary (Actual Vehicles)

Project Trip Generation Rates									
Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage[3,4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.043	0.013	0.055	0.022	0.056	0.078	0.949
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%)			0.003	0.001	0.004	0.001	0.003	0.004	0.075
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%)			0.004	0.001	0.005	0.001	0.003	0.004	0.093
4-Axle+ Trucks (AM-19.25%; PM-13.56%; Daily-20.13%)			0.012	0.004	0.015	0.004	0.010	0.014	0.282

Project Trip Generation									
Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage (Building 1 & 2)	754.408	TSF							
Passenger Cars:			32	10	42	17	43	60	716
Truck Trips:									
2-axle:			2	1	3	1	2	3	58
3-axle:			3	1	4	1	2	3	70
4+-axle:			9	3	12	3	7	10	214
- Truck Trips (Actual Vehicles)			*14*	*5*	*19*	*5*	*11*	*16*	*342*
TOTAL TRIPS (Actual Vehicles)			***46***	***15***	***61***	***22***	***54***	***76***	***1,058***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle Mix Source: Institute of Transportation Engineers (ITE), High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016).

[4] Truck Mix Source: SCAQMD Warehouse Truck Trip Study Data Results and Usage (2014).
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks

Table 2

Project Trip Generation Summary (PCE)

Project Trip Generation Rates									
Land Use[1]	ITE LU Code	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage[3,4]	154	TSF	0.062	0.018	0.080	0.028	0.072	0.100	1.400
Passenger Cars (AM-69.2%; PM-78.3%; Daily-67.8%)			0.042	0.012	0.054	0.019	0.049	0.068	0.949
2-Axle Trucks (AM-5.14%; PM-3.62%; Daily-5.38%) (PCE = 2.0)[5]			0.006	0.002	0.008	0.004	0.008	0.012	0.152
3-Axle Trucks (AM-6.38%; PM-4.49%; Daily-6.67%) (PCE = 2.5)[5]			0.013	0.003	0.016	0.005	0.013	0.018	0.255
4-Axle+ Trucks (AM-19.25%; PM-13.56%; Daily-20.13%) (PCE = 3.0)[5]			0.036	0.012	0.048	0.015	0.042	0.057	0.816

Project Trip Generation									
Project	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
High-Cube Transload Short-Term Warehouse without Cold Storage (Building 1 & 2)	754.408	TSF							
Passenger Cars:			32	9	41	14	37	51	716
Truck Trips:									
2-axle:			5	2	7	3	6	9	116
3-axle:			10	2	12	4	10	14	192
4+-axle:			27	9	36	11	32	43	616
- Truck Trips (PCE)			*42*	*13*	*55*	*18*	*48*	*66*	*924*
TOTAL TRIPS (PCE)			***74***	***22***	***96***	***32***	***85***	***117***	***1,640***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle Mix Source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

[4] Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type for high-cube warehouse.
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks

[5] PCE rates are per City of Fontana's Traffic Impact Analysis Guidelines.

Table 3

Cumulative Development Land Use Summary

TAZ	Project	Land Use	Quantity [2]	
1	PDEV14-007	Industrial	910.119	TSF
2	PDEV14-010	Industrial	21.726	TSF
3	PCUP13-034	Hotel	122	RMS
4	PCUP13-028	Body Shop	0.79	AC
5	PDEV13-019	Industrial	569.200	TSF
6	PDEV13-014	Residential Condo	139	DU
7	PDEV13-012	Residential Condo	20	DU
8	PDEV13-007	General Industrial	618.536	TSF
9	PDEV13-008	Residential Condo	52	DU
10	Southwest Industrial Park (SWIP)[1]	Freeway Industrial Commercial (Central)		
		Warehousing	761.067	TSF
		Office	147.786	TSF
		Office Park	152.213	TSF
		Commercial Retail	456.640	TSF
		Freeway Industrial Commercial (East)		
		Warehousing	886.410	TSF
		Office	172.125	TSF
		Office Park	177.282	TSF
		Commercial Retail	531.846	TSF
		Freeway Industrial Commercial (North)		
		Warehousing	335.885	TSF
		Office	65.223	TSF
		Office Park	67.177	TSF
		Commercial Retail	201.531	TSF
		Freeway Industrial Commercial (West)		
		Warehousing	747.959	TSF
		Office	145.241	TSF
		Office Park	149.592	TSF
		Commercial Retail	448.776	TSF
		Jurupa North Research & Development (West)		
		Light Industrial	1344.901	TSF
		Office	478.407	TSF
		Office Park	847.485	TSF
		Research & Development	677.988	TSF
		Jurupa North Research & Development (Central)		
		Light Industrial	964.045	TSF
		Office	342.930	TSF
		Office Park	607.490	TSF
		Research & Development	485.992	TSF

Table 3

Cumulative Development Land Use Summary

TAZ	Project	Land Use	Quantity [2]	
10	Southwest Industrial Park (SWIP)[1]	Jurupa North Research & Development (East)		
		Light Industrial	917.459	TSF
		Office	326.358	TSF
		Office Park	578.134	TSF
		Research & Development	462.506	TSF
		Jurupa South Industrial		
		Light Industrial	70.985	TSF
		Warehousing	1799.899	TSF
		Slover Central Manufacturing/Industrial		
		Manufacturing	1113.002	TSF
		Warehousing	2597.004	TSF
		Slover East Industrial		
		Light Industrial	719.464	TSF
		Warehousing	1006.149	TSF
		Office Park	503.074	TSF
		Slover West Industrial		
		Light Industrial	1384.886	TSF
		Warehousing	3518.167	TSF
		Speedway Industrial		
		Light Industrial	930.121	TSF
		Warehousing	762.191	TSF
		Office Park	13.264	TSF
		SWIP Residential Trucking (1,3 and 4)		
		Single Family Detached Residential	84	DU
11	Citrus Center	Office	47.000	TSF
		Retail	44.500	TSF
		Fast Food w/ Drive-Thru	8.658	TSF
12	ASP 16-018	Retail w/ Gas Station	18.800	TSF
13	Southwest Fontana Logistics Center Project	Warehousing	1,628.936	TSF
		City Park	17.45	AC
14	Walmart Shopping Center	Free-Standing Discount Superstore	200.000	TSF
		Specialty Retail Center	9.490	TSF
		Fast Food w/o Drive-Thru	9.490	TSF
15	Country Village Shopping Center	Shopping Center	140.894	TSF
16	PM 19612	Industrial	30000.000	TSF
		Commercial Retail	1130.000	TSF
		Multi-Family	800	DU
		Hotel	600	RMS
17	PDEV16-001	Industrial	109.197	TSF
18	Pacific Freeway Center	High-Cube Warehouse / Distribution Center	477.500	TSF
		Manufacturing	44.500	TSF
19	First Redwood Logistics	High-Cube Warehouse / Distribution Center	360.000	TSF
		General Light Industrial	41.436	TSF
20	West Valley Logistics Center	High-Cube Warehouse / Distribution Center	3,183.100	TSF
		Warehousing	290.590	TSF

Table 3

Cumulative Development Land Use Summary

TAZ	Project	Land Use	Quantity [2]	
21	Gateway Logistics Center	High-Cube Warehouse (Cold Storage)	38.558	TSF
		Warehousing	154.232	TSF
22	St. Mary's Catholic Church	Church	19.508	TSF
23	Avalon Court (Tentative Tract 33649)	SFDR	24	DU
24	Emerald Ridge South	SFDR	97	DU
		Condo/Townhomes	118	DU
25	Highland Park	SFDR	398	DU
26	Tentative Tract Map 33373 (KR Land)	SFDR	97	DU
27	Palm Communities	Apartment	49	DU
28	New Rio Vista Specific Plan 243	SFDR	579	DU
		Condo/Townhomes	290	DU
		Apartment	346	DU
		Active Park	22.2	AC
		School (K-8)	600	STU
29	Flabob-River Springs Charter School	7th-12th Grade School	200	STU
30	Inland Empire Cold Storage	Cold Storage Facility	40.800	TSF
31	Country Village Shopping Center	Shopping Center	140.894	TSF
32	Market Street Commercial	High Turnover Sit-down Restaurant	4.750	TSF
		Fast Food w/ Drive-thru	2.860	TSF
		Gas station w/ foot mart and car wash	16	VFP
33	Pedley Crossing Shopping Center	Shopping Center	255.978	TSF
34	Mission Pyrite Plaza	Shopping Center	21.600	TSF
		High Turnover Sit-down Restaurant	3.000	TSF
		Gas/Service Station w/ Food and Car Wash	20	VFP
35	Rubidoux Commercial Development LLC	General Light Industrial	306.894	TSF
36	99-Cent Only Store	Free Standing Discount Store	18.012	TSF
37	Monarch at the Quarry (Armada Armstrong)	SFDR	86	DU
38	Stone Avenue (Tentative Tract 36702)	SFDR	17	DU
39	Karaki-Western States	Gas/Service Station w/ Food and Car Wash	7.246	TSF
40	Boureston Medical Clinic	Medical Clinic	40.000	TSF
41	Northtown Housing Development Group	Apartments	68	DU
		Commercial Retail	31.375	TSF
42	Agua Mansa Commerce Park Specific Plan	High-Cube Warehouse	4277.000	TSF
		General Light Industrial	150.000	TSF
		Commercial Retail	25.000	TSF
43	Philadelphia Subdivision (Tentative Tract 37214)	SFDR	44	DU
44	Galena Business Park Bldg.	General Light Industrial	47.500	TSF
45	Goodman Industrial Park Fontana III	Warehousing	894.768	TSF
		High-Cube Cold Storage Warehouse	223.692	TSF

[1] Source: Southwest Industrial Park (SWIP) Project TIA, RBF Consulting, September 29, 2011.

[2] TSF = Thousand Square Feet; RMS = Rooms; AC = Acres; DU = Dwelling Units

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APPENDIX 1.2:

SITE ADJACENT QUEUING ANALYSIS WORKSHEETS

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Intersection: 5: Juniper Av. & Driveway 5/Driveway 1

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	29	33	15
Average Queue (ft)	4	6	1
95th Queue (ft)	21	25	8
Link Distance (ft)	224	269	356
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Juniper Av. & Driveway 8/Driveway 2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	29	35	27
Average Queue (ft)	8	7	2	1
95th Queue (ft)	28	27	17	12
Link Distance (ft)	218	105	343	514
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Juniper Av. & Jurupa Av.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	LT	R	LT	R
Maximum Queue (ft)	104	138	102	116	31	129	151	193	36	39	70	52
Average Queue (ft)	46	53	36	34	7	57	65	91	6	10	30	23
95th Queue (ft)	88	115	84	86	25	107	120	154	24	34	62	47
Link Distance (ft)		1232	1232	1232		387	387	387	281	281	218	218
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150				245							
Storage Blk Time (%)		0										
Queuing Penalty (veh)		0										

Intersection: 8: Jurupa Av. & Driveway 3

Movement	SB
Directions Served	R
Maximum Queue (ft)	18
Average Queue (ft)	2
95th Queue (ft)	13
Link Distance (ft)	66
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Jurupa Av. & Driveway 4

Movement	SB
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	244
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 5: Juniper Av. & Driveway 5/Driveway 1

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	33	33	6
Average Queue (ft)	11	17	0
95th Queue (ft)	34	40	4
Link Distance (ft)	224	269	772
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Juniper Av. & Driveway 8/Driveway 2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	48	22	22
Average Queue (ft)	16	24	1	1
95th Queue (ft)	40	45	10	8
Link Distance (ft)	218	105	343	514
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Juniper Av. & Jurupa Av.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	LT	R	LT	R
Maximum Queue (ft)	230	1252	1254	1254	53	140	146	184	40	34	194	66
Average Queue (ft)	150	1030	882	670	17	56	58	85	11	5	71	33
95th Queue (ft)	315	1641	1576	1423	42	110	117	153	35	24	152	58
Link Distance (ft)		1232	1232	1232		387	387	387	281	281	218	218
Upstream Blk Time (%)		34	4	0							1	
Queuing Penalty (veh)		143	18	1							1	
Storage Bay Dist (ft)	150				245							
Storage Blk Time (%)	0	77										
Queuing Penalty (veh)	1	81										

Intersection: 7: Juniper Av. & Jurupa Av.

Movement	B20
Directions Served	T
Maximum Queue (ft)	15
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	343
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Jurupa Av. & Driveway 3

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	410	24
Average Queue (ft)	373	3
95th Queue (ft)	529	18
Link Distance (ft)	387	66
Upstream Blk Time (%)	44	
Queuing Penalty (veh)	183	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Jurupa Av. & Driveway 4

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	366	33
Average Queue (ft)	348	8
95th Queue (ft)	432	29
Link Distance (ft)	353	244
Upstream Blk Time (%)	62	
Queuing Penalty (veh)	257	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 685

Intersection: 5: Juniper Av. & Driveway 5/Driveway 1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	33	11	5
Average Queue (ft)	2	6	0	0
95th Queue (ft)	15	24	5	4
Link Distance (ft)	224	269	356	772
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Juniper Av. & Driveway 8/Driveway 2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	34	39	18
Average Queue (ft)	6	8	4	1
95th Queue (ft)	24	30	21	8
Link Distance (ft)	218	105	343	514
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Juniper Av. & Jurupa Av.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	114	143	120	140	47	137	153	189	21	44	93	65
Average Queue (ft)	57	57	45	50	11	64	76	105	1	15	36	30
95th Queue (ft)	103	117	95	110	34	115	132	170	11	41	73	56
Link Distance (ft)		1238	1238	1238		392	392	392	281	281	217	217
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150				245							
Storage Blk Time (%)	0	0										
Queuing Penalty (veh)	0	0										

Intersection: 8: Jurupa Av. & Driveway 3

Movement	SB
Directions Served	R
Maximum Queue (ft)	11
Average Queue (ft)	1
95th Queue (ft)	7
Link Distance (ft)	66
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Jurupa Av. & Driveway 4

Movement	SB
Directions Served	R
Maximum Queue (ft)	28
Average Queue (ft)	2
95th Queue (ft)	15
Link Distance (ft)	244
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 5: Juniper Av. & Driveway 5/Driveway 1

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	29	42	11
Average Queue (ft)	11	18	0
95th Queue (ft)	34	43	8
Link Distance (ft)	224	269	772
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Juniper Av. & Driveway 8/Driveway 2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	32	54	17	12
Average Queue (ft)	17	22	1	0
95th Queue (ft)	39	47	8	6
Link Distance (ft)	218	105	343	514
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Juniper Av. & Jurupa Av.

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	TR	L	T	T	TR	L	TR	L	TR
Maximum Queue (ft)	175	1260	1261	1247	60	137	153	177	44	53	176	106
Average Queue (ft)	130	1236	1066	808	19	61	71	96	7	15	68	40
95th Queue (ft)	243	1314	1480	1517	47	115	128	161	29	44	136	78
Link Distance (ft)		1234	1234	1234		389	389	389	280	280	211	211
Upstream Blk Time (%)		47	3	0							0	
Queuing Penalty (veh)		217	16	1							0	
Storage Bay Dist (ft)	150				245							
Storage Blk Time (%)	0	86										
Queuing Penalty (veh)	2	108										

Intersection: 8: Jurupa Av. & Driveway 3

Movement	EB	EB	SB
Directions Served	T	T	R
Maximum Queue (ft)	408	80	29
Average Queue (ft)	400	3	4
95th Queue (ft)	406	56	21
Link Distance (ft)	389	389	60
Upstream Blk Time (%)	47	0	
Queuing Penalty (veh)	217	1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Jurupa Av. & Driveway 4

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	367	29
Average Queue (ft)	359	7
95th Queue (ft)	365	27
Link Distance (ft)	353	244
Upstream Blk Time (%)	65	
Queuing Penalty (veh)	299	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 860

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APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – MARCH 2019

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 08_FON_Citrus_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	9	20	39	17	68	8	121	21	6	150	13	85	32	6	130	43	85	4	1	132	30	480	510
07:15 AM	7	34	23	11	64	16	132	38	13	186	18	92	15	4	125	45	96	6	0	147	28	522	550
07:30 AM	19	29	37	18	85	19	104	19	9	142	14	67	24	6	105	48	91	1	0	140	33	472	505
07:45 AM	19	24	39	9	82	18	127	14	8	159	13	46	27	7	86	25	85	2	1	112	25	439	464
Total	54	107	138	55	299	61	484	92	36	637	58	290	98	23	446	161	357	13	2	531	116	1913	2029
08:00 AM	2	19	13	5	34	29	98	12	8	139	14	40	29	16	83	33	76	6	3	115	32	371	403
08:15 AM	10	28	27	8	65	19	122	13	6	154	7	31	24	9	62	23	83	2	0	108	23	389	412
08:30 AM	17	39	23	3	79	16	58	14	2	88	4	40	23	11	67	38	86	3	0	127	16	361	377
08:45 AM	10	30	14	7	54	16	86	17	11	119	5	44	20	2	69	37	72	5	0	114	20	356	376
Total	39	116	77	23	232	80	364	56	27	500	30	155	96	38	281	131	317	16	3	464	91	1477	1568
Grand Total	93	223	215	78	531	141	848	148	63	1137	88	445	194	61	727	292	674	29	5	995	207	3390	3597
Apprch %	17.5	42	40.5			12.4	74.6	13			12.1	61.2	26.7			29.3	67.7	2.9					
Total %	2.7	6.6	6.3		15.7	4.2	25	4.4		33.5	2.6	13.1	5.7		21.4	8.6	19.9	0.9		29.4	5.8	94.2	
Passenger Vehicles	81	214	186		550	135	792	131		1116	87	442	187		774	271	633	28		937	0	0	3377
% Passenger Vehicles	87.1	96	86.5	88.5	90.3	95.7	93.4	88.5	92.1	93	98.9	99.3	96.4	95.1	98.2	92.8	93.9	96.6	100	93.7	0	0	93.9
Large 2 Axle Vehicles	5	9	14		34	5	31	5		41	1	3	7		14	10	32	1		43	0	0	132
% Large 2 Axle Vehicles	5.4	4	6.5	7.7	5.6	3.5	3.7	3.4	0	3.4	1.1	0.7	3.6	4.9	1.8	3.4	4.7	3.4	0	4.3	0	0	3.7
3 Axle Vehicles	0	0	5		6	1	10	1		12	0	0	0		0	1	5	0		6	0	0	24
% 3 Axle Vehicles	0	0	2.3	1.3	1	0.7	1.2	0.7	0	1	0	0	0	0	0	0.3	0.7	0	0	0.6	0	0	0.7
4+ Axle Trucks	7	0	10		19	0	15	11		31	0	0	0		0	10	4	0		14	0	0	64
% 4+ Axle Trucks	7.5	0	4.7	2.6	3.1	0	1.8	7.4	7.9	2.6	0	0	0	0	0	3.4	0.6	0	0	1.4	0	0	1.8

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	9	20	**39**	68	8	121	21	150	13	85	**32**	**130**	43	85	4	132	480
07:15 AM	7	**34**	23	64	16	**132**	**38**	**186**	**18**	**92**	15	125	45	**96**	**6**	**147**	**522**
07:30 AM	**19**	29	37	**85**	**19**	104	19	142	14	67	24	105	**48**	91	1	140	472
07:45 AM	19	24	39	82	18	127	14	159	13	46	27	86	25	85	2	112	439
Total Volume	54	107	138	299	61	484	92	637	58	290	98	446	161	357	13	531	1913
% App. Total	18.1	35.8	46.2		9.6	76	14.4		13	65	22		30.3	67.2	2.4		
PHF	.711	.787	.885	.879	.803	.917	.605	.856	.806	.788	.766	.858	.839	.930	.542	.903	.916

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Weather: Clear

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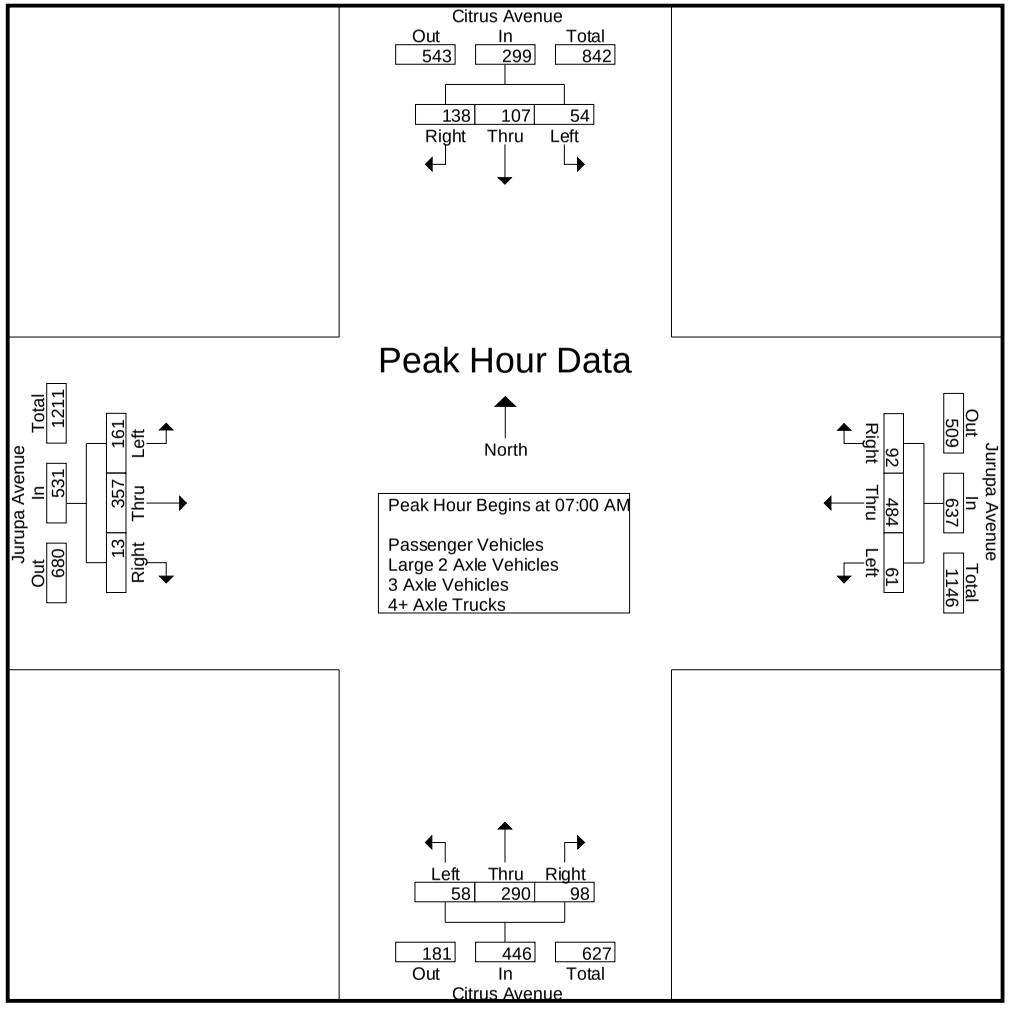
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
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Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	2	0	3	0	3	0	0	3	0	0	0	0	0	3	3	0	0	6	0	12	12
07:15 AM	0	1	2	0	3	0	3	0	0	3	1	0	0	0	1	0	9	0	0	9	0	16	16
07:30 AM	0	2	2	2	4	0	4	1	0	5	0	0	1	0	1	3	3	0	0	6	2	16	18
07:45 AM	1	3	1	1	5	0	3	0	0	3	0	1	0	0	1	0	4	0	0	4	1	13	14
Total	2	6	7	3	15	0	13	1	0	14	1	1	1	0	3	6	19	0	0	25	3	57	60
08:00 AM	0	0	1	1	1	0	7	1	0	8	0	1	0	0	1	3	4	0	0	7	1	17	18
08:15 AM	1	2	2	1	5	2	8	1	0	11	0	0	4	3	4	1	5	1	0	7	4	27	31
08:30 AM	1	0	3	0	4	2	0	2	0	4	0	0	2	0	2	0	4	0	0	4	0	14	14
08:45 AM	1	1	1	1	3	1	3	0	0	4	0	1	0	0	1	0	0	0	0	0	1	8	9
Total	3	3	7	3	13	5	18	4	0	27	0	2	6	3	8	4	13	1	0	18	6	66	72
Grand Total	5	9	14	6	28	5	31	5	0	41	1	3	7	3	11	10	32	1	0	43	9	123	132
Apprch %	17.9	32.1	50			12.2	75.6	12.2			9.1	27.3	63.6			23.3	74.4	2.3					
Total %	4.1	7.3	11.4		22.8	4.1	25.2	4.1		33.3	0.8	2.4	5.7		8.9	8.1	26	0.8		35	6.8	93.2	

3.1-3

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	0	**2**	3	0	3	0	3	0	0	0	0	**3**	3	0	6	12
07:15 AM	0	1	2	3	0	3	0	3	**1**	0	0	**1**	0	**9**	0	**9**	**16**
07:30 AM	0	2	2	4	0	**4**	**1**	**5**	0	0	**1**	1	3	3	0	6	16
07:45 AM	1	**3**	1	**5**	0	3	0	3	0	**1**	0	1	0	4	0	4	13
Total Volume	2	6	7	15	0	13	1	14	1	1	1	3	6	19	0	25	57
% App. Total	13.3	40	46.7		0	92.9	7.1		33.3	33.3	33.3		24	76	0		
PHF	.500	.500	.875	.750	.000	.813	.250	.700	.250	.250	.250	.750	.500	.528	.000	.694	.891

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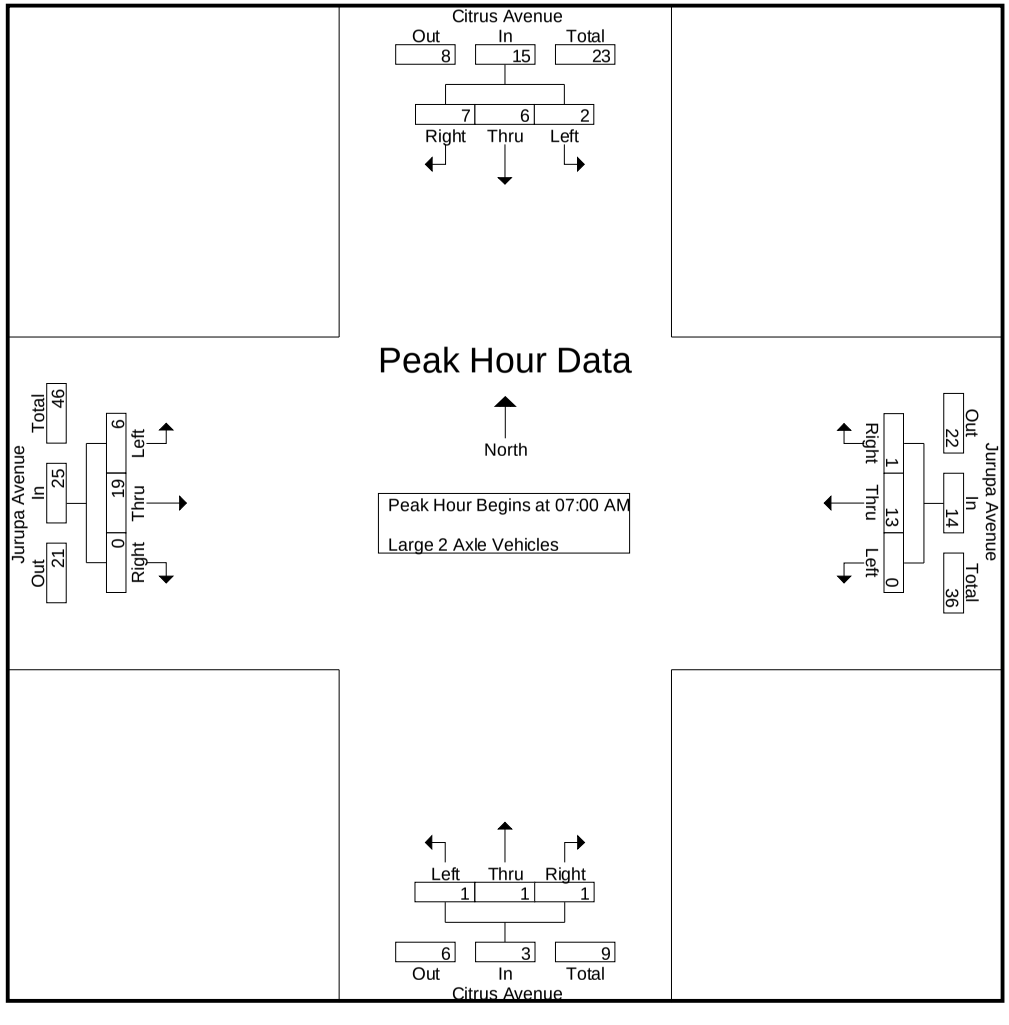

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Page No : 1

Groups Printed- 3 Axle Vehicles

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	3
07:15 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
07:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
07:45 AM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
Total	0	0	4	0	4	1	4	0	0	5	0	0	0	0	0	1	0	0	0	1	0	10	10
08:00 AM	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	3	4
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
08:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	6	6
Total	0	0	1	1	1	0	6	1	0	7	0	0	0	0	0	0	5	0	0	5	1	13	14
Grand Total	0	0	5	1	5	1	10	1	0	12	0	0	0	0	0	1	5	0	0	6	1	23	24
Apprch %	0	0	100			8.3	83.3	8.3			0	0	0			16.7	83.3	0					
Total %	0	0	21.7		21.7	4.3	43.5	4.3		52.2	0	0	0		0	4.3	21.7	0		26.1	4.2	95.8	

3.1-5

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	**2**	**2**	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**3**
07:15 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	**1**	1	0	**2**	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	1	1	0	**2**	0	2	0	0	0	0	0	0	0	0	3
Total Volume	0	0	4	4	1	4	0	5	0	0	0	0	1	0	0	1	10
% App. Total	0	0	100		20	80	0		0	0	0		100	0	0		
PHF	.000	.000	.500	.500	.250	.500	.000	.625	.000	.000	.000	.000	.250	.000	.000	.250	.833

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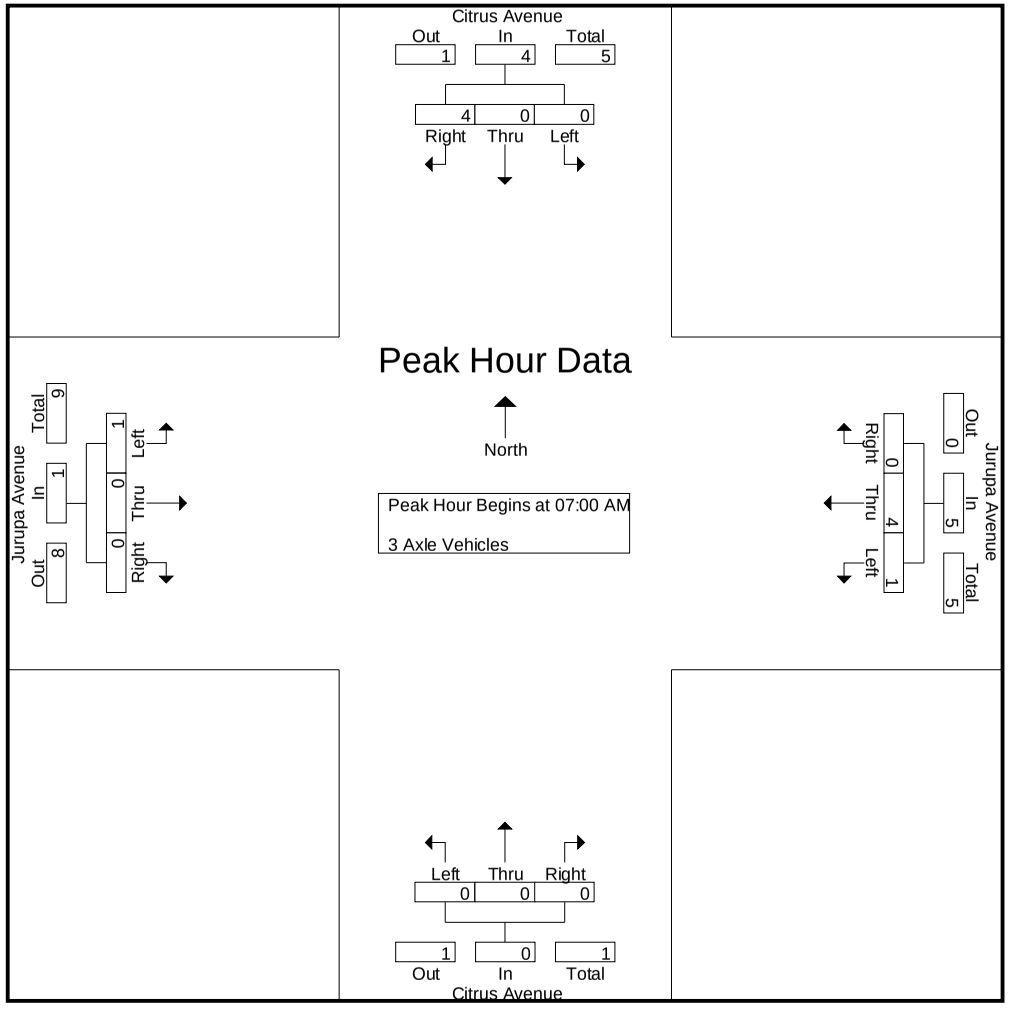

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Page No : 1

Groups Printed- 4+ Axle Trucks

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	2	1	2	0	1	1	0	2	0	0	0	0	0	1	1	0	0	2	1	6	7
07:15 AM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	2	1	0	0	3	0	8	8
07:30 AM	1	0	1	0	2	0	1	4	2	5	0	0	0	0	0	1	0	0	0	1	2	8	10
07:45 AM	1	0	1	0	2	0	1	1	1	2	0	0	0	0	0	2	1	0	0	3	1	7	8
Total	3	0	4	1	7	0	7	6	3	13	0	0	0	0	0	6	3	0	0	9	4	29	33
08:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	0	0	0	3	0	6	6
08:15 AM	0	0	3	1	3	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	1	5	6
08:30 AM	1	0	3	0	4	0	3	2	1	5	0	0	0	0	0	0	1	0	0	1	1	10	11
08:45 AM	3	0	0	0	3	0	1	2	1	3	0	0	0	0	0	1	0	0	0	1	1	7	8
Total	4	0	6	1	10	0	8	5	2	13	0	0	0	0	0	4	1	0	0	5	3	28	31
Grand Total	7	0	10	2	17	0	15	11	5	26	0	0	0	0	0	10	4	0	0	14	7	57	64
Apprch %	41.2	0	58.8			0	57.7	42.3			0	0	0			71.4	28.6	0					
Total %	12.3	0	17.5		29.8	0	26.3	19.3		45.6	0	0	0		0	17.5	7	0		24.6	10.9	89.1	

3.1-7

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	**2**	**2**	0	1	1	2	0	0	0	0	1	**1**	0	2	6
07:15 AM	**1**	0	0	1	0	**4**	0	4	0	0	0	0	**2**	1	0	**3**	**8**
07:30 AM	1	0	1	2	0	1	**4**	**5**	0	0	0	0	1	0	0	1	8
07:45 AM	1	0	1	2	0	1	1	2	0	0	0	0	2	1	0	3	7
Total Volume	3	0	4	7	0	7	6	13	0	0	0	0	6	3	0	9	29
% App. Total	42.9	0	57.1		0	53.8	46.2		0	0	0		66.7	33.3	0		
PHF	.750	.000	.500	.875	.000	.438	.375	.650	.000	.000	.000	.000	.750	.750	.000	.750	.906

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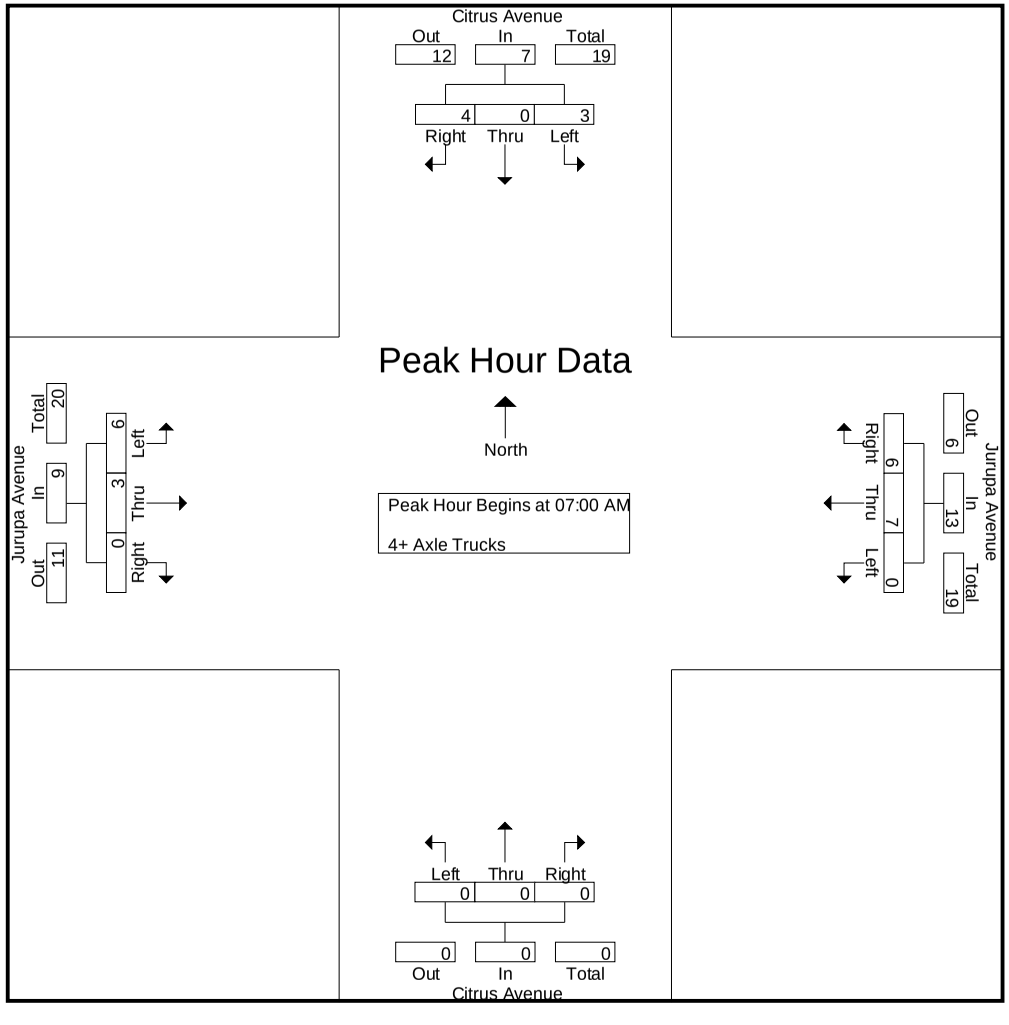
Page No : 2



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Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	22	33	14	4	69	41	91	19	14	151	8	27	21	8	56	73	195	9	0	277	26	553	579
04:15 PM	26	34	17	4	77	42	89	13	2	144	8	31	16	6	55	84	186	11	1	281	13	557	570
04:30 PM	16	32	19	13	67	24	87	21	12	132	6	34	13	7	53	75	179	19	0	273	32	525	557
04:45 PM	19	39	24	9	82	35	89	35	21	159	8	42	23	1	73	83	214	22	3	319	34	633	667
Total	83	138	74	30	295	142	356	88	49	586	30	134	73	22	237	315	774	61	4	1150	105	2268	2373
05:00 PM	19	53	22	3	94	27	93	16	14	136	3	31	18	5	52	76	189	10	3	275	25	557	582
05:15 PM	21	58	23	8	102	27	92	21	10	140	3	37	27	9	67	67	190	12	4	269	31	578	609
05:30 PM	14	47	21	8	82	38	90	36	23	164	3	37	12	6	52	85	168	7	4	260	41	558	599
05:45 PM	12	42	20	6	74	31	98	25	12	154	5	36	19	9	60	63	146	10	2	219	29	507	536
Total	66	200	86	25	352	123	373	98	59	594	14	141	76	29	231	291	693	39	13	1023	126	2200	2326
Grand Total	149	338	160	55	647	265	729	186	108	1180	44	275	149	51	468	606	1467	100	17	2173	231	4468	4699
Apprch %	23	52.2	24.7			22.5	61.8	15.8			9.4	58.8	31.8			27.9	67.5	4.6					
Total %	3.3	7.6	3.6		14.5	5.9	16.3	4.2		26.4	1	6.2	3.3		10.5	13.6	32.8	2.2		48.6	4.9	95.1	
Passenger Vehicles	143	333	147		676	262	692	176		1234	42	271	147		511	580	1395	98		2090	0	0	4511
% Passenger Vehicles	96	98.5	91.9	96.4	96.3	98.9	94.9	94.6	96.3	95.8	95.5	98.5	98.7	100	98.5	95.7	95.1	98	100	95.4	0	0	96
Large 2 Axle Vehicles	3	5	5		15	3	23	5		33	2	4	2		8	11	34	2		47	0	0	103
% Large 2 Axle Vehicles	2	1.5	3.1	3.6	2.1	1.1	3.2	2.7	1.9	2.6	4.5	1.5	1.3	0	1.5	1.8	2.3	2	0	2.1	0	0	2.2
3 Axle Vehicles	3	0	4		7	0	5	2		8	0	0	0		0	2	6	0		8	0	0	23
% 3 Axle Vehicles	2	0	2.5	0	1	0	0.7	1.1	0.9	0.6	0	0	0	0	0	0.3	0.4	0	0	0.4	0	0	0.5
4+ Axle Trucks	0	0	4		4	0	9	3		13	0	0	0		0	13	32	0		45	0	0	62
% 4+ Axle Trucks	0	0	2.5	0	0.6	0	1.2	1.6	0.9	1	0	0	0	0	0	2.1	2.2	0	0	2.1	0	0	1.3

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	19	39	**24**	82	35	89	35	159	**8**	**42**	23	**73**	83	**214**	**22**	**319**	**633**
05:00 PM	19	53	22	94	27	**93**	16	136	3	31	18	52	76	189	10	275	557
05:15 PM	**21**	**58**	23	**102**	27	92	21	140	3	37	**27**	67	67	190	12	269	578
05:30 PM	14	47	21	82	**38**	90	**36**	**164**	3	37	12	52	**85**	168	7	260	558
Total Volume	73	197	90	360	127	364	108	599	17	147	80	244	311	761	51	1123	2326
% App. Total	20.3	54.7	25		21.2	60.8	18		7	60.2	32.8		27.7	67.8	4.5		
PHF	.869	.849	.938	.882	.836	.978	.750	.913	.531	.875	.741	.836	.915	.889	.580	.880	.919

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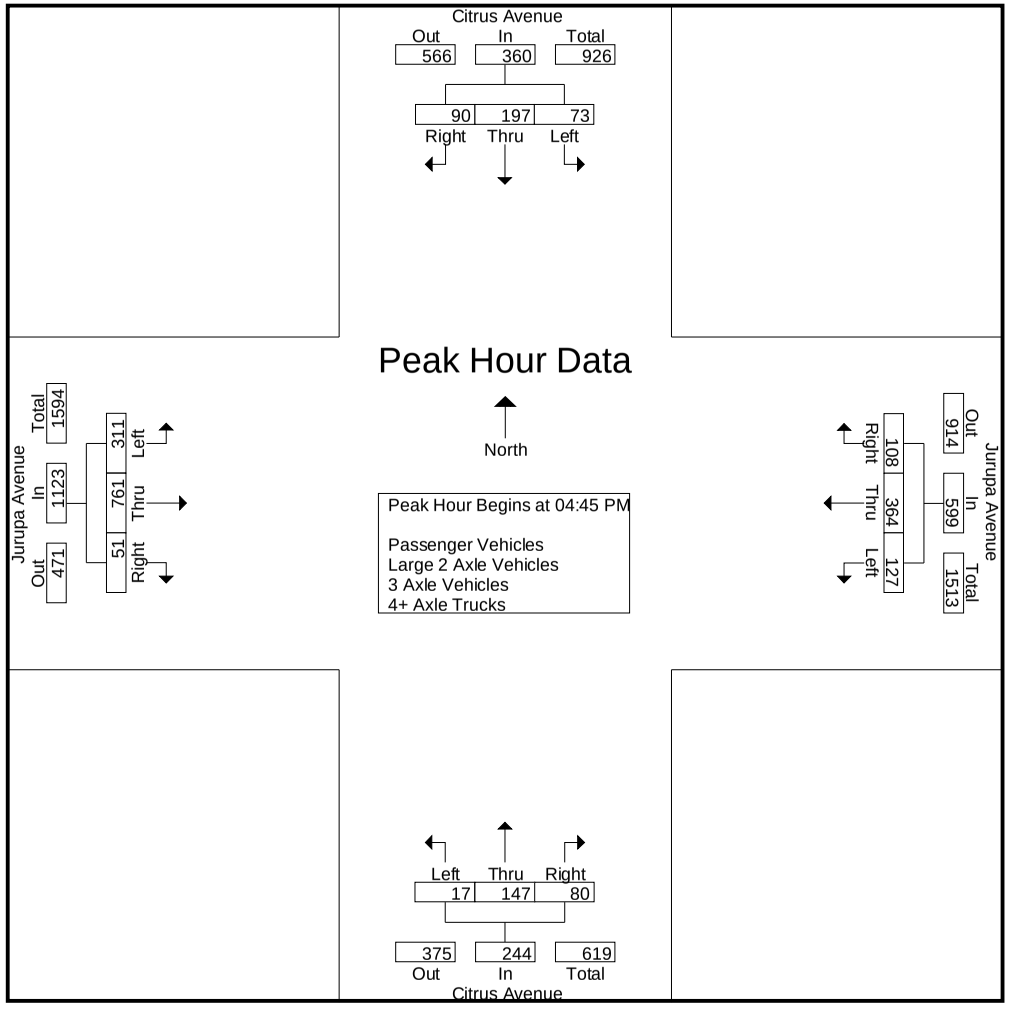

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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	1	1	0	2	1	1	3	1	1	0	0	2	1	3	0	0	4	2	10	12
04:15 PM	1	0	2	0	3	1	3	0	0	4	0	1	0	0	1	2	8	0	0	10	0	18	18
04:30 PM	1	0	0	0	1	0	4	3	1	7	0	1	0	0	1	4	3	2	0	9	1	18	19
04:45 PM	1	2	1	0	4	1	3	0	0	4	0	0	0	0	0	1	4	0	0	5	0	13	13
Total	3	2	4	1	9	2	12	4	2	18	1	3	0	0	4	8	18	2	0	28	3	59	62
05:00 PM	0	1	0	0	1	1	5	1	0	7	1	0	0	0	1	1	1	0	0	2	0	11	11
05:15 PM	0	1	0	0	1	0	2	0	0	2	0	0	2	0	2	0	10	0	0	10	0	15	15
05:30 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	1	3	0	0	4	0	8	8
05:45 PM	0	0	1	1	1	0	1	0	0	1	0	1	0	0	1	1	2	0	0	3	1	6	7
Total	0	3	1	1	4	1	11	1	0	13	1	1	2	0	4	3	16	0	0	19	1	40	41
Grand Total	3	5	5	2	13	3	23	5	2	31	2	4	2	0	8	11	34	2	0	47	4	99	103
Apprch %	23.1	38.5	38.5			9.7	74.2	16.1			25	50	25			23.4	72.3	4.3					
Total %	3	5.1	5.1		13.1	3	23.2	5.1		31.3	2	4	2		8.1	11.1	34.3	2		47.5	3.9	96.1	

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	**2**	**1**	**4**	**1**	3	0	4	0	0	0	0	**1**	4	0	5	13
05:00 PM	0	1	0	1	1	**5**	**1**	**7**	**1**	0	0	1	1	1	0	2	11
05:15 PM	0	1	0	1	0	2	0	2	0	0	**2**	**2**	0	**10**	0	**10**	**15**
05:30 PM	0	1	0	1	0	3	0	3	0	0	0	0	1	3	0	4	8
Total Volume	1	5	1	7	2	13	1	16	1	0	2	3	3	18	0	21	47
% App. Total	14.3	71.4	14.3		12.5	81.2	6.2		33.3	0	66.7		14.3	85.7	0		
PHF	.250	.625	.250	.438	.500	.650	.250	.571	.250	.000	.250	.375	.750	.450	.000	.525	.783

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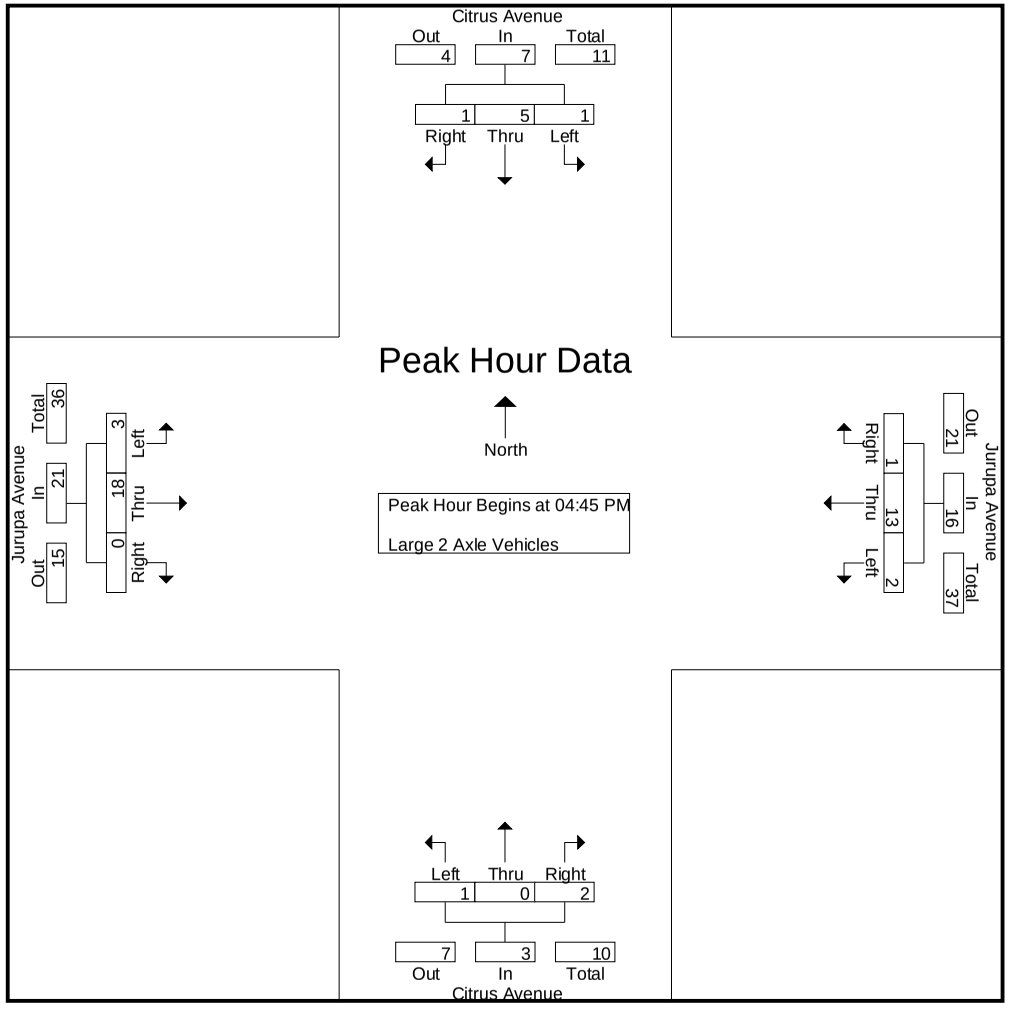
City of Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 08_FON_Citrus_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 08_FON_Citrus_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	0	1	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	3
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	4	4
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2
04:45 PM	0	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	2	3
Total	2	0	2	0	4	0	2	2	1	4	0	0	0	0	0	1	2	0	0	3	1	11	12
05:00 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	3	0	0	4	0	6	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	3	3
Total	1	0	2	0	3	0	3	0	0	3	0	0	0	0	0	1	4	0	0	5	0	11	11
Grand Total	3	0	4	0	7	0	5	2	1	7	0	0	0	0	0	2	6	0	0	8	1	22	23
Apprch %	42.9	0	57.1			0	71.4	28.6			0	0	0			25	75	0					
Total %	13.6	0	18.2		31.8	0	22.7	9.1		31.8	0	0	0		0	9.1	27.3	0		36.4	4.3	95.7	

3.1-13

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	1	1	0	0	**1**	1	0	0	0	0	0	0	0	0	2
05:00 PM	0	0	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**1**	**3**	0	**4**	**6**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	3	3	0	2	1	3	0	0	0	0	1	3	0	4	10
% App. Total	0	0	100		0	66.7	33.3		0	0	0		25	75	0		
PHF	.000	.000	.375	.375	.000	.250	.250	.375	.000	.000	.000	.000	.250	.250	.000	.250	.417

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File Name : 08_FON_Citrus_Jurupa PM
Site Code : 05119181
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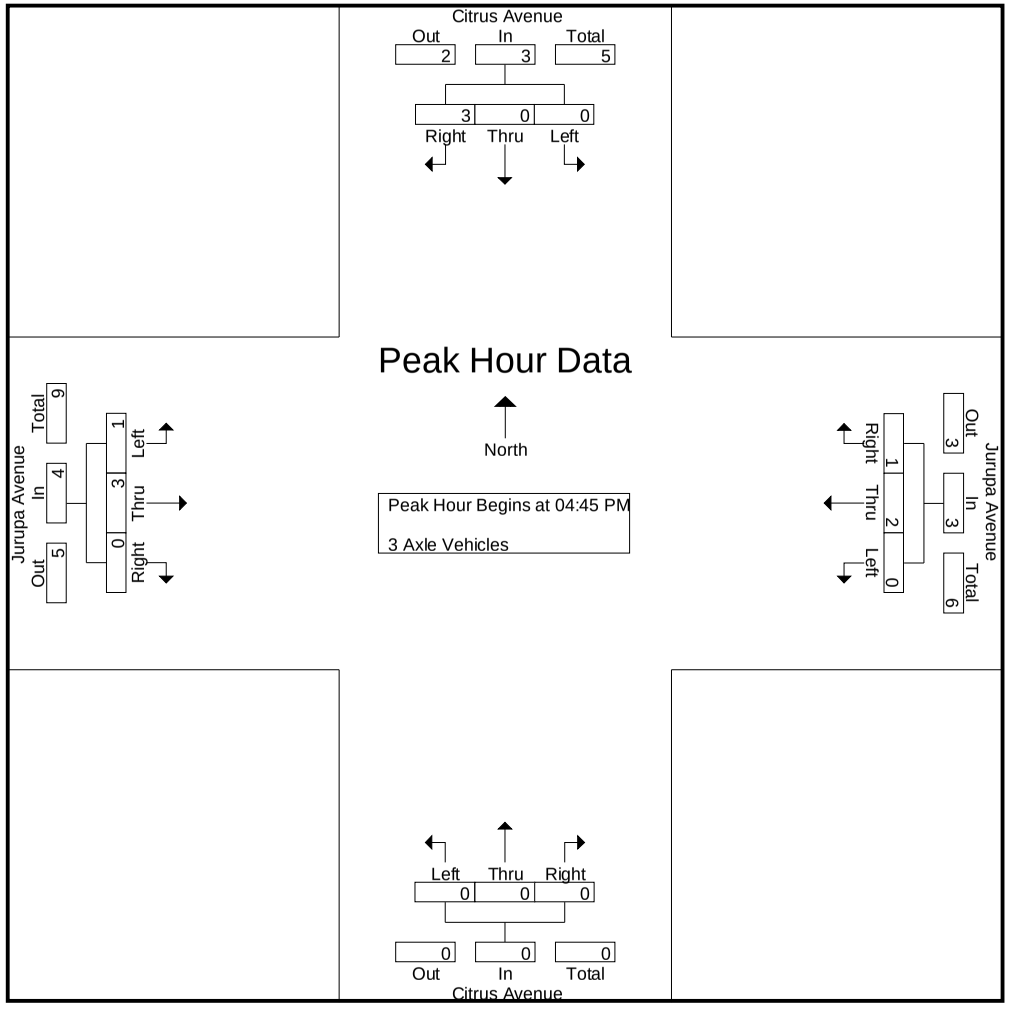
Page No : 2



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City of Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 08_FON_Citrus_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Citrus Avenue Southbound					Jurupa Avenue Westbound					Citrus Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	3	5	0	0	8	0	10	10
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	3	3
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	7	0	0	8	0	9	9
Total	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	5	16	0	0	21	0	25	25
05:00 PM	0	0	2	0	2	0	2	1	0	3	0	0	0	0	0	1	5	0	0	6	0	11	11
05:15 PM	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	2	5	0	0	7	1	9	10
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	2	0	0	4	0	5	5
05:45 PM	0	0	1	0	1	0	2	1	0	3	0	0	0	0	0	3	4	0	0	7	0	11	11
Total	0	0	3	0	3	0	6	3	1	9	0	0	0	0	0	8	16	0	0	24	1	36	37
Grand Total	0	0	4	0	4	0	9	3	1	12	0	0	0	0	0	13	32	0	0	45	1	61	62
Apprch %	0	0	100			0	75	25			0	0	0			28.9	71.1	0					
Total %	0	0	6.6		6.6	0	14.8	4.9		19.7	0	0	0		0	21.3	52.5	0		73.8	1.6	98.4	

3.1-15

	Citrus Avenue Southbound				Jurupa Avenue Westbound				Citrus Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	**7**	0	**8**	9
05:00 PM	0	0	**2**	**2**	0	**2**	**1**	**3**	0	0	0	0	1	5	0	6	**11**
05:15 PM	0	0	0	0	0	1	1	2	0	0	0	0	**2**	5	0	7	9
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	2	2	0	4	5
Total Volume	0	0	2	2	0	5	2	7	0	0	0	0	6	19	0	25	34
% App. Total	0	0	100		0	71.4	28.6		0	0	0		24	76	0		
PHF	.000	.000	.250	.250	.000	.625	.500	.583	.000	.000	.000	.000	.750	.679	.000	.781	.773

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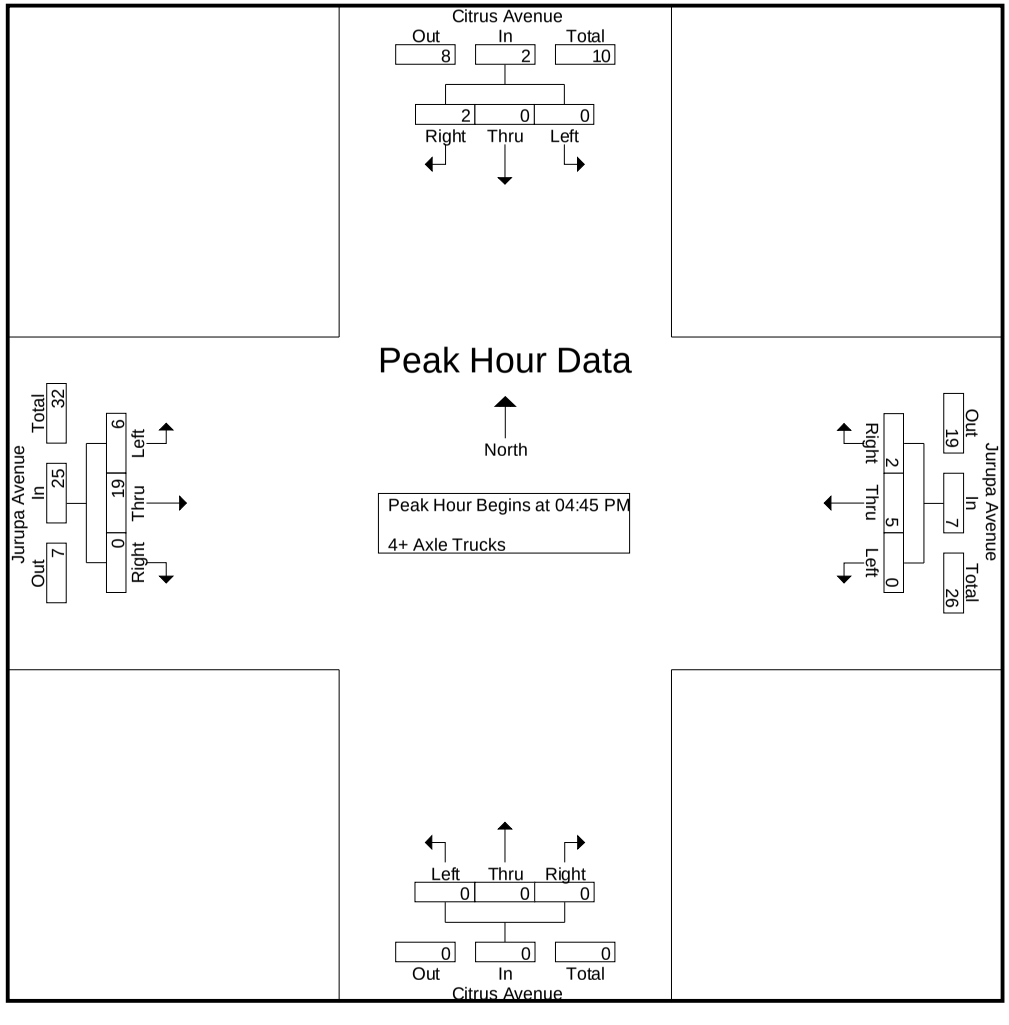
City of Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 08_FON_Citrus_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Location: Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Citrus Avenue	East Leg Jurupa Avenue	South Leg Citrus Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	2	1	0	0	3
7:15 AM	0	0	0	0	0
7:30 AM	0	0	2	0	2
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	2	1	3	0	6

	North Leg Citrus Avenue	East Leg Jurupa Avenue	South Leg Citrus Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1
4:45 PM	0	1	1	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	2	0	2
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	2	3	0	5

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Location: Fontana
N/S: Citrus Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Citrus Avenue			Westbound Jurupa Avenue			Northbound Citrus Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	0	1

	Southbound Citrus Avenue			Westbound Jurupa Avenue			Northbound Citrus Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	6	6	168	5	173	0	124	124	303
07:15 AM	0	0	0	168	8	176	0	125	125	301
07:30 AM	0	7	7	165	6	171	0	143	143	321
07:45 AM	0	0	0	148	2	150	0	131	131	281
Total	0	13	13	649	21	670	0	523	523	1206
08:00 AM	0	6	6	134	5	139	0	108	108	253
08:15 AM	0	5	5	145	3	148	0	121	121	274
08:30 AM	0	4	4	96	4	100	0	120	120	224
08:45 AM	0	5	5	92	3	95	0	103	103	203
Total	0	20	20	467	15	482	0	452	452	954
Grand Total	0	33	33	1116	36	1152	0	975	975	2160
Apprch %	0	100		96.9	3.1		0	100		
Total %	0	1.5	1.5	51.7	1.7	53.3	0	45.1	45.1	
Passenger Vehicles	0	5	5	1074	24	1098	0	930	930	2033
% Passenger Vehicles	0	15.2	15.2	96.2	66.7	95.3	0	95.4	95.4	94.1
Large 2 Axle Vehicles	0	6	6	28	3	31	0	34	34	71
% Large 2 Axle Vehicles	0	18.2	18.2	2.5	8.3	2.7	0	3.5	3.5	3.3
3 Axle Vehicles	0	3	3	8	1	9	0	5	5	17
% 3 Axle Vehicles	0	9.1	9.1	0.7	2.8	0.8	0	0.5	0.5	0.8
4+ Axle Trucks	0	19	19	6	8	14	0	6	6	39
% 4+ Axle Trucks	0	57.6	57.6	0.5	22.2	1.2	0	0.6	0.6	1.8

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	6	6	**168**	5	173	0	124	124	303
07:15 AM	0	0	0	168	**8**	**176**	0	125	125	301
07:30 AM	0	**7**	**7**	165	6	171	0	**143**	**143**	**321**
07:45 AM	0	0	0	148	2	150	0	131	131	281
Total Volume	0	13	13	649	21	670	0	523	523	1206
% App. Total	0	100		96.9	3.1		0	100		
PHF	.000	.464	.464	.966	.656	.952	.000	.914	.914	.939

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City of Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa AM
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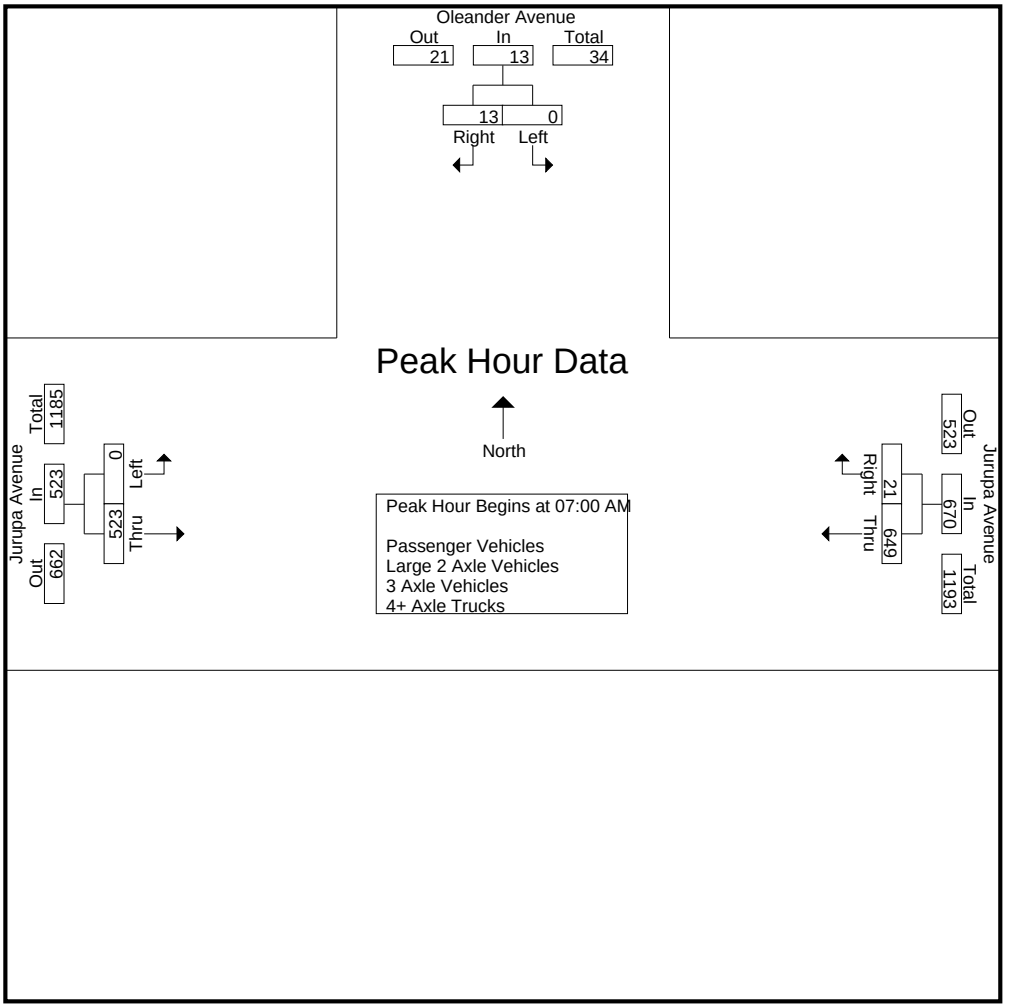
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	**6**	**6**	**168**	5	173	0	124	124
+15 mins.	0	5	5	168	**8**	**176**	0	125	125
+30 mins.	0	4	4	165	6	171	0	**143**	**143**
+45 mins.	0	5	5	148	2	150	0	131	131
Total Volume	0	20	20	649	21	670	0	523	523
% App. Total	0	100		96.9	3.1		0	100	
PHF	.000	.833	.833	.966	.656	.952	.000	.914	.914

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City of Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	1	1	3	0	3	0	4	4	8
07:15 AM	0	0	0	3	2	5	0	8	8	13
07:30 AM	0	0	0	4	0	4	0	2	2	6
07:45 AM	0	0	0	3	0	3	0	4	4	7
Total	0	1	1	13	2	15	0	18	18	34
08:00 AM	0	1	1	4	1	5	0	2	2	8
08:15 AM	0	2	2	4	0	4	0	7	7	13
08:30 AM	0	0	0	4	0	4	0	7	7	11
08:45 AM	0	2	2	3	0	3	0	0	0	5
Total	0	5	5	15	1	16	0	16	16	37
Grand Total	0	6	6	28	3	31	0	34	34	71
Apprch %	0	100		90.3	9.7		0	100		
Total %	0	8.5	8.5	39.4	4.2	43.7	0	47.9	47.9	

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	**1**	**1**	3	0	3	0	4	4	8
07:15 AM	0	0	0	3	**2**	**5**	0	**8**	**8**	**13**
07:30 AM	0	0	0	**4**	0	4	0	2	2	6
07:45 AM	0	0	0	3	0	3	0	4	4	7
Total Volume	0	1	1	13	2	15	0	18	18	34
% App. Total	0	100		86.7	13.3		0	100		
PHF	.000	.250	.250	.813	.250	.750	.000	.563	.563	.654

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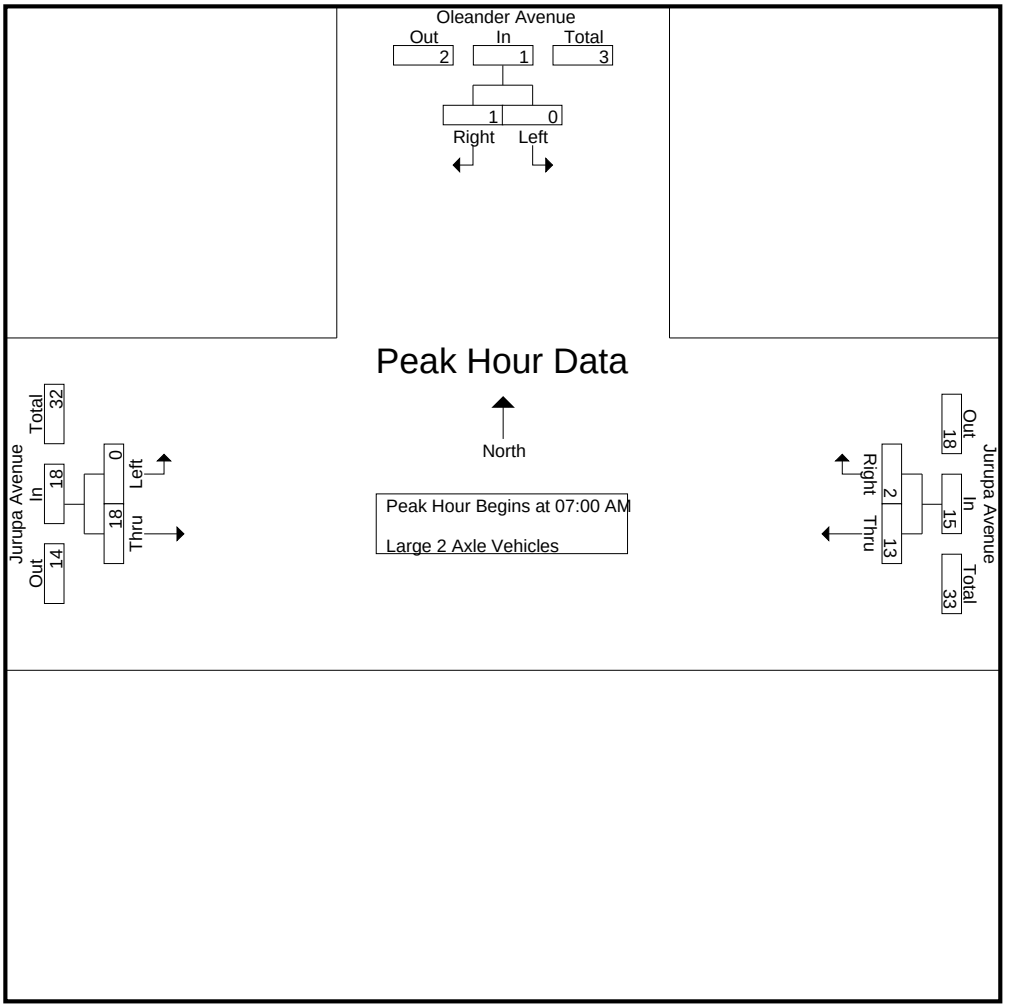
City of Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	**1**	**1**	3	0	3	0	4	4
+15 mins.	0	0	0	3	**2**	**5**	0	**8**	**8**
+30 mins.	0	0	0	**4**	0	4	0	2	2
+45 mins.	0	0	0	3	0	3	0	4	4
Total Volume	0	1	1	13	2	15	0	18	18
% App. Total	0	100		86.7	13.3		0	100	
PHF	.000	.250	.250	.813	.250	.750	.000	.563	.563

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File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	0	1	0	0	0	1
07:30 AM	0	2	2	0	0	0	0	1	1	3
07:45 AM	0	0	0	2	0	2	0	0	0	2
Total	0	2	2	3	0	3	0	1	1	6
08:00 AM	0	1	1	0	1	1	0	1	1	3
08:15 AM	0	0	0	2	0	2	0	0	0	2
08:30 AM	0	0	0	2	0	2	0	0	0	2
08:45 AM	0	0	0	1	0	1	0	3	3	4
Total	0	1	1	5	1	6	0	4	4	11
Grand Total	0	3	3	8	1	9	0	5	5	17
Apprch %	0	100		88.9	11.1		0	100		
Total %	0	17.6	17.6	47.1	5.9	52.9	0	29.4	29.4	

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	0	1	0	0	0	1
07:30 AM	0	**2**	**2**	0	0	0	0	**1**	**1**	**3**
07:45 AM	0	0	0	**2**	0	**2**	0	0	0	2
Total Volume	0	2	2	3	0	3	0	1	1	6
% App. Total	0	100		100	0		0	100		
PHF	.000	.250	.250	.375	.000	.375	.000	.250	.250	.500

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N/S: Oleander Avenue
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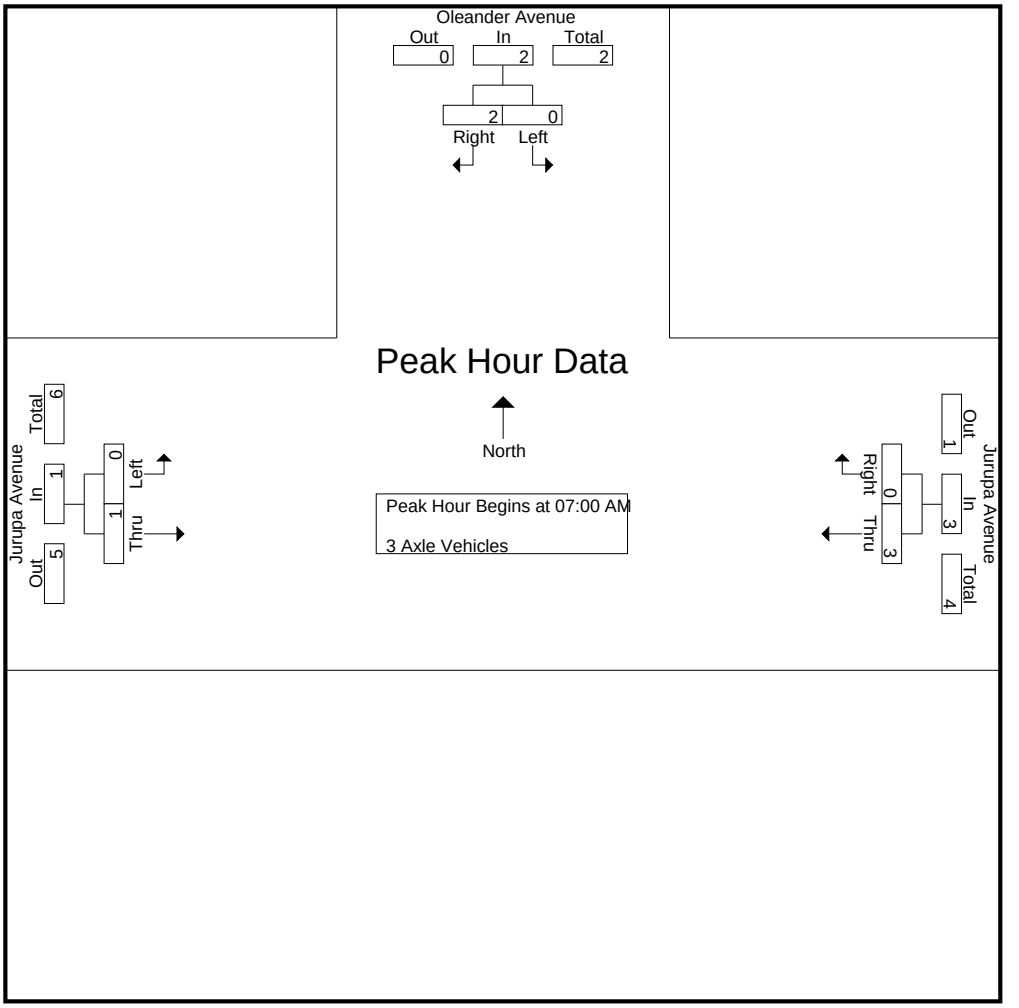
Weather: Clear

File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	1	0	1	0	0	0
+30 mins.	0	**2**	**2**	0	0	0	0	**1**	**1**
+45 mins.	0	0	0	**2**	0	**2**	0	0	0
Total Volume	0	2	2	3	0	3	0	1	1
% App. Total	0	100		100	0		0	100	
PHF	.000	.250	.250	.375	.000	.375	.000	.250	.250

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Weather: Clear

File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	0	4	4	1	0	1	0	0	0	5
07:15 AM	0	0	0	1	4	5	0	2	2	7
07:30 AM	0	5	5	0	3	3	0	2	2	10
07:45 AM	0	0	0	1	0	1	0	0	0	1
Total	0	9	9	3	7	10	0	4	4	23
08:00 AM	0	2	2	1	1	2	0	0	0	4
08:15 AM	0	2	2	1	0	1	0	0	0	3
08:30 AM	0	4	4	0	0	0	0	2	2	6
08:45 AM	0	2	2	1	0	1	0	0	0	3
Total	0	10	10	3	1	4	0	2	2	16
Grand Total	0	19	19	6	8	14	0	6	6	39
Apprch %	0	100		42.9	57.1		0	100		
Total %	0	48.7	48.7	15.4	20.5	35.9	0	15.4	15.4	

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	4	4	**1**	0	1	0	0	0	5
07:15 AM	0	0	0	1	**4**	**5**	0	**2**	**2**	7
07:30 AM	0	**5**	**5**	0	3	3	0	2	2	**10**
07:45 AM	0	0	0	1	0	1	0	0	0	1
Total Volume	0	9	9	3	7	10	0	4	4	23
% App. Total	0	100		30	70		0	100		
PHF	.000	.450	.450	.750	.438	.500	.000	.500	.500	.575

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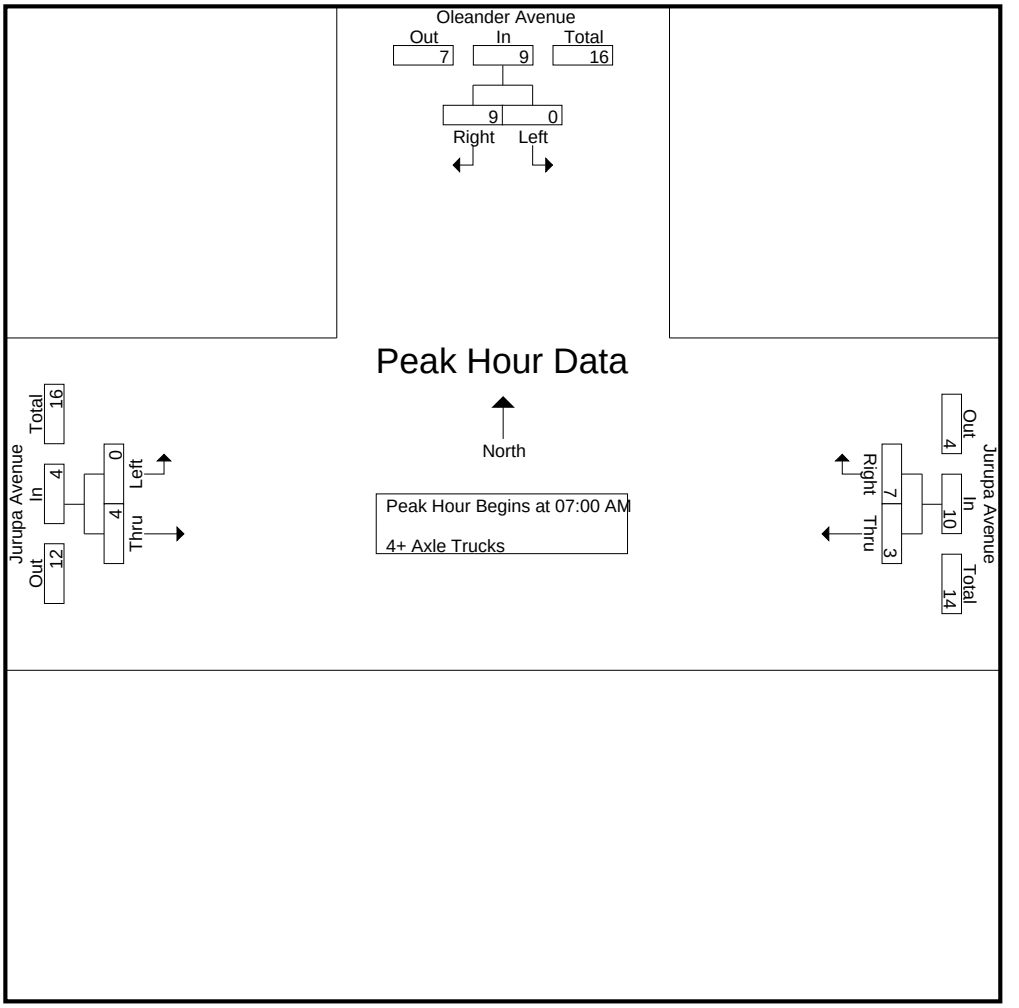
File Name : 09_FON_Oleander_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	4	4	**1**	0	1	0	0	0
+15 mins.	0	0	0	1	**4**	**5**	0	**2**	**2**
+30 mins.	0	**5**	**5**	0	3	3	0	2	2
+45 mins.	0	0	0	1	0	1	0	0	0
Total Volume	0	9	9	3	7	10	0	4	4
% App. Total	0	100		30	70		0	100	
PHF	.000	.450	.450	.750	.438	.500	.000	.500	.500

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Weather: Clear

File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	11	11	155	4	159	0	254	254	424
04:15 PM	0	4	4	146	3	149	0	227	227	380
04:30 PM	0	9	9	140	4	144	0	222	222	375
04:45 PM	0	2	2	164	1	165	0	276	276	443
Total	0	26	26	605	12	617	0	979	979	1622
05:00 PM	0	6	6	142	1	143	0	246	246	395
05:15 PM	0	2	2	151	2	153	0	246	246	401
05:30 PM	0	5	5	168	1	169	0	199	199	373
05:45 PM	0	2	2	144	1	145	0	175	175	322
Total	0	15	15	605	5	610	0	866	866	1491
Grand Total	0	41	41	1210	17	1227	0	1845	1845	3113
Apprch %	0	100		98.6	1.4		0	100		
Total %	0	1.3	1.3	38.9	0.5	39.4	0	59.3	59.3	
Passenger Vehicles	0	31	31	1178	4	1182	0	1782	1782	2995
% Passenger Vehicles	0	75.6	75.6	97.4	23.5	96.3	0	96.6	96.6	96.2
Large 2 Axle Vehicles	0	7	7	15	4	19	0	28	28	54
% Large 2 Axle Vehicles	0	17.1	17.1	1.2	23.5	1.5	0	1.5	1.5	1.7
3 Axle Vehicles	0	1	1	6	0	6	0	6	6	13
% 3 Axle Vehicles	0	2.4	2.4	0.5	0	0.5	0	0.3	0.3	0.4
4+ Axle Trucks	0	2	2	11	9	20	0	29	29	51
% 4+ Axle Trucks	0	4.9	4.9	0.9	52.9	1.6	0	1.6	1.6	1.6

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	**11**	**11**	155	**4**	159	0	254	254	424
04:15 PM	0	4	4	146	3	149	0	227	227	380
04:30 PM	0	9	9	140	4	144	0	222	222	375
04:45 PM	0	2	2	**164**	1	**165**	0	**276**	**276**	**443**
Total Volume	0	26	26	605	12	617	0	979	979	1622
% App. Total	0	100		98.1	1.9		0	100		
PHF	.000	.591	.591	.922	.750	.935	.000	.887	.887	.915

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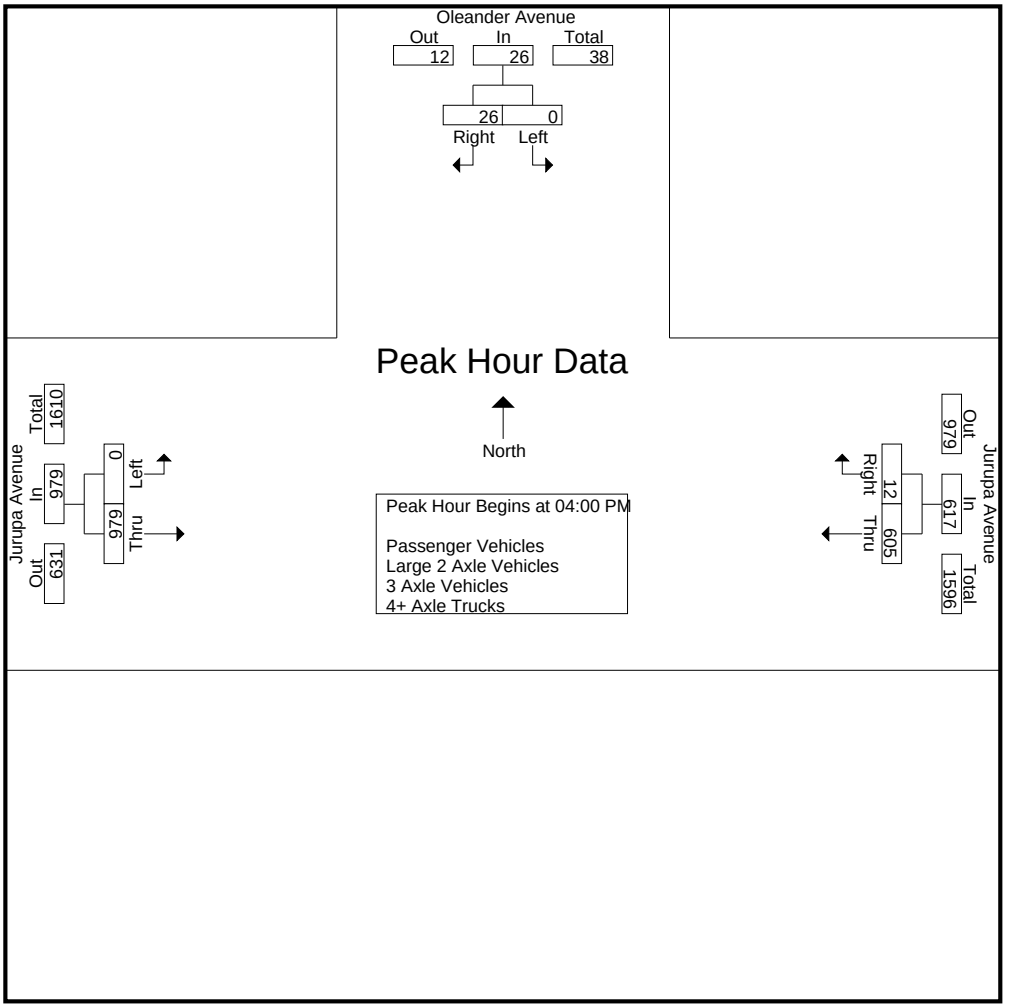
File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:45 PM			04:30 PM		
+0 mins.	0	**11**	**11**	164	1	165	0	222	222
+15 mins.	0	4	4	142	1	143	0	**276**	**276**
+30 mins.	0	9	9	151	**2**	153	0	246	246
+45 mins.	0	2	2	**168**	1	**169**	0	246	246
Total Volume	0	26	26	625	5	630	0	990	990
% App. Total	0	100		99.2	0.8		0	100	
PHF	.000	.591	.591	.930	.625	.932	.000	.897	.897

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Weather: Clear

File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	2	0	2	0	3	3	5
04:15 PM	0	2	2	1	1	2	0	6	6	10
04:30 PM	0	2	2	2	2	4	0	5	5	11
04:45 PM	0	0	0	2	0	2	0	3	3	5
Total	0	4	4	7	3	10	0	17	17	31
05:00 PM	0	1	1	4	0	4	0	1	1	6
05:15 PM	0	0	0	2	1	3	0	6	6	9
05:30 PM	0	1	1	2	0	2	0	2	2	5
05:45 PM	0	1	1	0	0	0	0	2	2	3
Total	0	3	3	8	1	9	0	11	11	23
Grand Total	0	7	7	15	4	19	0	28	28	54
Apprch %	0	100		78.9	21.1		0	100		
Total %	0	13	13	27.8	7.4	35.2	0	51.9	51.9	

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	**2**	0	2	0	3	3	5
04:15 PM	0	**2**	**2**	1	1	2	0	**6**	**6**	10
04:30 PM	0	2	2	2	**2**	**4**	0	5	5	**11**
04:45 PM	0	0	0	2	0	2	0	3	3	5
Total Volume	0	4	4	7	3	10	0	17	17	31
% App. Total	0	100		70	30		0	100		
PHF	.000	.500	.500	.875	.375	.625	.000	.708	.708	.705

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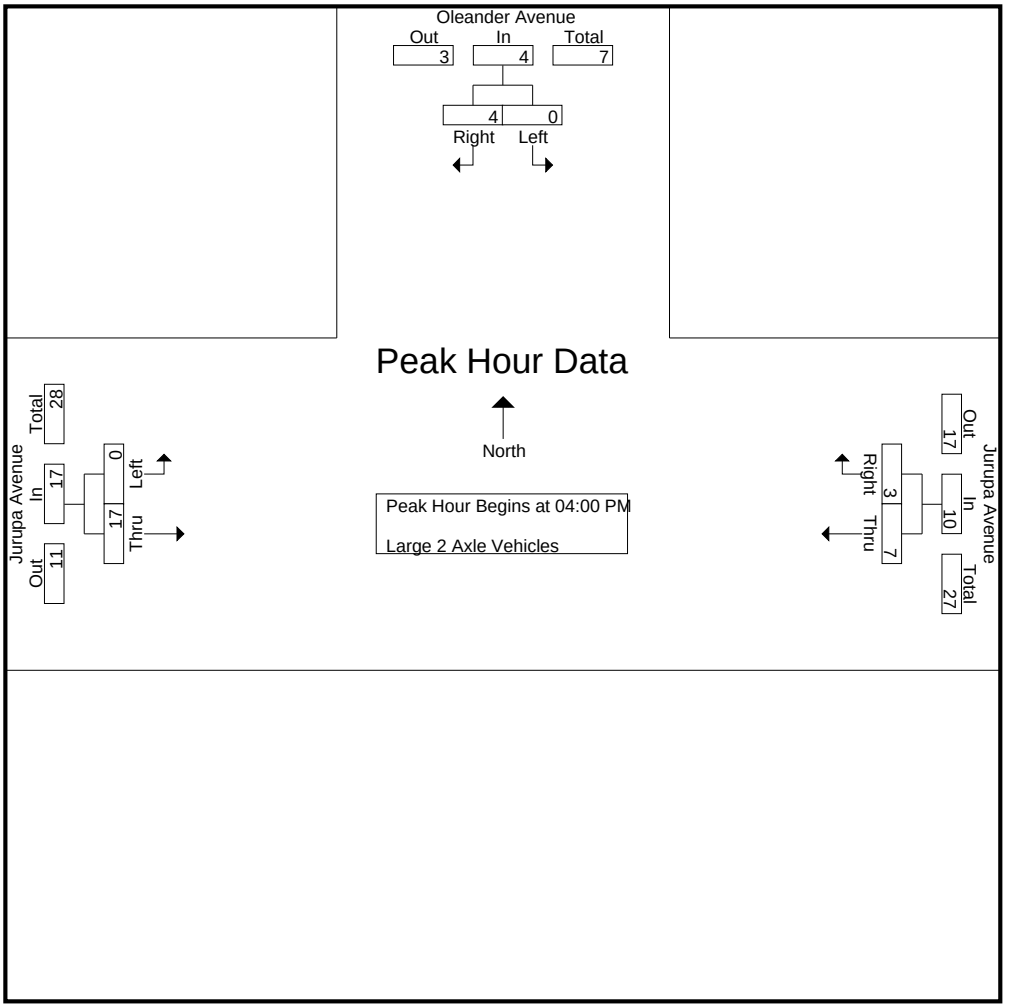
E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	**2**	0	2	0	3	3
+15 mins.	0	**2**	**2**	1	1	2	0	**6**	**6**
+30 mins.	0	2	2	2	**2**	**4**	0	5	5
+45 mins.	0	0	0	2	0	2	0	3	3
Total Volume	0	4	4	7	3	10	0	17	17
% App. Total	0	100		70	30		0	100	
PHF	.000	.500	.500	.875	.375	.625	.000	.708	.708

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E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	1	0	1	0	1	1	2
04:15 PM	0	1	1	1	0	1	0	1	1	3
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	1	0	1	0	0	0	1
Total	0	1	1	3	0	3	0	3	3	7
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	2	0	2	0	2	2	4
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	1	0	1	0	1	1	2
Total	0	0	0	3	0	3	0	3	3	6
Grand Total	0	1	1	6	0	6	0	6	6	13
Apprch %	0	100		100	0		0	100		
Total %	0	7.7	7.7	46.2	0	46.2	0	46.2	46.2	

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	**1**	0	**1**	0	**1**	**1**	2
04:15 PM	0	**1**	**1**	1	0	1	0	1	1	**3**
04:30 PM	0	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	1	0	1	0	0	0	1
Total Volume	0	1	1	3	0	3	0	3	3	7
% App. Total	0	100		100	0		0	100		
PHF	.000	.250	.250	.750	.000	.750	.000	.750	.750	.583

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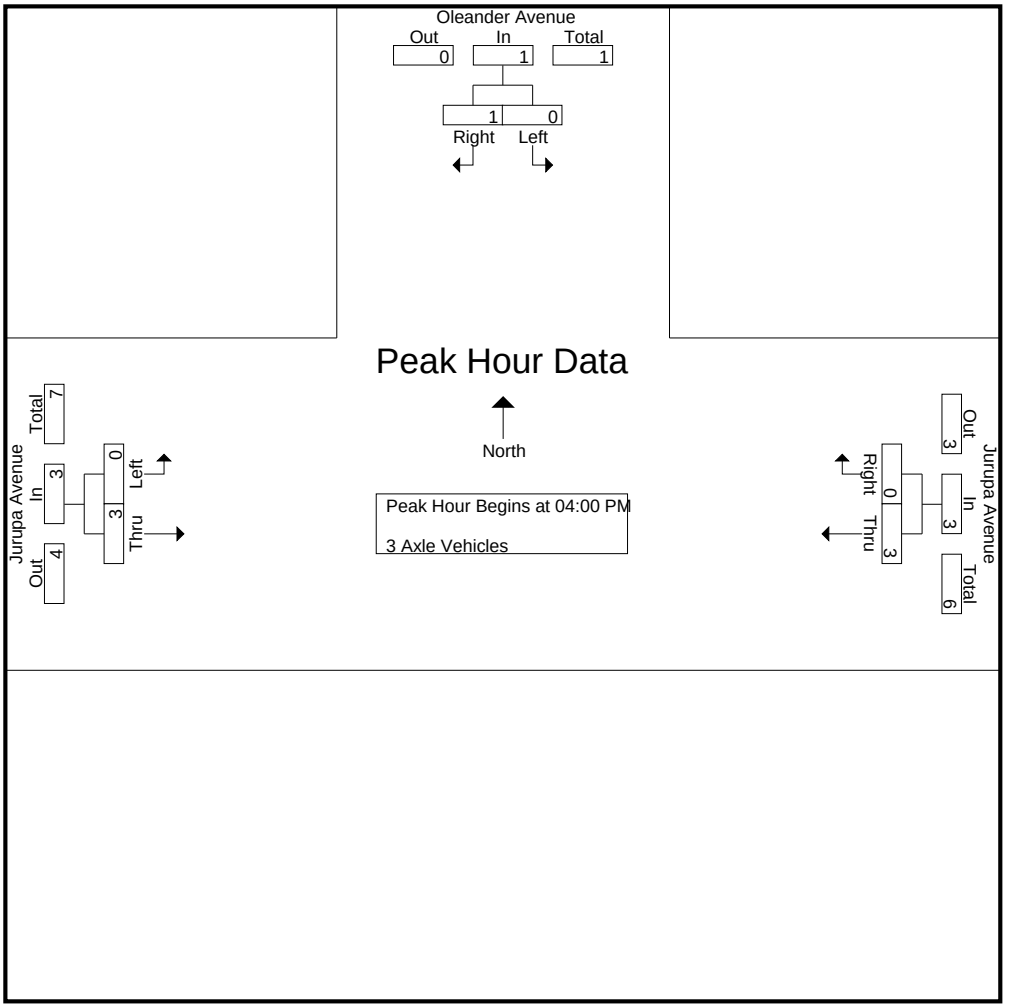
File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	**1**	0	**1**	0	**1**	**1**
+15 mins.	0	**1**	**1**	1	0	1	0	1	1
+30 mins.	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	1	0	1	0	0	0
Total Volume	0	1	1	3	0	3	0	3	3
% App. Total	0	100		100	0		0	100	
PHF	.000	.250	.250	.750	.000	.750	.000	.750	.750

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File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
04:00 PM	0	0	0	1	3	4	0	5	5	9
04:15 PM	0	0	0	0	2	2	0	2	2	4
04:30 PM	0	0	0	1	0	1	0	1	1	2
04:45 PM	0	0	0	2	1	3	0	8	8	11
Total	0	0	0	4	6	10	0	16	16	26
05:00 PM	0	1	1	4	1	5	0	4	4	10
05:15 PM	0	0	0	1	1	2	0	4	4	6
05:30 PM	0	1	1	0	1	1	0	2	2	4
05:45 PM	0	0	0	2	0	2	0	3	3	5
Total	0	2	2	7	3	10	0	13	13	25
Grand Total	0	2	2	11	9	20	0	29	29	51
Apprch %	0	100		55	45		0	100		
Total %	0	3.9	3.9	21.6	17.6	39.2	0	56.9	56.9	

	Oleander Avenue Southbound			Jurupa Avenue Westbound			Jurupa Avenue Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	1	**3**	**4**	0	5	5	9
04:15 PM	0	0	0	0	2	2	0	2	2	4
04:30 PM	0	0	0	1	0	1	0	1	1	2
04:45 PM	0	0	0	**2**	1	3	0	**8**	**8**	**11**
Total Volume	0	0	0	4	6	10	0	16	16	26
% App. Total	0	0		40	60		0	100		
PHF	.000	.000	.000	.500	.500	.625	.000	.500	.500	.591

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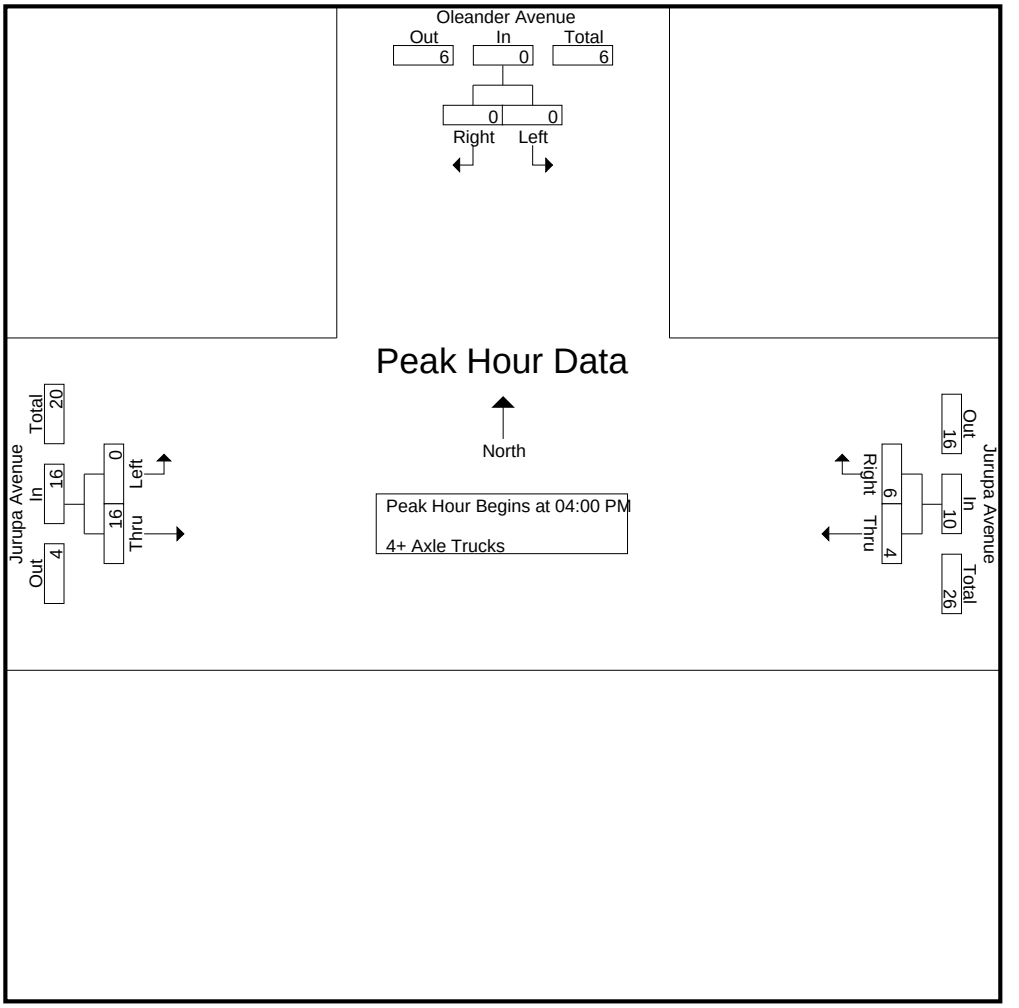
City of Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 09_FON_Oleander_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	1	**3**	**4**	0	5	5
+15 mins.	0	0	0	0	2	2	0	2	2
+30 mins.	0	0	0	1	0	1	0	1	1
+45 mins.	0	0	0	**2**	1	3	0	**8**	**8**
Total Volume	0	0	0	4	6	10	0	16	16
% App. Total	0	0		40	60		0	100	
PHF	.000	.000	.000	.500	.500	.625	.000	.500	.500

Location: Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Oleander Avenue	East Leg Jurupa Avenue	South Leg Dead End	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Oleander Avenue	East Leg Jurupa Avenue	South Leg Dead End	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Fontana
N/S: Oleander Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Oleander Avenue			Westbound Jurupa Avenue			Northbound Dead End			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Oleander Avenue			Westbound Jurupa Avenue			Northbound Dead End			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	12	3	10	6	25	6	153	11	1	170	7	16	36	13	59	9	108	1	0	118	20	372	392
07:15 AM	7	5	11	7	23	11	156	8	3	175	9	20	30	15	59	24	110	2	0	136	25	393	418
07:30 AM	9	9	21	16	39	15	142	9	4	166	5	12	24	7	41	18	116	9	0	143	27	389	416
07:45 AM	7	6	6	5	19	12	141	10	5	163	5	16	31	14	52	20	112	2	0	134	24	368	392
Total	35	23	48	34	106	44	592	38	13	674	26	64	121	49	211	71	446	14	0	531	96	1522	1618
08:00 AM	6	5	11	9	22	10	124	3	0	137	3	2	23	13	28	9	90	0	0	99	22	286	308
08:15 AM	10	7	6	4	23	11	135	8	5	154	8	14	14	4	36	17	105	2	0	124	13	337	350
08:30 AM	5	5	8	7	18	13	89	11	5	113	4	11	17	12	32	12	113	4	0	129	24	292	316
08:45 AM	9	2	8	6	19	11	96	8	2	115	6	15	16	10	37	16	80	1	0	97	18	268	286
Total	30	19	33	26	82	45	444	30	12	519	21	42	70	39	133	54	388	7	0	449	77	1183	1260
Grand Total	65	42	81	60	188	89	1036	68	25	1193	47	106	191	88	344	125	834	21	0	980	173	2705	2878
Apprch %	34.6	22.3	43.1			7.5	86.8	5.7			13.7	30.8	55.5			12.8	85.1	2.1					
Total %	2.4	1.6	3		7	3.3	38.3	2.5		44.1	1.7	3.9	7.1		12.7	4.6	30.8	0.8		36.2	6	94	
Passenger Vehicles	64	41	71		232	83	992	66		1164	47	104	190		429	116	793	21		930	0	0	2755
% Passenger Vehicles	98.5	97.6	87.7	93.3	93.5	93.3	95.8	97.1	92	95.6	100	98.1	99.5	100	99.3	92.8	95.1	100	0	94.9	0	0	95.7
Large 2 Axle Vehicles	1	0	6		9	6	26	2		36	0	1	1		2	5	34	0		39	0	0	86
% Large 2 Axle Vehicles	1.5	0	7.4	3.3	3.6	6.7	2.5	2.9	8	3	0	0.9	0.5	0	0.5	4	4.1	0	0	4	0	0	3
3 Axle Vehicles	0	0	1		2	0	8	0		8	0	0	0		0	0	5	0		5	0	0	15
% 3 Axle Vehicles	0	0	1.2	1.7	0.8	0	0.8	0	0	0.7	0	0	0	0	0	0	0.6	0	0	0.5	0	0	0.5
4+ Axle Trucks	0	1	3		5	0	10	0		10	0	1	0		1	4	2	0		6	0	0	22
% 4+ Axle Trucks	0	2.4	3.7	1.7	2	0	1	0	0	0.8	0	0.9	0	0	0.2	3.2	0.2	0	0	0.6	0	0	0.8

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**12**	3	10	25	6	153	**11**	170	7	16	**36**	**59**	9	108	1	118	372
07:15 AM	7	5	11	23	11	**156**	8	**175**	**9**	**20**	30	59	**24**	110	2	136	**393**
07:30 AM	9	**9**	**21**	**39**	**15**	142	9	166	5	12	24	41	18	**116**	**9**	**143**	389
07:45 AM	7	6	6	19	12	141	10	163	5	16	31	52	20	112	2	134	368
Total Volume	35	23	48	106	44	592	38	674	26	64	121	211	71	446	14	531	1522
% App. Total	33	21.7	45.3		6.5	87.8	5.6		12.3	30.3	57.3		13.4	84	2.6		
PHF	.729	.639	.571	.679	.733	.949	.864	.963	.722	.800	.840	.894	.740	.961	.389	.928	.968

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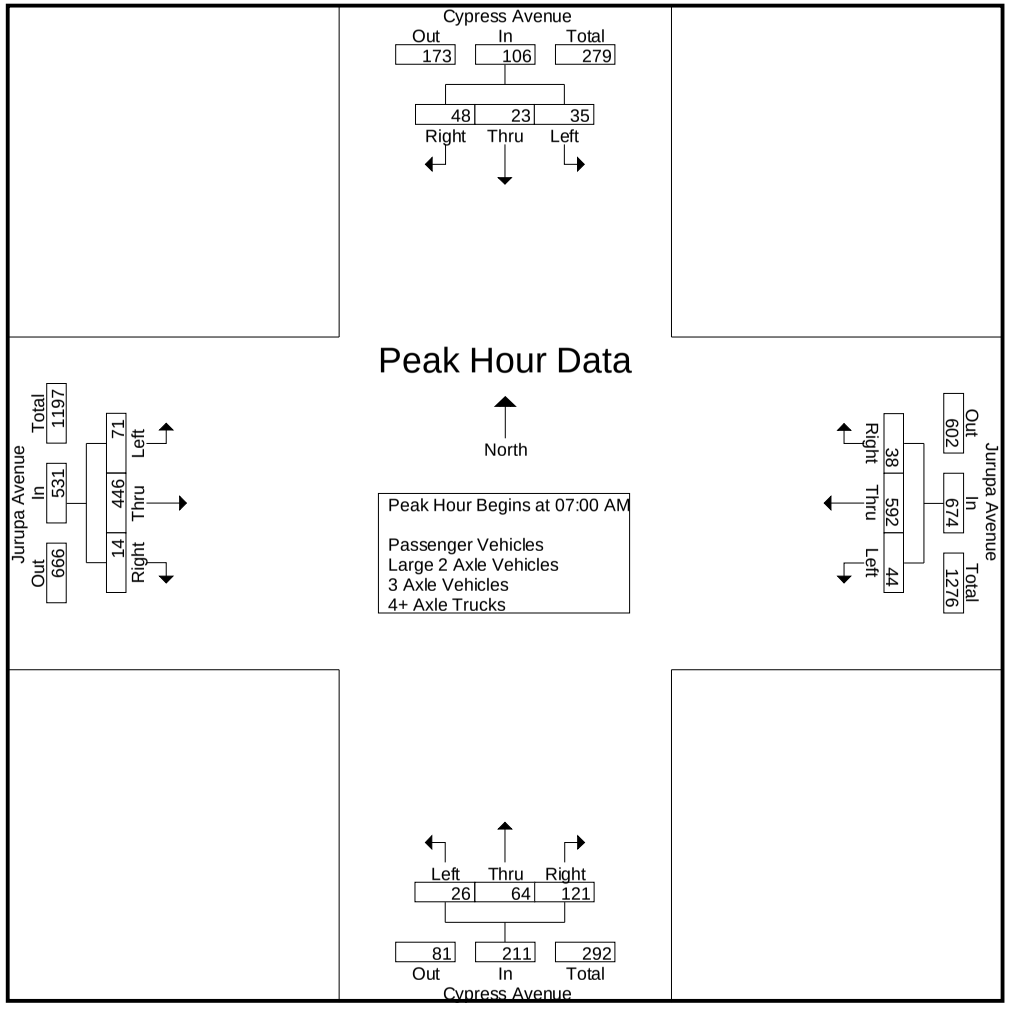
City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	2	2	0	0	4	0	7	7
07:15 AM	1	0	1	0	2	1	4	0	0	5	0	0	1	0	1	0	8	0	0	8	0	16	16
07:30 AM	0	0	2	1	2	1	3	1	1	5	0	1	0	0	1	1	3	0	0	4	2	12	14
07:45 AM	0	0	1	0	1	0	2	1	1	3	0	0	0	0	0	0	4	0	0	4	1	8	9
Total	1	0	4	1	5	2	12	2	2	16	0	1	1	0	2	3	17	0	0	20	3	43	46
08:00 AM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	1	2	0	0	3	0	8	8
08:15 AM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	1	6	0	0	7	0	13	13
08:30 AM	0	0	1	1	1	1	3	0	0	4	0	0	0	0	0	0	9	0	0	9	1	14	15
08:45 AM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	4
Total	0	0	2	1	2	4	14	0	0	18	0	0	0	0	0	2	17	0	0	19	1	39	40
Grand Total	1	0	6	2	7	6	26	2	2	34	0	1	1	0	2	5	34	0	0	39	4	82	86
Apprch %	14.3	0	85.7			17.6	76.5	5.9			0	50	50			12.8	87.2	0					
Total %	1.2	0	7.3		8.5	7.3	31.7	2.4		41.5	0	1.2	1.2		2.4	6.1	41.5	0		47.6	4.7	95.3	

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	3	0	3	0	0	0	0	**2**	2	0	4	7
07:15 AM	**1**	0	1	**2**	**1**	**4**	0	**5**	0	0	**1**	**1**	0	**8**	0	**8**	**16**
07:30 AM	0	0	**2**	2	1	3	**1**	5	0	**1**	0	1	1	3	0	4	12
07:45 AM	0	0	1	1	0	2	1	3	0	0	0	0	0	4	0	4	8
Total Volume	1	0	4	5	2	12	2	16	0	1	1	2	3	17	0	20	43
% App. Total	20	0	80		12.5	75	12.5		0	50	50		15	85	0		
PHF	.250	.000	.500	.625	.500	.750	.500	.800	.000	.250	.250	.500	.375	.531	.000	.625	.672

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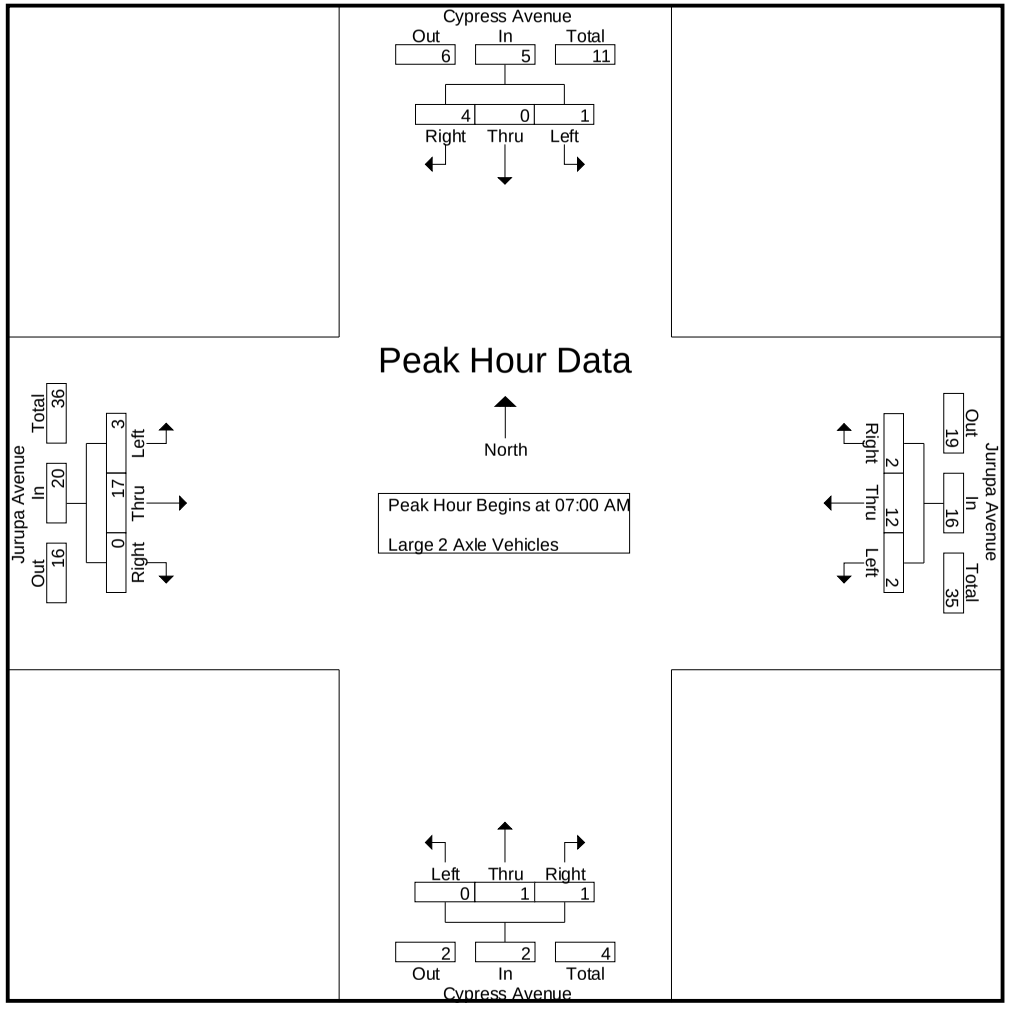
City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Cypress Avenue
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Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:45 AM	0	0	1	1	1	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	1	6	7
Total	0	0	1	1	1	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	1	11	12
Grand Total	0	0	1	1	1	0	8	0	0	8	0	0	0	0	0	0	5	0	0	5	1	14	15
Apprch %	0	0	100			0	100	0			0	0	0			0	100	0					
Total %	0	0	7.1		7.1	0	57.1	0		57.1	0	0	0		0	0	35.7	0		35.7	6.7	93.3	

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
07:45 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**2**
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.375

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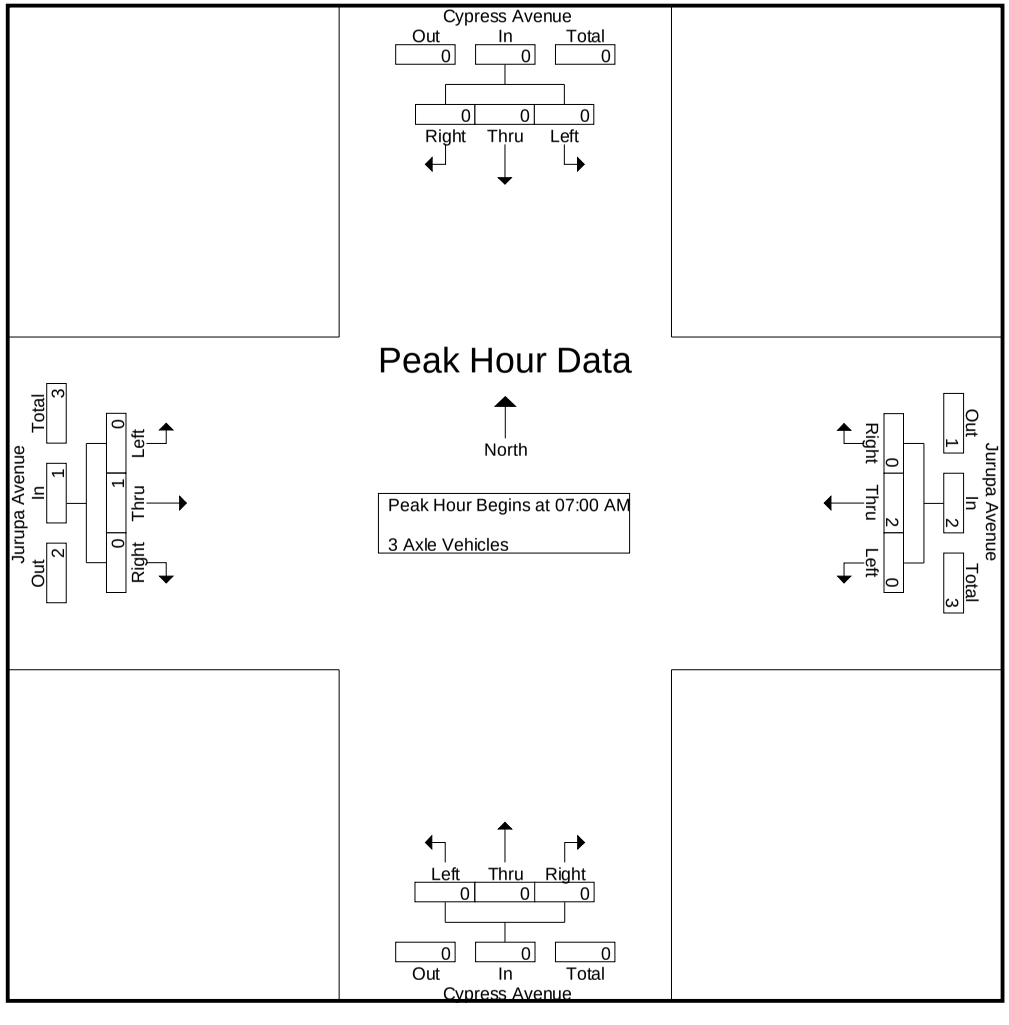
City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	0	1	1	1	0	3	0	0	3	0	0	0	0	0	2	0	0	0	2	1	6	7
07:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	0	2	0	3	3
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	1	1	1	0	6	0	0	6	0	0	0	0	0	4	0	0	0	4	1	11	12
08:00 AM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	3
08:15 AM	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	4	4
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	1	2	0	3	0	4	0	0	4	0	1	0	0	1	0	2	0	0	2	0	10	10
Grand Total	0	1	3	1	4	0	10	0	0	10	0	1	0	0	1	4	2	0	0	6	1	21	22
Apprch %	0	25	75			0	100	0			0	100	0			66.7	33.3	0					
Total %	0	4.8	14.3		19	0	47.6	0		47.6	0	4.8	0		4.8	19	9.5	0		28.6	4.5	95.5	

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	**1**	**1**	0	**3**	0	**3**	0	0	0	0	**2**	0	0	**2**	**6**
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	2	0	0	2	3
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	1	0	6	0	6	0	0	0	0	4	0	0	4	11
% App. Total	0	0	100		0	100	0		0	0	0		100	0	0		
PHF	.000	.000	.250	.250	.000	.500	.000	.500	.000	.000	.000	.000	.500	.000	.000	.500	.458

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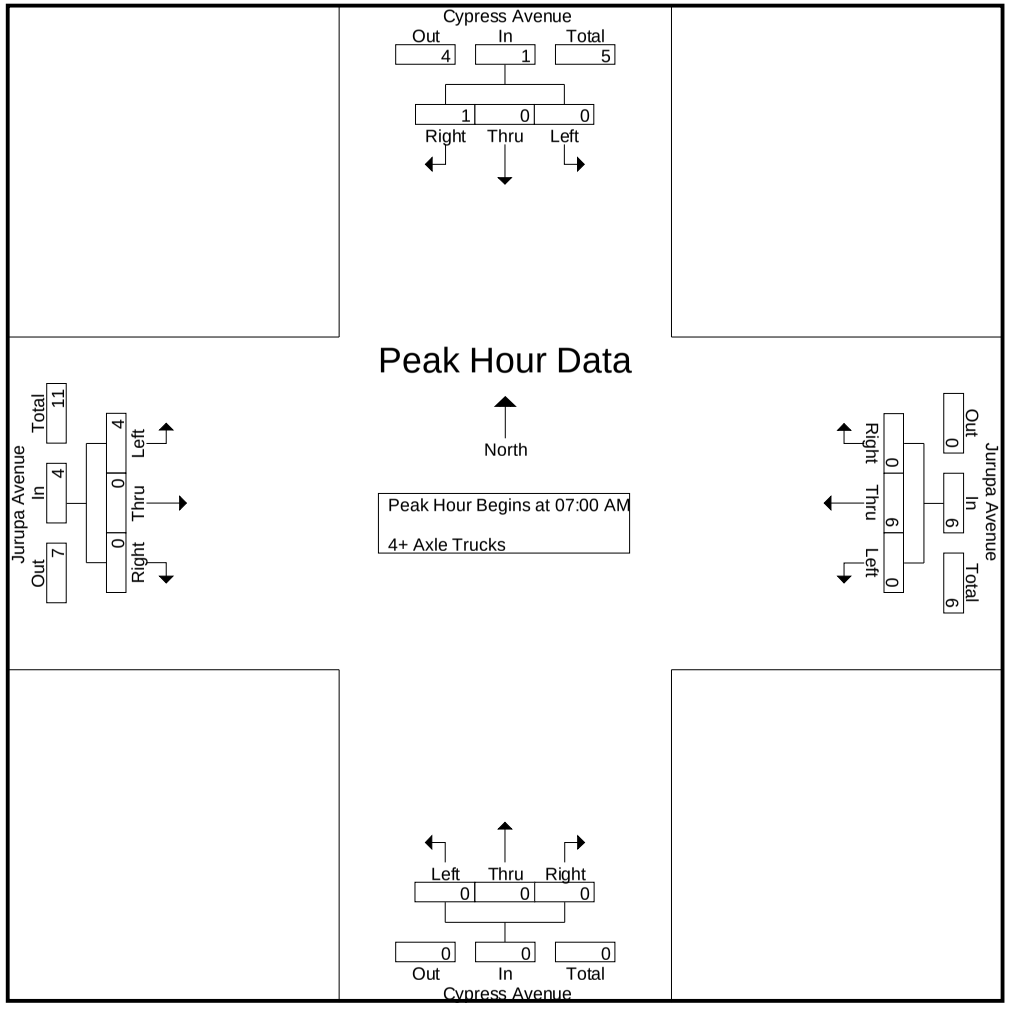
City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	11	11	14	11	36	27	130	14	9	171	6	11	16	11	33	47	203	1	0	251	31	491	522
04:15 PM	5	10	9	5	24	26	133	14	4	173	1	10	13	4	24	30	206	5	2	241	15	462	477
04:30 PM	33	17	20	7	70	31	143	15	3	189	3	12	18	10	33	33	206	5	0	244	20	536	556
04:45 PM	11	5	12	8	28	24	129	14	4	167	2	11	17	7	30	29	225	5	2	259	21	484	505
Total	60	43	55	31	158	108	535	57	20	700	12	44	64	32	120	139	840	16	4	995	87	1973	2060
05:00 PM	7	9	16	8	32	33	130	14	8	177	2	10	14	9	26	24	227	4	0	255	25	490	515
05:15 PM	9	13	13	9	35	27	143	12	5	182	2	15	11	7	28	33	225	8	2	266	23	511	534
05:30 PM	11	11	9	6	31	32	152	12	5	196	1	9	13	6	23	19	176	2	1	197	18	447	465
05:45 PM	10	21	12	4	43	29	133	14	4	176	1	15	14	7	30	16	157	7	1	180	16	429	445
Total	37	54	50	27	141	121	558	52	22	731	6	49	52	29	107	92	785	21	4	898	82	1877	1959
Grand Total	97	97	105	58	299	229	1093	109	42	1431	18	93	116	61	227	231	1625	37	8	1893	169	3850	4019
Apprch %	32.4	32.4	35.1			16	76.4	7.6			7.9	41	51.1			12.2	85.8	2					
Total %	2.5	2.5	2.7		7.8	5.9	28.4	2.8		37.2	0.5	2.4	3		5.9	6	42.2	1		49.2	4.2	95.8	
Passenger Vehicles	96	96	97		344	228	1056	106		1432	18	91	115		285	224	1559	37		1828	0	0	3889
% Passenger Vehicles	99	99	92.4	94.8	96.4	99.6	96.6	97.2	100	97.2	100	97.8	99.1	100	99	97	95.9	100	100	96.2	0	0	96.8
Large 2 Axle Vehicles	1	1	2		6	1	20	1		22	0	2	1		3	5	30	0		35	0	0	66
% Large 2 Axle Vehicles	1	1	1.9	3.4	1.7	0.4	1.8	0.9	0	1.5	0	2.2	0.9	0	1	2.2	1.8	0	0	1.8	0	0	1.6
3 Axle Vehicles	0	0	0		0	0	6	2		8	0	0	0		0	0	8	0		8	0	0	16
% 3 Axle Vehicles	0	0	0	0	0	0	0.5	1.8	0	0.5	0	0	0	0	0	0	0.5	0	0	0.4	0	0	0.4
4+ Axle Trucks	0	0	6		7	0	11	0		11	0	0	0		0	2	28	0		30	0	0	48
% 4+ Axle Trucks	0	0	5.7	1.7	2	0	1	0	0	0.7	0	0	0	0	0	0.9	1.7	0	0	1.6	0	0	1.2

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**33**	**17**	**20**	**70**	31	**143**	**15**	**189**	**3**	12	**18**	**33**	**33**	206	5	244	**536**
04:45 PM	11	5	12	28	24	129	14	167	2	11	17	30	29	225	5	259	484
05:00 PM	7	9	16	32	**33**	130	14	177	2	10	14	26	24	**227**	4	255	490
05:15 PM	9	13	13	35	27	143	12	182	2	**15**	11	28	33	225	**8**	**266**	511
Total Volume	60	44	61	165	115	545	55	715	9	48	60	117	119	883	22	1024	2021
% App. Total	36.4	26.7	37		16.1	76.2	7.7		7.7	41	51.3		11.6	86.2	2.1		
PHF	.455	.647	.763	.589	.871	.953	.917	.946	.750	.800	.833	.886	.902	.972	.688	.962	.943

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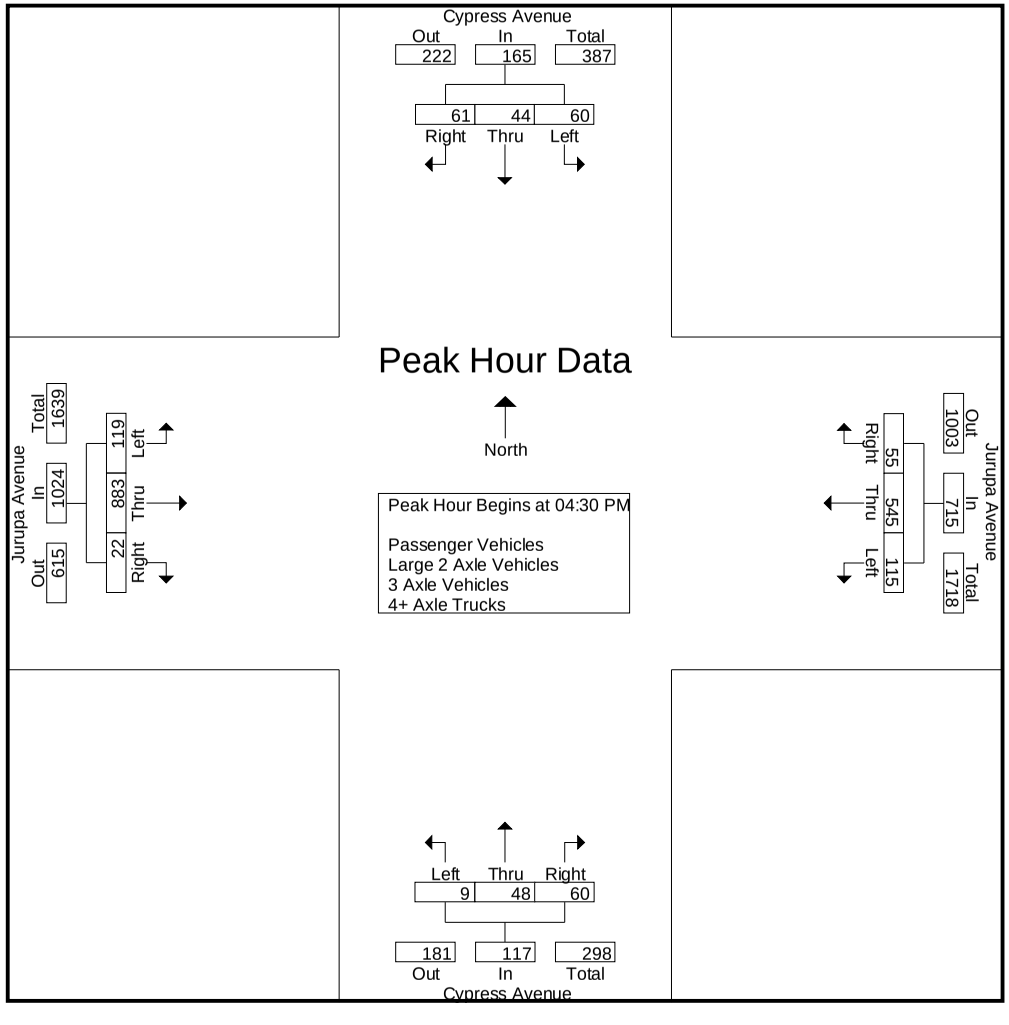
City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	1	3	0	0	4	0	1	0	0	1	0	2	0	0	2	0	8	8
04:15 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	7	0	0	8	0	11	11
04:30 PM	0	0	1	1	1	0	5	0	0	5	0	0	0	0	0	0	6	0	0	6	1	12	13
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	2	1	0	0	3	0	6	6
Total	0	1	1	1	2	1	12	1	0	14	0	1	1	0	2	3	16	0	0	19	1	37	38
05:00 PM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	8	8
05:15 PM	0	0	1	1	1	0	3	0	0	3	0	1	0	0	1	1	8	0	0	9	1	14	15
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2	2
Total	1	0	1	1	2	0	8	0	0	8	0	1	0	0	1	2	14	0	0	16	1	27	28
Grand Total	1	1	2	2	4	1	20	1	0	22	0	2	1	0	3	5	30	0	0	35	2	64	66
Apprch %	25	25	50			4.5	90.9	4.5			0	66.7	33.3			14.3	85.7	0					
Total %	1.6	1.6	3.1		6.2	1.6	31.2	1.6		34.4	0	3.1	1.6		4.7	7.8	46.9	0		54.7	3	97	

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	**1**	**1**	0	**5**	0	**5**	0	0	0	0	0	6	0	6	12
04:45 PM	0	0	0	0	0	2	0	2	0	0	**1**	**1**	**2**	1	0	3	6
05:00 PM	**1**	0	0	1	0	4	0	4	0	0	0	0	0	3	0	3	8
05:15 PM	0	0	1	1	0	3	0	3	0	**1**	0	1	1	**8**	0	**9**	**14**
Total Volume	1	0	2	3	0	14	0	14	0	1	1	2	3	18	0	21	40
% App. Total	33.3	0	66.7		0	100	0		0	50	50		14.3	85.7	0		
PHF	.250	.000	.500	.750	.000	.700	.000	.700	.000	.250	.250	.500	.375	.563	.000	.583	.714

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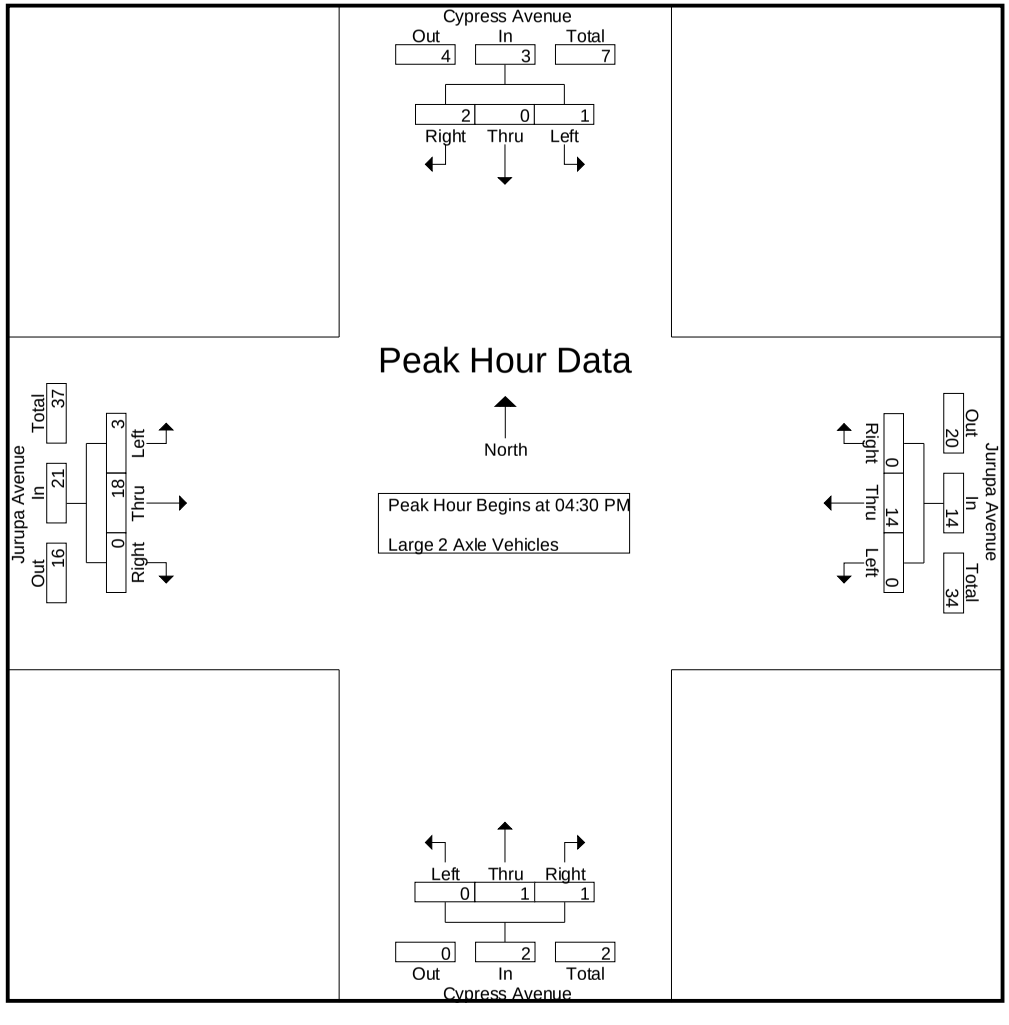
E/W: Jurupa Avenue
Weather: Clear

File Name : 14_FON_Cypress_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Cypress Avenue
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Weather: Clear

File Name : 14_FON_Cypress_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	4	0	0	4	0	8	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
Total	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	4	0	0	4	0	8	8
Grand Total	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	0	8	0	0	8	0	16	16
Apprch %	0	0	0			0	75	25			0	0	0			0	100	0					
Total %	0	0	0		0	0	37.5	12.5		50	0	0	0		0	0	50	0		50	0	100	

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
04:45 PM	0	0	0	0	0	1	**1**	**2**	0	0	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	**2**	0	2	0	0	0	0	0	2	0	2	**4**
Total Volume	0	0	0	0	0	3	1	4	0	0	0	0	0	4	0	4	8
% App. Total	0	0	0		0	75	25		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.375	.250	.500	.000	.000	.000	.000	.000	.500	.000	.500	.500

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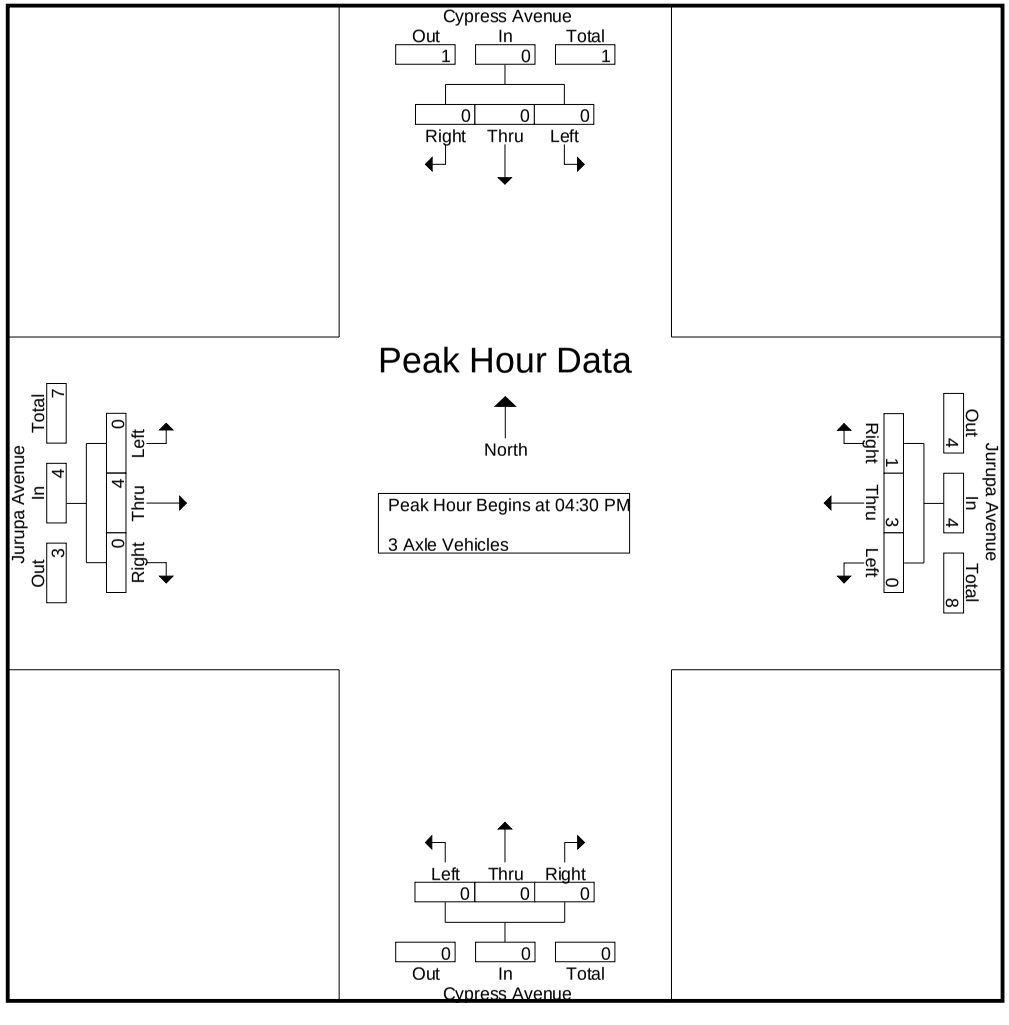
Page No : 2



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City of Fontana
N/S: Cypress Avenue
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Weather: Clear

File Name : 14_FON_Cypress_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Cypress Avenue Southbound					Jurupa Avenue Westbound					Cypress Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	2	1	2	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	1	7	8
04:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	5	5
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
04:45 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	9	0	0	9	0	12	12
Total	0	0	4	1	4	0	4	0	0	4	0	0	0	0	0	1	17	0	0	18	1	26	27
05:00 PM	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	8	8
05:15 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	5	5
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	4	4
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
Total	0	0	2	0	2	0	7	0	0	7	0	0	0	0	0	1	11	0	0	12	0	21	21
Grand Total	0	0	6	1	6	0	11	0	0	11	0	0	0	0	0	2	28	0	0	30	1	47	48
Apprch %	0	0	100			0	100	0			0	0	0			6.7	93.3	0					
Total %	0	0	12.8		12.8	0	23.4	0		23.4	0	0	0		0	4.3	59.6	0		63.8	2.1	97.9	

	Cypress Avenue Southbound				Jurupa Avenue Westbound				Cypress Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	0	**1**	**1**	0	2	0	2	0	0	0	0	0	**9**	0	**9**	**12**
05:00 PM	0	0	1	1	0	**4**	0	**4**	0	0	0	0	0	3	0	3	8
05:15 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	3	0	3	5
Total Volume	0	0	3	3	0	8	0	8	0	0	0	0	0	16	0	16	27
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.750	.750	.000	.500	.000	.500	.000	.000	.000	.000	.000	.444	.000	.444	.563

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City of Fontana
N/S: Cypress Avenue
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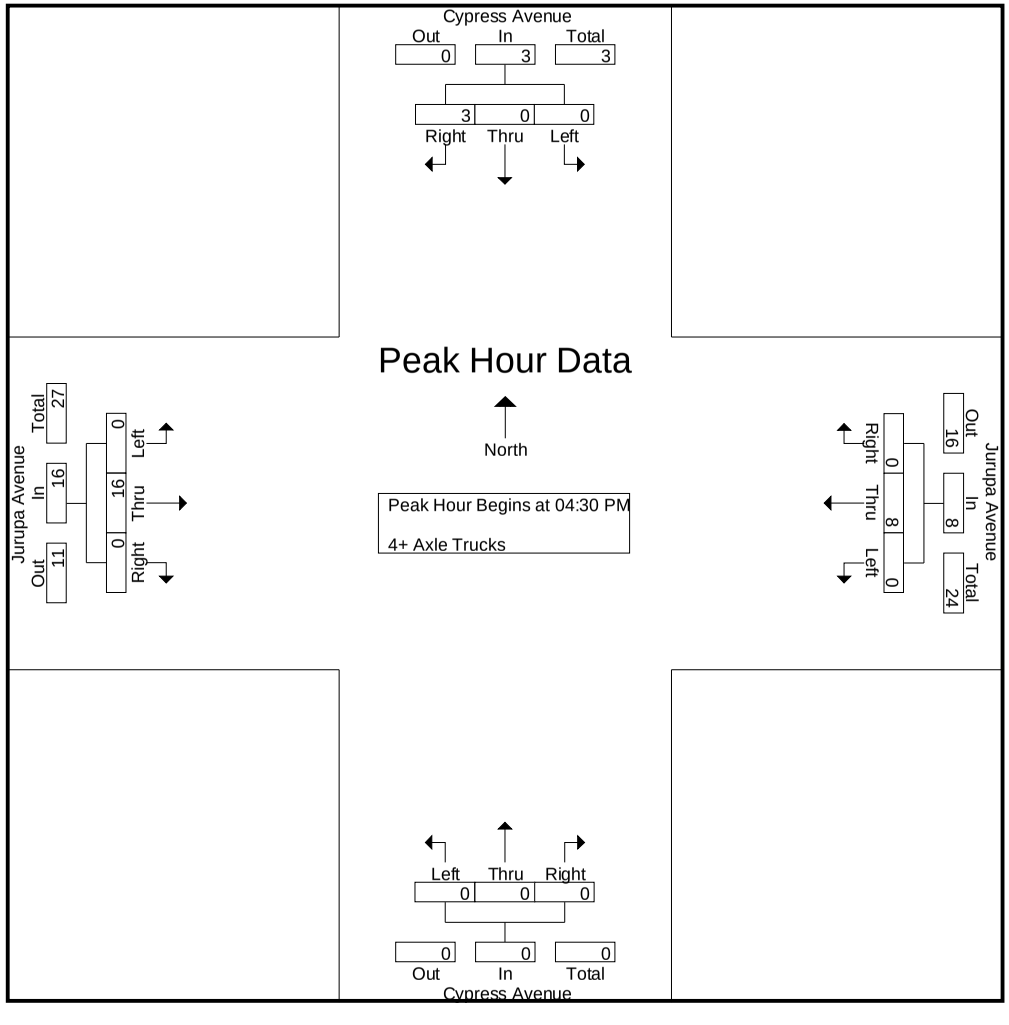

Location: Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Cypress Avenue	East Leg Jurupa Avenue	South Leg Cypress Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	2	0	2
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	2	0	3

	North Leg Cypress Avenue	East Leg Jurupa Avenue	South Leg Cypress Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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Location: Fontana
N/S: Cypress Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Cypress Avenue			Westbound Jurupa Avenue			Northbound Cypress Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Cypress Avenue			Westbound Jurupa Avenue			Northbound Cypress Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Juniper_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	11	5	20	5	34	4	43	6	3	2	11	0	25	4	29	103
07:15 AM	7	6	2	15	11	44	2	57	11	6	3	20	3	57	6	66	158
07:30 AM	11	7	2	20	7	21	3	31	4	8	9	21	0	35	7	42	114
07:45 AM	9	7	1	17	3	27	5	35	1	8	3	12	0	19	4	23	87
Total	31	31	10	72	26	126	14	166	22	25	17	64	3	136	21	160	462
08:00 AM	4	7	2	13	4	25	4	33	0	5	4	9	0	20	3	23	78
08:15 AM	8	4	0	12	12	24	6	42	5	14	3	22	0	26	1	27	103
08:30 AM	6	2	0	8	4	28	4	36	2	9	3	14	1	20	3	24	82
08:45 AM	7	5	0	12	7	28	7	42	2	7	4	13	1	22	2	25	92
Total	25	18	2	45	27	105	21	153	9	35	14	58	2	88	9	99	355
Grand Total	56	49	12	117	53	231	35	319	31	60	31	122	5	224	30	259	817
Apprch %	47.9	41.9	10.3		16.6	72.4	11		25.4	49.2	25.4		1.9	86.5	11.6		
Total %	6.9	6	1.5	14.3	6.5	28.3	4.3	39	3.8	7.3	3.8	14.9	0.6	27.4	3.7	31.7	
Passenger Vehicles	50	48	11	109	51	222	34	307	30	59	29	118	5	221	27	253	787
% Passenger Vehicles	89.3	98	91.7	93.2	96.2	96.1	97.1	96.2	96.8	98.3	93.5	96.7	100	98.7	90	97.7	96.3
Large 2 Axle Vehicles	3	1	1	5	2	6	1	9	1	1	2	4	0	2	3	5	23
% Large 2 Axle Vehicles	5.4	2	8.3	4.3	3.8	2.6	2.9	2.8	3.2	1.7	6.5	3.3	0	0.9	10	1.9	2.8
3 Axle Vehicles	2	0	0	2	0	2	0	2	0	0	0	0	0	1	0	1	5
% 3 Axle Vehicles	3.6	0	0	1.7	0	0.9	0	0.6	0	0	0	0	0	0.4	0	0.4	0.6
4+ Axle Trucks	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
% 4+ Axle Trucks	1.8	0	0	0.9	0	0.4	0	0.3	0	0	0	0	0	0	0	0	0.2

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	**11**	**5**	**20**	5	34	4	43	6	3	2	11	0	25	4	29	103
07:15 AM	7	6	2	15	**11**	**44**	2	**57**	**11**	6	3	20	**3**	**57**	6	**66**	**158**
07:30 AM	**11**	7	2	20	7	21	3	31	4	**8**	**9**	**21**	0	35	**7**	42	114
07:45 AM	9	7	1	17	3	27	**5**	35	1	8	3	12	0	19	4	23	87
Total Volume	31	31	10	72	26	126	14	166	22	25	17	64	3	136	21	160	462
% App. Total	43.1	43.1	13.9		15.7	75.9	8.4		34.4	39.1	26.6		1.9	85	13.1		
PHF	.705	.705	.500	.900	.591	.716	.700	.728	.500	.781	.472	.762	.250	.596	.750	.606	.731

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City of Fontana
N/S: Juniper Avenue
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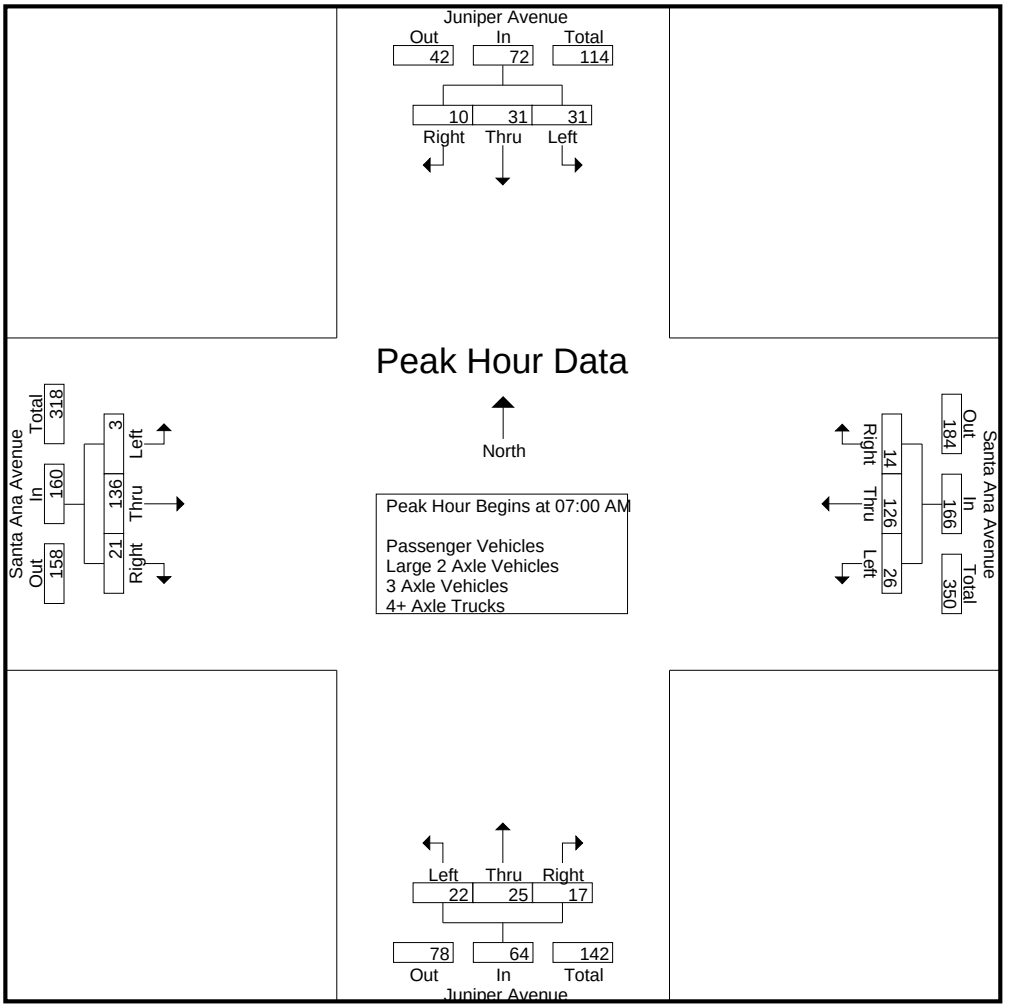
Weather: Clear

File Name : 15_FON_Juniper_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	4	**11**	**5**	**20**	5	34	4	43	6	3	2	11	0	25	4	29
+15 mins.	7	6	2	15	**11**	**44**	2	**57**	**11**	6	3	20	**3**	**57**	6	**66**
+30 mins.	**11**	7	2	20	7	21	3	31	4	**8**	**9**	**21**	0	35	**7**	42
+45 mins.	9	7	1	17	3	27	**5**	35	1	8	3	12	0	19	4	23
Total Volume	31	31	10	72	26	126	14	166	22	25	17	64	3	136	21	160
% App. Total	43.1	43.1	13.9		15.7	75.9	8.4		34.4	39.1	26.6		1.9	85	13.1	
PHF	.705	.705	.500	.900	.591	.716	.700	.728	.500	.781	.472	.762	.250	.596	.750	.606

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City of Fontana
N/S: Juniper Avenue
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Weather: Clear

File Name : 15_FON_Juniper_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
07:30 AM	1	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1	3
07:45 AM	1	1	0	2	0	3	0	3	0	0	0	0	0	0	0	0	5
Total	2	1	0	3	0	5	0	5	1	0	2	3	0	0	2	2	13
08:00 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:30 AM	1	0	0	1	1	0	0	1	0	1	0	1	0	0	1	1	4
08:45 AM	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	2
Total	1	0	1	2	2	1	1	4	0	1	0	1	0	2	1	3	10
Grand Total	3	1	1	5	2	6	1	9	1	1	2	4	0	2	3	5	23
Apprch %	60	20	20		22.2	66.7	11.1		25	25	50		0	40	60		
Total %	13	4.3	4.3	21.7	8.7	26.1	4.3	39.1	4.3	4.3	8.7	17.4	0	8.7	13	21.7	

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	2	0	2	0	0	**1**	**1**	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	**1**	**1**	2
07:30 AM	**1**	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1	3
07:45 AM	1	**1**	0	**2**	0	**3**	0	**3**	0	0	0	0	0	0	0	0	**5**
Total Volume	2	1	0	3	0	5	0	5	1	0	2	3	0	0	2	2	13
% App. Total	66.7	33.3	0		0	100	0		33.3	0	66.7		0	0	100		
PHF	.500	.250	.000	.375	.000	.417	.000	.417	.250	.000	.500	.750	.000	.000	.500	.500	.650

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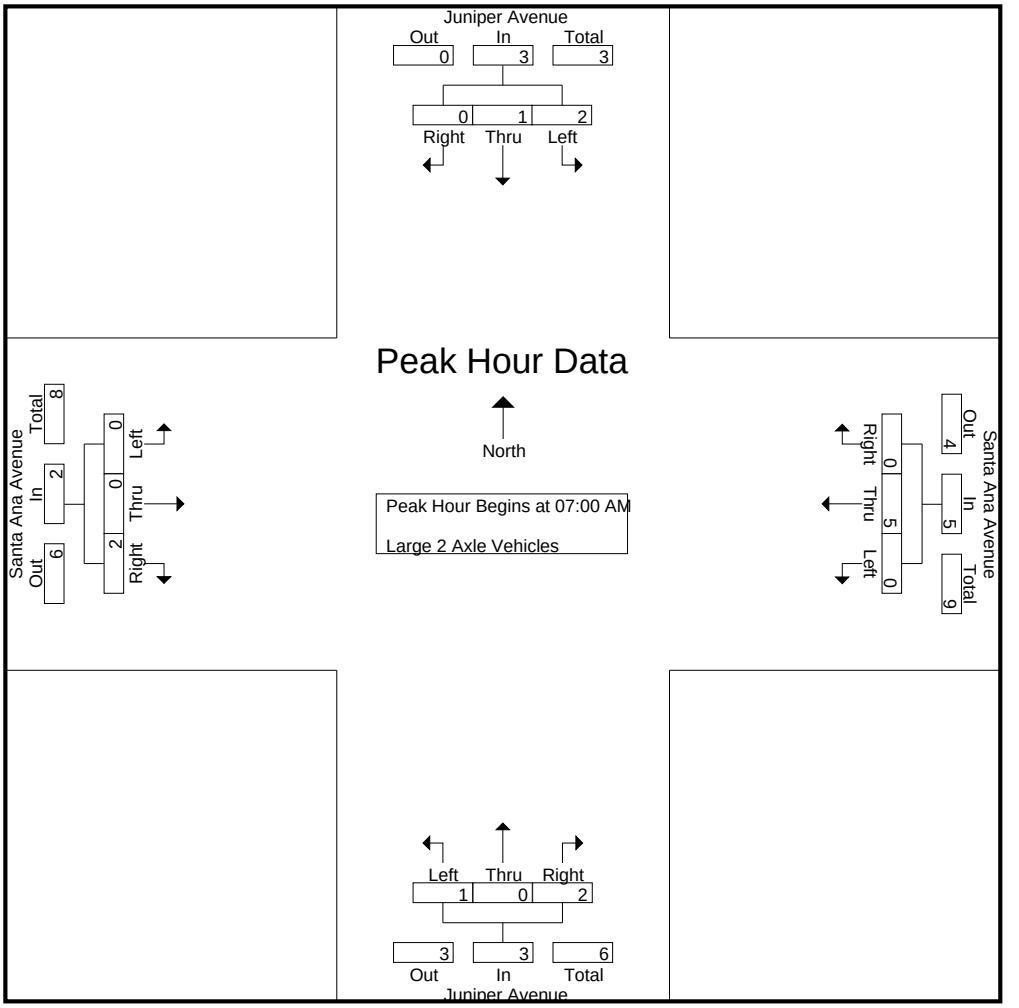
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	**1**	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	**1**	**1**
+30 mins.	**1**	0	0	1	0	0	0	0	0	0	1	1	0	0	1	1
+45 mins.	1	**1**	0	**2**	0	**3**	0	**3**	0	0	0	0	0	0	0	0
Total Volume	2	1	0	3	0	5	0	5	1	0	2	3	0	0	2	2
% App. Total	66.7	33.3	0		0	100	0		33.3	0	66.7		0	0	100	
PHF	.500	.250	.000	.375	.000	.417	.000	.417	.250	.000	.500	.750	.000	.000	.500	.500

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City of Fontana
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Weather: Clear

File Name : 15_FON_Juniper_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Grand Total	2	0	0	2	0	2	0	2	0	0	0	0	0	1	0	1	5
Apprch %	100	0	0		0	100	0		0	0	0		0	100	0		
Total %	40	0	0	40	0	40	0	40	0	0	0	0	0	20	0	20	

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
07:30 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
% App. Total	100	0	0		0	100	0		0	0	0		0	0	0		
PHF	.250	.000	.000	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.750

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City of Fontana
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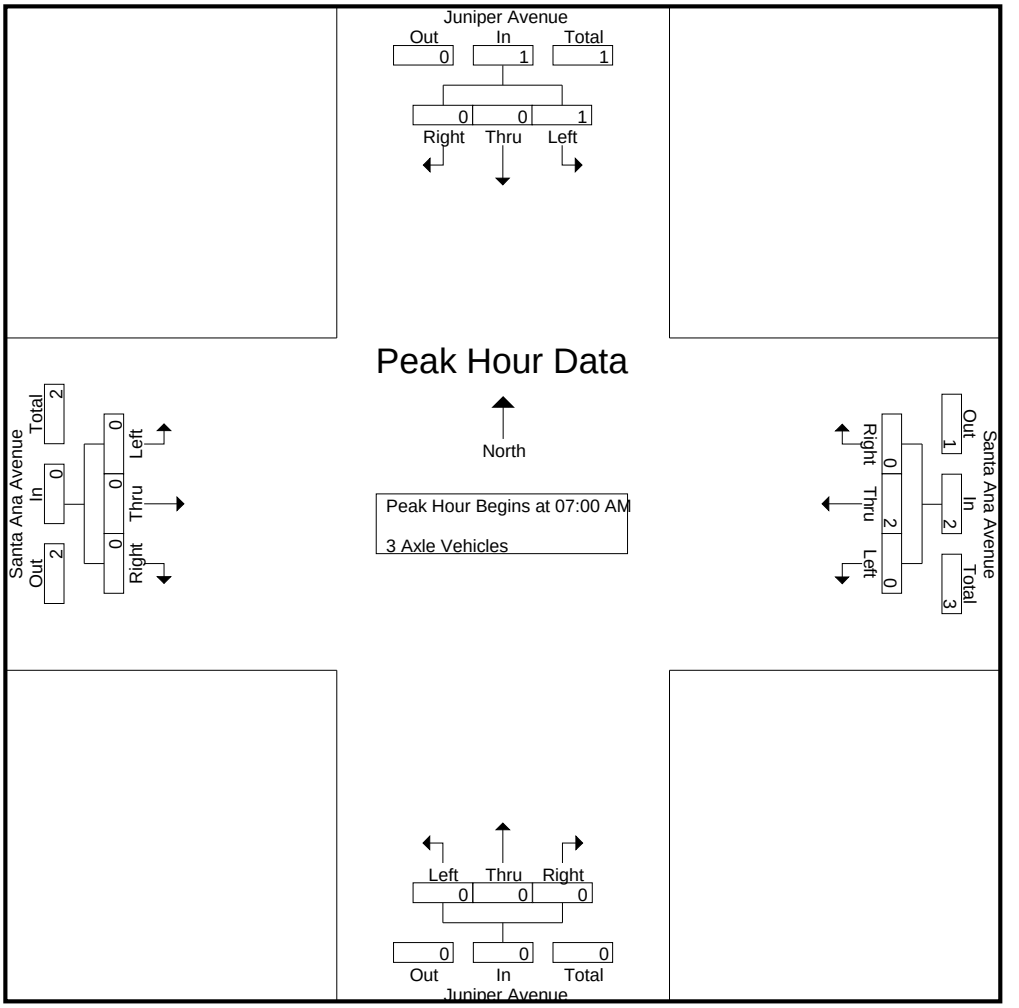
File Name : 15_FON_Juniper_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+30 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	2	0	2	0	0	0	0	0	0	0	0
% App. Total	100	0	0		0	100	0		0	0	0		0	0	0	
PHF	.250	.000	.000	.250	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000

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City of Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Juniper_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Apprch %	100	0	0		0	100	0		0	0	0		0	0	0		
Total %	50	0	0	50	0	50	0	50	0	0	0	0	0	0	0	0	

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	100	0	0		0	0	0		0	0	0		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City of Fontana
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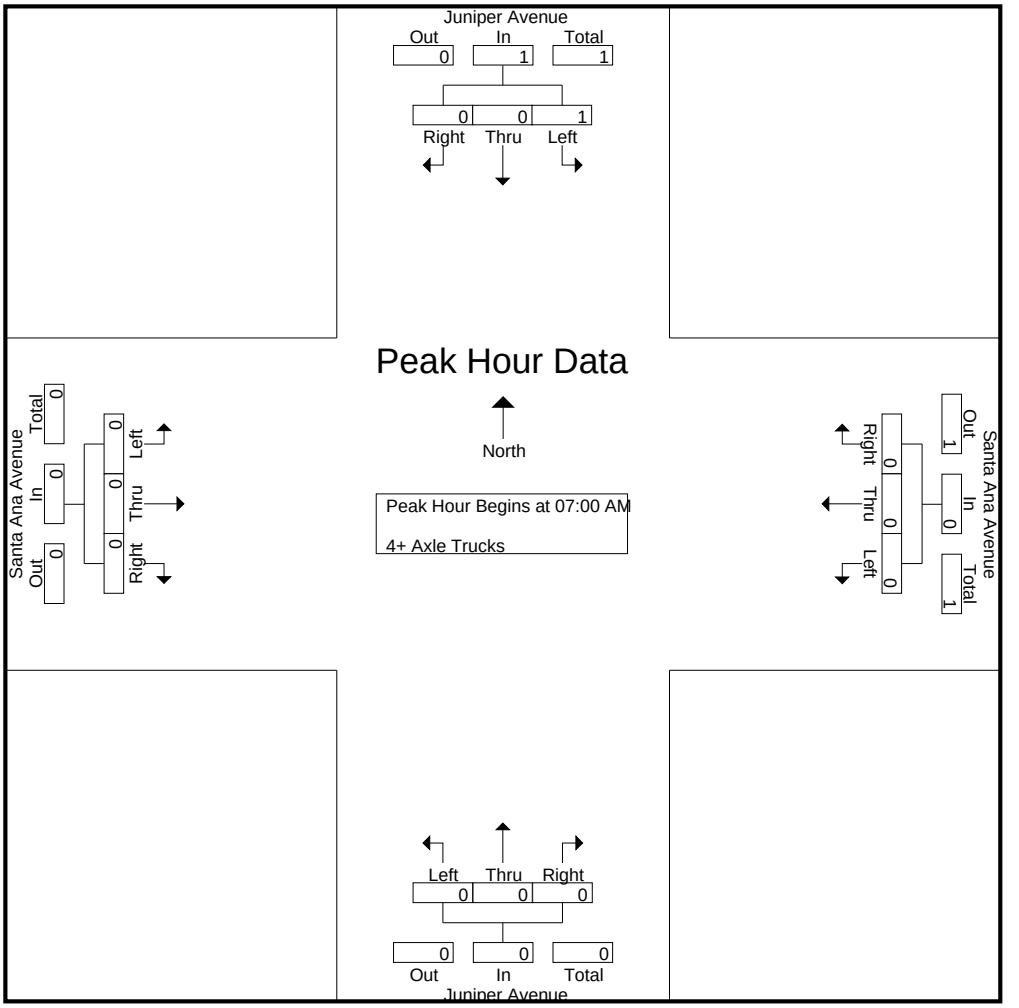
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	100	0	0		0	0	0		0	0	0		0	0	0	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Juniper_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	16	8	1	25	12	49	14	75	7	10	8	25	1	67	4	72	197
04:15 PM	10	10	0	20	7	52	10	69	8	6	17	31	1	39	6	46	166
04:30 PM	20	11	0	31	15	55	16	86	6	18	12	36	2	58	5	65	218
04:45 PM	15	17	1	33	7	50	12	69	6	17	20	43	0	41	8	49	194
Total	61	46	2	109	41	206	52	299	27	51	57	135	4	205	23	232	775
05:00 PM	17	9	1	27	15	57	14	86	8	11	9	28	2	52	4	58	199
05:15 PM	12	7	0	19	11	54	4	69	6	12	9	27	1	44	1	46	161
05:30 PM	17	11	1	29	7	56	10	73	4	9	7	20	3	43	5	51	173
05:45 PM	9	9	0	18	10	58	9	77	7	11	5	23	1	43	0	44	162
Total	55	36	2	93	43	225	37	305	25	43	30	98	7	182	10	199	695
Grand Total	116	82	4	202	84	431	89	604	52	94	87	233	11	387	33	431	1470
Apprch %	57.4	40.6	2		13.9	71.4	14.7		22.3	40.3	37.3		2.6	89.8	7.7		
Total %	7.9	5.6	0.3	13.7	5.7	29.3	6.1	41.1	3.5	6.4	5.9	15.9	0.7	26.3	2.2	29.3	
Passenger Vehicles	116	81	4	201	81	416	89	586	51	93	84	228	10	371	33	414	1429
% Passenger Vehicles	100	98.8	100	99.5	96.4	96.5	100	97	98.1	98.9	96.6	97.9	90.9	95.9	100	96.1	97.2
Large 2 Axle Vehicles	0	1	0	1	1	13	0	14	1	1	1	3	1	14	0	15	33
% Large 2 Axle Vehicles	0	1.2	0	0.5	1.2	3	0	2.3	1.9	1.1	1.1	1.3	9.1	3.6	0	3.5	2.2
3 Axle Vehicles	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
% 3 Axle Vehicles	0	0	0	0	1.2	0.2	0	0.3	0	0	0	0	0	0.5	0	0.5	0.3
4+ Axle Trucks	0	0	0	0	1	1	0	2	0	0	2	2	0	0	0	0	4
% 4+ Axle Trucks	0	0	0	0	1.2	0.2	0	0.3	0	0	2.3	0.9	0	0	0	0	0.3

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	10	10	0	20	7	52	10	69	**8**	6	17	31	1	39	6	46	166
04:30 PM	**20**	11	0	31	**15**	55	**16**	**86**	6	**18**	12	36	**2**	**58**	5	**65**	**218**
04:45 PM	15	**17**	**1**	**33**	7	50	12	69	6	17	**20**	**43**	0	41	**8**	49	194
05:00 PM	17	9	1	27	15	**57**	14	86	8	11	9	28	2	52	4	58	199
Total Volume	62	47	2	111	44	214	52	310	28	52	58	138	5	190	23	218	777
% App. Total	55.9	42.3	1.8		14.2	69	16.8		20.3	37.7	42		2.3	87.2	10.6		
PHF	.775	.691	.500	.841	.733	.939	.813	.901	.875	.722	.725	.802	.625	.819	.719	.838	.891

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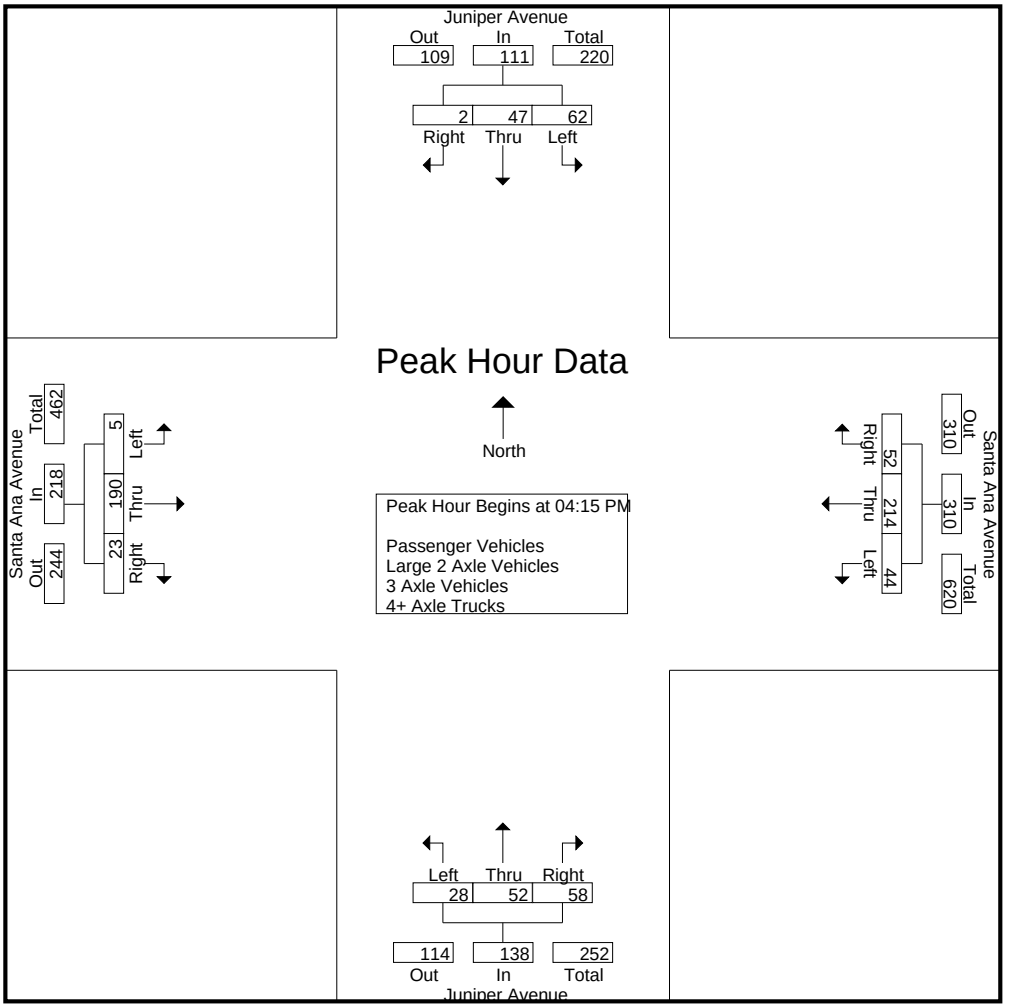
City of Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Juniper_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:00 PM			
+0 mins.	10	10	0	20	7	52	10	69	**8**	6	17	31	1	**67**	4	**72**
+15 mins.	**20**	11	0	31	**15**	55	**16**	**86**	6	**18**	12	36	1	39	6	46
+30 mins.	15	**17**	**1**	**33**	7	50	12	69	6	17	**20**	**43**	**2**	58	5	65
+45 mins.	17	9	1	27	15	**57**	14	86	8	11	9	28	0	41	**8**	49
Total Volume	62	47	2	111	44	214	52	310	28	52	58	138	4	205	23	232
% App. Total	55.9	42.3	1.8		14.2	69	16.8		20.3	37.7	42		1.7	88.4	9.9	
PHF	.775	.691	.500	.841	.733	.939	.813	.901	.875	.722	.725	.802	.500	.765	.719	.806

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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
04:15 PM	0	0	0	0	0	3	0	3	1	0	1	2	0	2	0	2	7
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
Total	0	1	0	1	0	7	0	7	1	0	1	2	0	5	0	5	15
05:00 PM	0	0	0	0	1	3	0	4	0	0	0	0	1	4	0	5	9
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	3
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
05:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total	0	0	0	0	1	6	0	7	0	1	0	1	1	9	0	10	18
Grand Total	0	1	0	1	1	13	0	14	1	1	1	3	1	14	0	15	33
Apprch %	0	100	0		7.1	92.9	0		33.3	33.3	33.3		6.7	93.3	0		
Total %	0	3	0	3	3	39.4	0	42.4	3	3	3	9.1	3	42.4	0	45.5	

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	**3**	0	3	**1**	0	**1**	**2**	0	2	0	2	7
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:45 PM	0	**1**	0	**1**	0	2	0	2	0	0	0	0	0	0	0	0	3
05:00 PM	0	0	0	0	**1**	3	0	**4**	0	0	0	0	**1**	**4**	0	**5**	**9**
Total Volume	0	1	0	1	1	9	0	10	1	0	1	2	1	7	0	8	21
% App. Total	0	100	0		10	90	0		50	0	50		12.5	87.5	0		
PHF	.000	.250	.000	.250	.250	.750	.000	.625	.250	.000	.250	.250	.250	.438	.000	.400	.583

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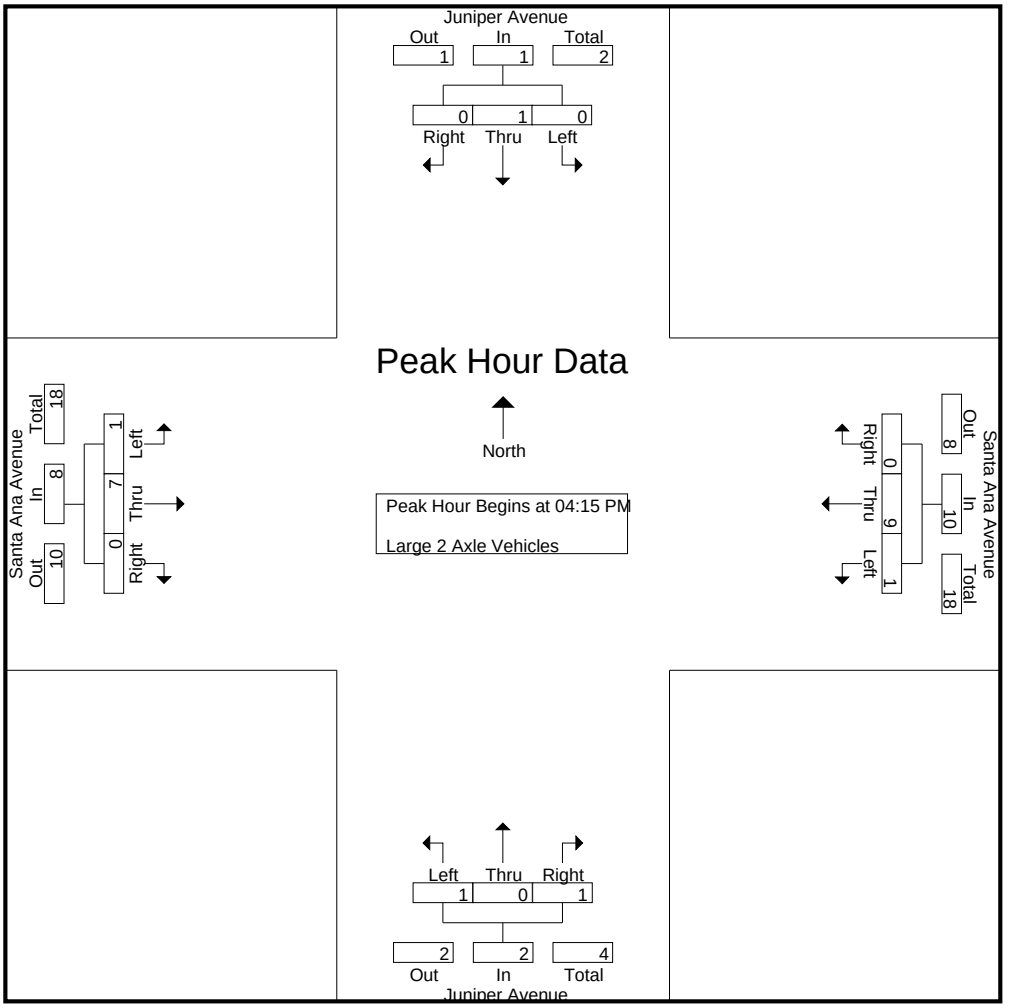

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	0	0	0	0	**3**	0	3	**1**	0	**1**	**2**	0	2	0	2
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
+30 mins.	0	**1**	0	**1**	0	2	0	2	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	**1**	3	0	**4**	0	0	0	0	**1**	**4**	0	**5**
Total Volume	0	1	0	1	1	9	0	10	1	0	1	2	1	7	0	8
% App. Total	0	100	0		10	90	0		50	0	50		12.5	87.5	0	
PHF	.000	.250	.000	.250	.250	.750	.000	.625	.250	.000	.250	.250	.250	.438	.000	.400

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Page No : 1

Groups Printed- 3 Axle Vehicles

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	2	4
Apprch %	0	0	0		50	50	0		0	0	0		0	100	0		
Total %	0	0	0	0	25	25	0	50	0	0	0	0	0	50	0	50	

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
04:30 PM	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1	3
% App. Total	0	0	0		50	50	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.750

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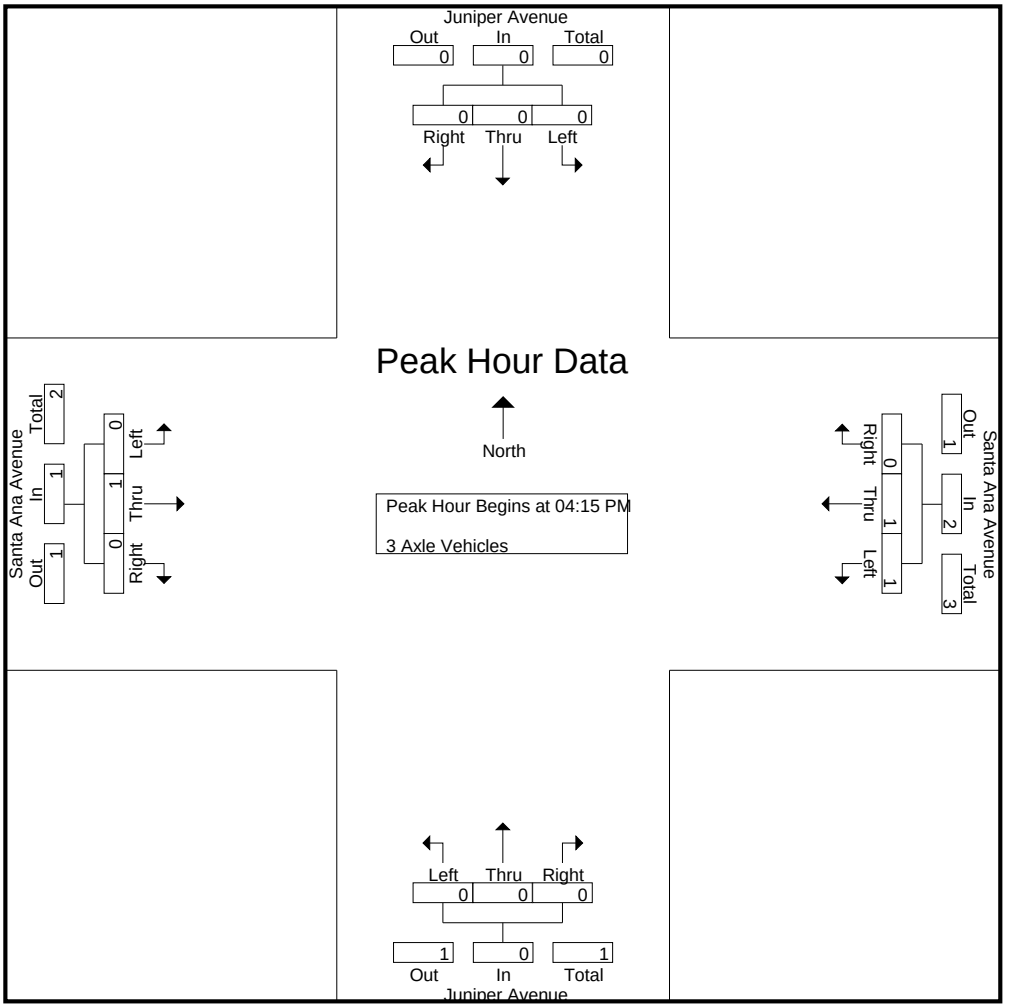

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	**1**	0	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1
% App. Total	0	0	0		50	50	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250

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City of Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 15_FON_Juniper_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	1	0	0	1	0	0	2	2	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	1	0	2	0	0	2	2	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	1	1	0	2	0	0	2	2	0	0	0	0	4
Apprch %	0	0	0		50	50	0		0	0	100		0	0	0		
Total %	0	0	0	0	25	25	0	50	0	0	50	50	0	0	0	0	

	Juniper Avenue Southbound				Santa Ana Avenue Westbound				Juniper Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	**1**	0	0	**1**	0	0	**2**	**2**	0	0	0	0	**3**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	**1**	0	1	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	2	0	0	2	2	0	0	0	0	4
% App. Total	0	0	0		50	50	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.250	.250	.000	.000	.000	.000	.333

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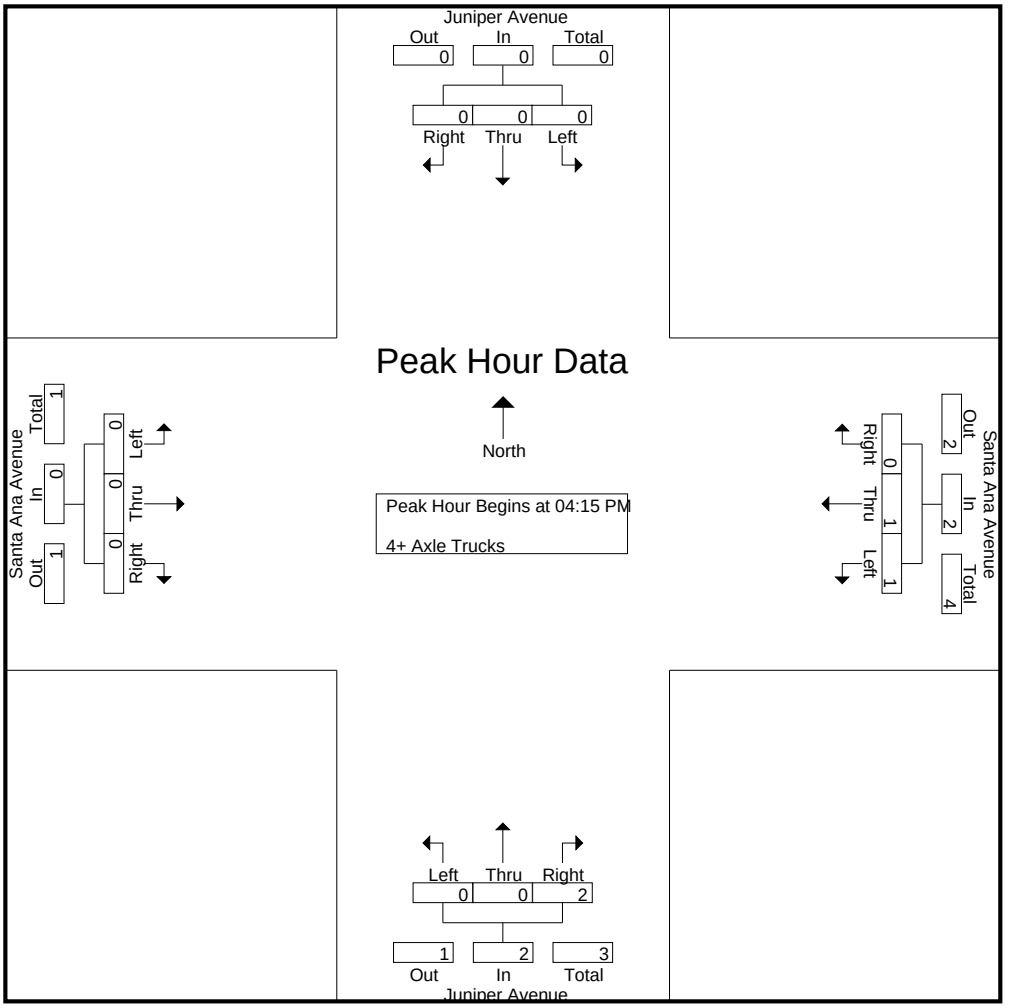

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	0	0	0	**1**	0	0	**1**	0	0	**2**	**2**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	**1**	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	2	0	0	2	2	0	0	0	0
% App. Total	0	0	0		50	50	0		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.250	.250	.000	.000	.000	.000

Location: Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Juniper Avenue	East Leg Santa Ana Avenue	South Leg Juniper Avenue	West Leg Santa Ana Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	0	0	0	2

	North Leg Juniper Avenue	East Leg Santa Ana Avenue	South Leg Juniper Avenue	West Leg Santa Ana Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	1	0	0	2
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	1	1	0	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	2	0	0	0	2
5:45 PM	2	2	0	0	4
TOTAL VOLUMES:	6	4	0	0	10

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Location: Fontana
N/S: Juniper Avenue
E/W: Santa Ana Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Juniper Avenue			Westbound Santa Ana Avenue			Northbound Juniper Avenue			Eastbound Santa Ana Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	1	0	0	0	1	0	0	0	3

	Southbound Juniper Avenue			Westbound Santa Ana Avenue			Northbound Juniper Avenue			Eastbound Santa Ana Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	1	1	3

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City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	9	0	11	7	20	4	164	8	1	176	1	0	4	2	5	3	146	1	0	150	10	351	361
07:15 AM	8	3	8	7	19	4	159	9	2	172	3	2	5	2	10	8	133	1	0	142	11	343	354
07:30 AM	6	1	8	7	15	0	149	4	0	153	1	0	2	2	3	13	137	0	0	150	9	321	330
07:45 AM	9	1	10	10	20	3	151	3	0	157	0	2	5	5	7	5	141	1	1	147	16	331	347
Total	32	5	37	31	74	11	623	24	3	658	5	4	16	11	25	29	557	3	1	589	46	1346	1392
08:00 AM	5	0	7	6	12	6	129	4	1	139	0	2	5	3	7	6	117	0	0	123	10	281	291
08:15 AM	4	1	10	7	15	3	140	11	3	154	1	5	3	3	9	9	111	0	0	120	13	298	311
08:30 AM	5	1	2	2	8	4	109	4	1	117	1	0	5	2	6	6	128	2	0	136	5	267	272
08:45 AM	3	1	11	9	15	4	119	2	0	125	1	1	3	3	5	14	100	0	0	114	12	259	271
Total	17	3	30	24	50	17	497	21	5	535	3	8	16	11	27	35	456	2	0	493	40	1105	1145
Grand Total	49	8	67	55	124	28	1120	45	8	1193	8	12	32	22	52	64	1013	5	1	1082	86	2451	2537
Apprch %	39.5	6.5	54			2.3	93.9	3.8			15.4	23.1	61.5			5.9	93.6	0.5					
Total %	2	0.3	2.7		5.1	1.1	45.7	1.8		48.7	0.3	0.5	1.3		2.1	2.6	41.3	0.2		44.1	3.4	96.6	
Passenger Vehicles	45	7	63		166	26	1062	45		1141	8	12	31		72	57	973	5		1036	0	0	2415
% Passenger Vehicles	91.8	87.5	94	92.7	92.7	92.9	94.8	100	100	95	100	100	96.9	95.5	97.3	89.1	96.1	100	100	95.7	0	0	95.2
Large 2 Axle Vehicles	4	1	4		13	1	40	0		41	0	0	1		2	7	33	0		40	0	0	96
% Large 2 Axle Vehicles	8.2	12.5	6	7.3	7.3	3.6	3.6	0	0	3.4	0	0	3.1	4.5	2.7	10.9	3.3	0	0	3.7	0	0	3.8
3 Axle Vehicles	0	0	0		0	0	9	0		9	0	0	0		0	0	5	0		5	0	0	14
% 3 Axle Vehicles	0	0	0	0	0	0	0.8	0	0	0.7	0	0	0	0	0	0	0.5	0	0	0.5	0	0	0.6
4+ Axle Trucks	0	0	0		0	1	9	0		10	0	0	0		0	0	2	0		2	0	0	12
% 4+ Axle Trucks	0	0	0	0	0	3.6	0.8	0	0	0.8	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0.5

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**9**	0	**11**	**20**	**4**	**164**	8	**176**	1	0	4	5	3	**146**	**1**	**150**	**351**
07:15 AM	8	**3**	8	19	4	159	**9**	172	**3**	**2**	**5**	**10**	8	133	1	142	343
07:30 AM	6	1	8	15	0	149	4	153	1	0	2	3	**13**	137	0	150	321
07:45 AM	9	1	10	20	3	151	3	157	0	2	5	7	5	141	1	147	331
Total Volume	32	5	37	74	11	623	24	658	5	4	16	25	29	557	3	589	1346
% App. Total	43.2	6.8	50		1.7	94.7	3.6		20	16	64		4.9	94.6	0.5		
PHF	.889	.417	.841	.925	.688	.950	.667	.935	.417	.500	.800	.625	.558	.954	.750	.982	.959

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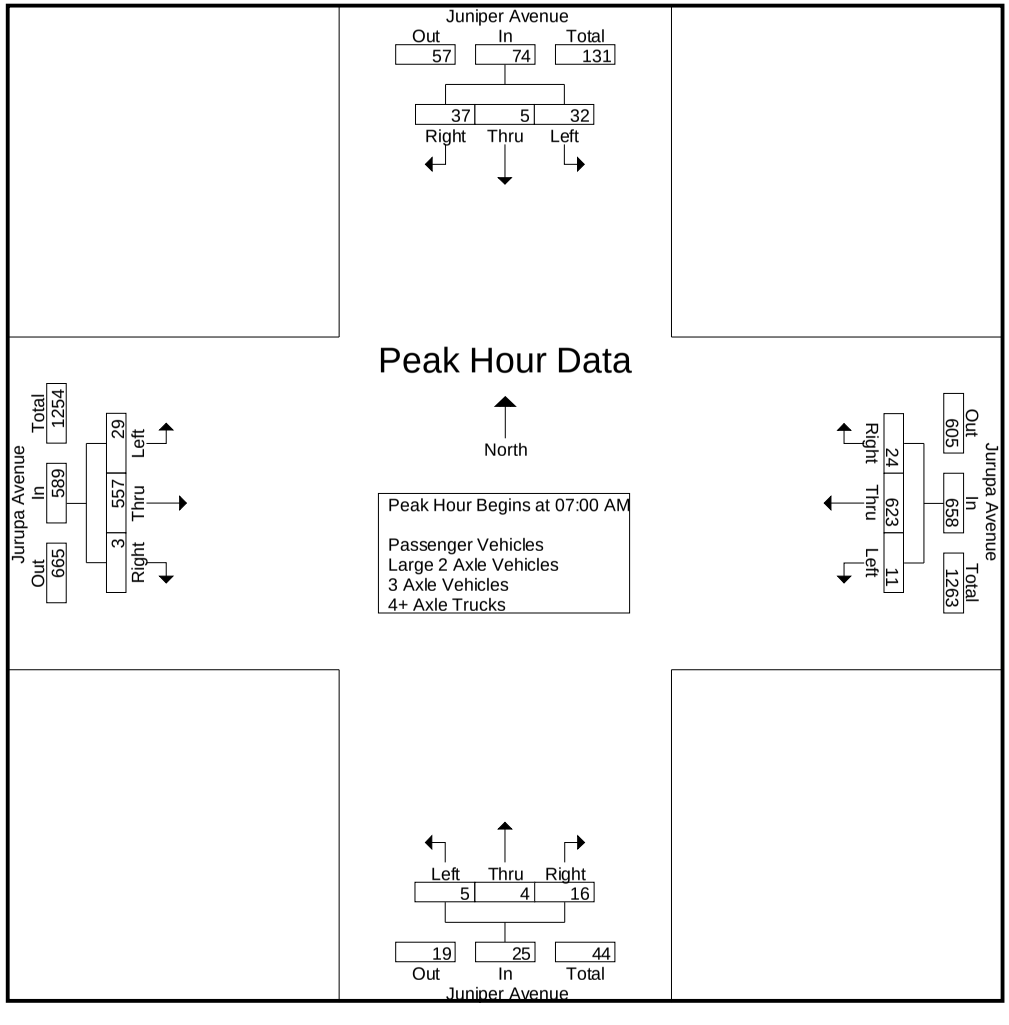
Weather: Clear

File Name : 21_FON_Juniper_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
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Weather: Clear

File Name : 21_FON_Juniper_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	1	1	0	0	2	0	7	7
07:15 AM	0	0	1	1	1	0	5	0	0	5	0	0	0	0	0	3	7	0	0	10	1	16	17
07:30 AM	0	1	1	1	2	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	1	9	10
07:45 AM	0	0	1	1	1	1	3	0	0	4	0	0	1	1	1	0	4	0	0	4	2	10	12
Total	1	1	3	3	5	1	16	0	0	17	0	0	1	1	1	4	15	0	0	19	4	42	46
08:00 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	2	0	0	3	0	9	9
08:15 AM	1	0	0	0	1	0	8	0	0	8	0	0	0	0	0	2	5	0	0	7	0	16	16
08:30 AM	2	0	0	0	2	0	6	0	0	6	0	0	0	0	0	0	11	0	0	11	0	19	19
08:45 AM	0	0	1	1	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	1	5	6
Total	3	0	1	1	4	0	24	0	0	24	0	0	0	0	0	3	18	0	0	21	1	49	50
Grand Total	4	1	4	4	9	1	40	0	0	41	0	0	1	1	1	7	33	0	0	40	5	91	96
Apprch %	44.4	11.1	44.4			2.4	97.6	0			0	0	100			17.5	82.5	0					
Total %	4.4	1.1	4.4		9.9	1.1	44	0		45.1	0	0	1.1		1.1	7.7	36.3	0		44	5.2	94.8	

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	0	0	1	0	4	0	4	0	0	0	0	1	1	0	2	7
07:15 AM	0	0	**1**	1	0	**5**	0	**5**	0	0	0	0	**3**	**7**	0	**10**	**16**
07:30 AM	0	**1**	1	**2**	0	4	0	4	0	0	0	0	0	3	0	3	9
07:45 AM	0	0	1	1	**1**	3	0	4	0	0	**1**	**1**	0	4	0	4	10
Total Volume	1	1	3	5	1	16	0	17	0	0	1	1	4	15	0	19	42
% App. Total	20	20	60		5.9	94.1	0		0	0	100		21.1	78.9	0		
PHF	.250	.250	.750	.625	.250	.800	.000	.850	.000	.000	.250	.250	.333	.536	.000	.475	.656

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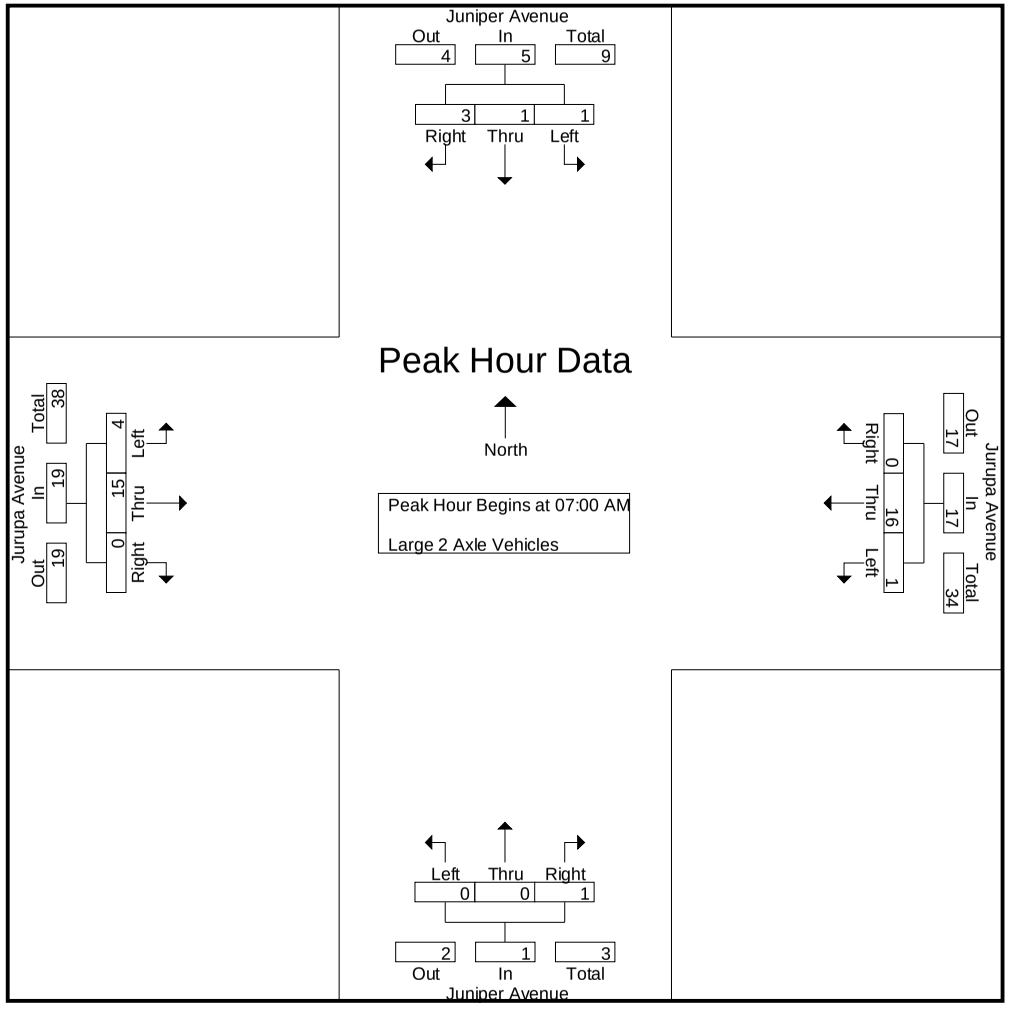

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File Name : 21_FON_Juniper_Jurupa AM
Site Code : 05119181
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Page No : 1

Groups Printed- 3 Axle Vehicles

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
Total	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	0	10	10
Grand Total	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	5	0	0	5	0	14	14
Apprch %	0	0	0			0	100	0			0	0	0			0	100	0					
Total %	0	0	0		0	0	64.3	0		64.3	0	0	0		0	0	35.7	0		35.7	0	100	

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
07:45 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**2**
Total Volume	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	4
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000	.000	.250	.000	.250	.500

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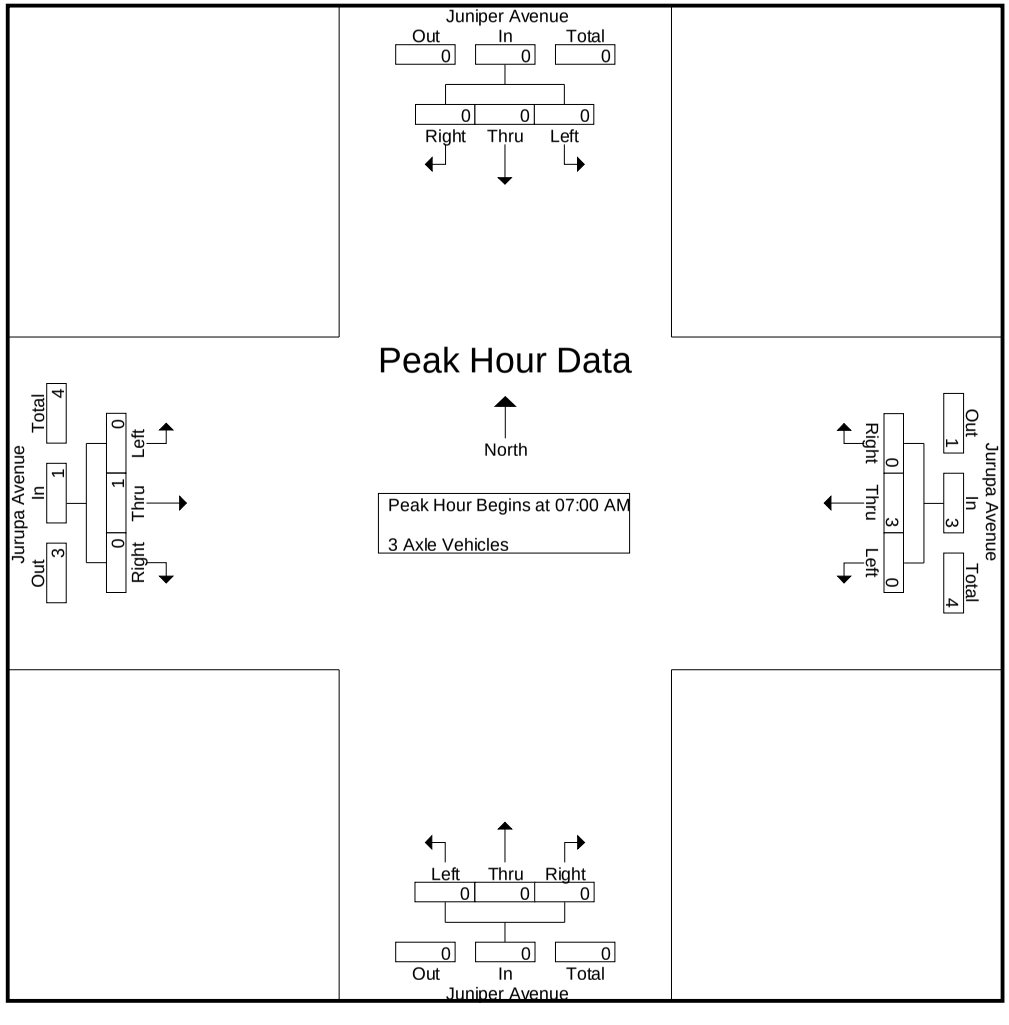

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File Name : 21_FON_Juniper_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
07:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5	5
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:15 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	0	7	7
Grand Total	0	0	0	0	0	1	9	0	0	10	0	0	0	0	0	0	2	0	0	2	0	12	12
Apprch %	0	0	0			10	90	0			0	0	0			0	100	0					
Total %	0	0	0		0	8.3	75	0		83.3	0	0	0		0	0	16.7	0		16.7	0	100	

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**2**
07:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	5	0	5	0	0	0	0	0	0	0	0	5
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.000	.000	.000	.000	.625

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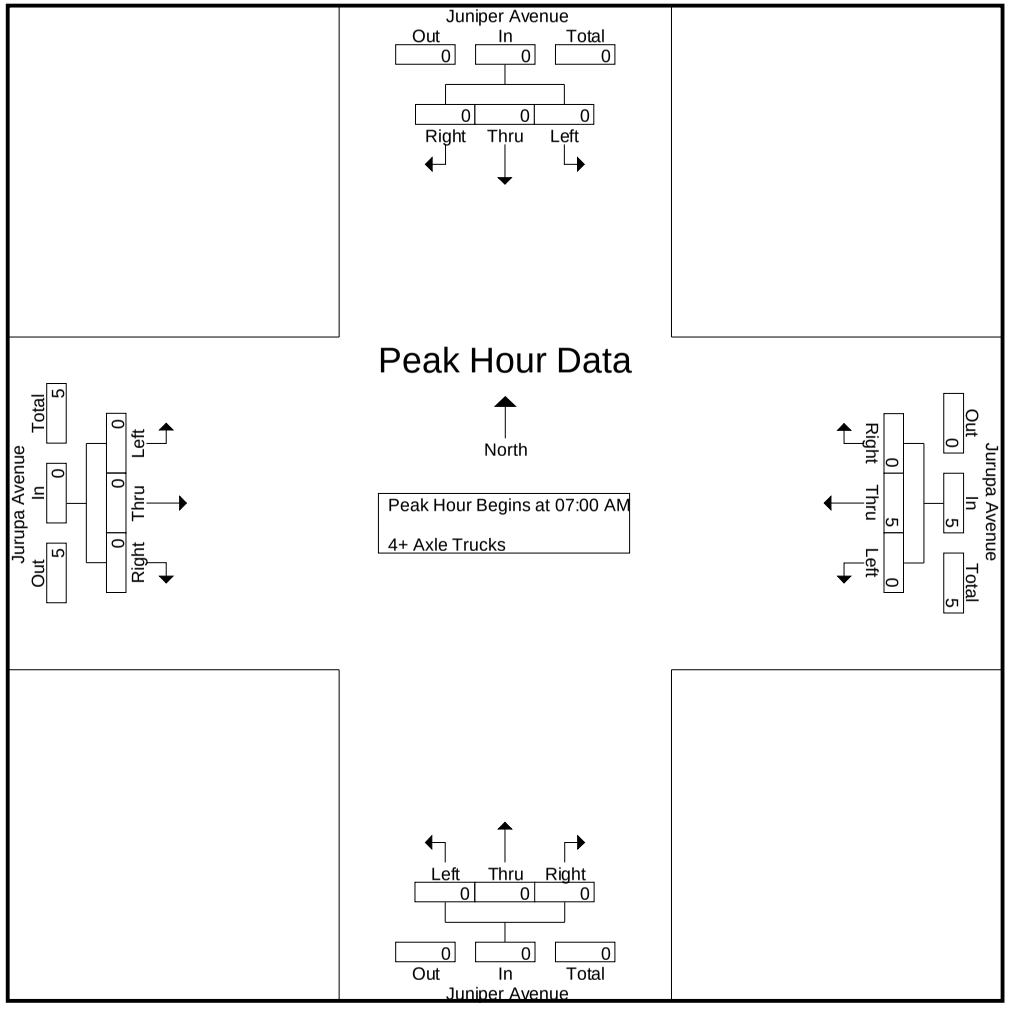

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File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
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Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	1	13	9	16	8	156	6	2	170	0	1	3	1	4	13	213	0	0	226	12	416	428
04:15 PM	6	5	12	9	23	7	168	12	2	187	1	1	1	1	3	16	218	2	0	236	12	449	461
04:30 PM	6	1	16	13	23	8	150	14	2	172	2	4	3	2	9	18	216	0	0	234	17	438	455
04:45 PM	10	6	9	7	25	7	168	8	1	183	3	4	2	1	9	19	253	1	0	273	9	490	499
Total	24	13	50	38	87	30	642	40	7	712	6	10	9	5	25	66	900	3	0	969	50	1793	1843
05:00 PM	7	7	17	14	31	7	153	9	1	169	0	2	0	0	2	12	208	2	0	222	15	424	439
05:15 PM	4	2	9	8	15	5	165	12	1	182	2	4	0	0	6	13	239	2	0	254	9	457	466
05:30 PM	6	1	11	10	18	8	193	8	2	209	0	1	0	0	1	8	185	1	0	194	12	422	434
05:45 PM	5	4	11	11	20	8	167	12	0	187	0	0	3	3	3	15	166	1	0	182	14	392	406
Total	22	14	48	43	84	28	678	41	4	747	2	7	3	3	12	48	798	6	0	852	50	1695	1745
Grand Total	46	27	98	81	171	58	1320	81	11	1459	8	17	12	8	37	114	1698	9	0	1821	100	3488	3588
Apprch %	26.9	15.8	57.3			4	90.5	5.6			21.6	45.9	32.4			6.3	93.2	0.5					
Total %	1.3	0.8	2.8		4.9	1.7	37.8	2.3		41.8	0.2	0.5	0.3		1.1	3.3	48.7	0.3		52.2	2.8	97.2	
Passenger Vehicles	46	27	95		246	56	1275	77		1419	8	17	12		45	109	1625	9		1743	0	0	3453
% Passenger Vehicles	100	100	96.9	96.3	97.6	96.6	96.6	95.1	100	96.5	100	100	100	100	100	95.6	95.7	100	0	95.7	0	0	96.2
Large 2 Axle Vehicles	0	0	3		6	2	27	4		33	0	0	0		0	5	36	0		41	0	0	80
% Large 2 Axle Vehicles	0	0	3.1	3.7	2.4	3.4	2	4.9	0	2.2	0	0	0	0	0	4.4	2.1	0	0	2.3	0	0	2.2
3 Axle Vehicles	0	0	0		0	0	8	0		8	0	0	0		0	0	8	0		8	0	0	16
% 3 Axle Vehicles	0	0	0	0	0	0	0.6	0	0	0.5	0	0	0	0	0	0	0.5	0	0	0.4	0	0	0.4
4+ Axle Trucks	0	0	0		0	0	10	0		10	0	0	0		0	0	29	0		29	0	0	39
% 4+ Axle Trucks	0	0	0	0	0	0	0.8	0	0	0.7	0	0	0	0	0	0	1.7	0	0	1.6	0	0	1.1

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	6	1	16	23	**8**	150	**14**	172	2	**4**	**3**	**9**	18	216	0	234	438
04:45 PM	**10**	6	9	25	7	**168**	8	**183**	**3**	4	2	9	**19**	**253**	1	**273**	**490**
05:00 PM	7	**7**	**17**	**31**	7	153	9	169	0	2	0	2	12	208	**2**	222	424
05:15 PM	4	2	9	15	5	165	12	182	2	4	0	6	13	239	2	254	457
Total Volume	27	16	51	94	27	636	43	706	7	14	5	26	62	916	5	983	1809
% App. Total	28.7	17	54.3		3.8	90.1	6.1		26.9	53.8	19.2		6.3	93.2	0.5		
PHF	.675	.571	.750	.758	.844	.946	.768	.964	.583	.875	.417	.722	.816	.905	.625	.900	.923

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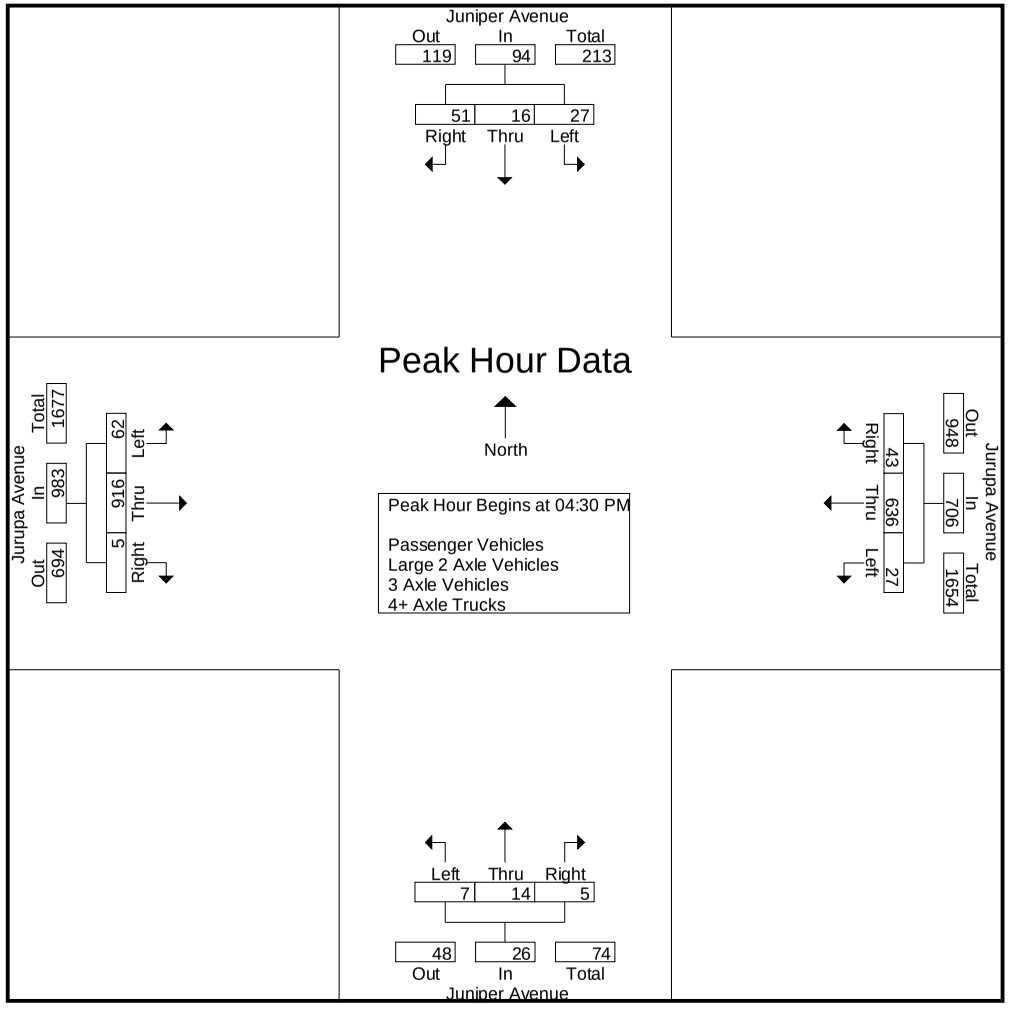
City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	1	1	1	3	1	0	5	0	0	0	0	0	1	3	0	0	4	1	10	11
04:15 PM	0	0	0	0	0	0	7	1	0	8	0	0	0	0	0	2	8	0	0	10	0	18	18
04:30 PM	0	0	0	0	0	0	6	1	0	7	0	0	0	0	0	0	6	0	0	6	0	13	13
04:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	4	0	0	5	0	9	9
Total	0	0	1	1	1	1	20	3	0	24	0	0	0	0	0	4	21	0	0	25	1	50	51
05:00 PM	0	0	2	2	2	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	2	9	11
05:15 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	1	9	0	0	10	0	13	13
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	0	0	2	2	2	1	7	1	0	9	0	0	0	0	0	1	15	0	0	16	2	27	29
Grand Total	0	0	3	3	3	2	27	4	0	33	0	0	0	0	0	5	36	0	0	41	3	77	80
Apprch %	0	0	100			6.1	81.8	12.1			0	0	0			12.2	87.8	0					
Total %	0	0	3.9		3.9	2.6	35.1	5.2		42.9	0	0	0		0	6.5	46.8	0		53.2	3.8	96.2	

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	**6**	**1**	**7**	0	0	0	0	0	6	0	6	**13**
04:45 PM	0	0	0	0	0	4	0	4	0	0	0	0	**1**	4	0	5	9
05:00 PM	0	0	**2**	**2**	0	3	1	4	0	0	0	0	0	3	0	3	9
05:15 PM	0	0	0	0	**1**	2	0	3	0	0	0	0	1	**9**	0	**10**	13
Total Volume	0	0	2	2	1	15	2	18	0	0	0	0	2	22	0	24	44
% App. Total	0	0	100		5.6	83.3	11.1		0	0	0		8.3	91.7	0		
PHF	.000	.000	.250	.250	.250	.625	.500	.643	.000	.000	.000	.000	.500	.611	.000	.600	.846

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City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

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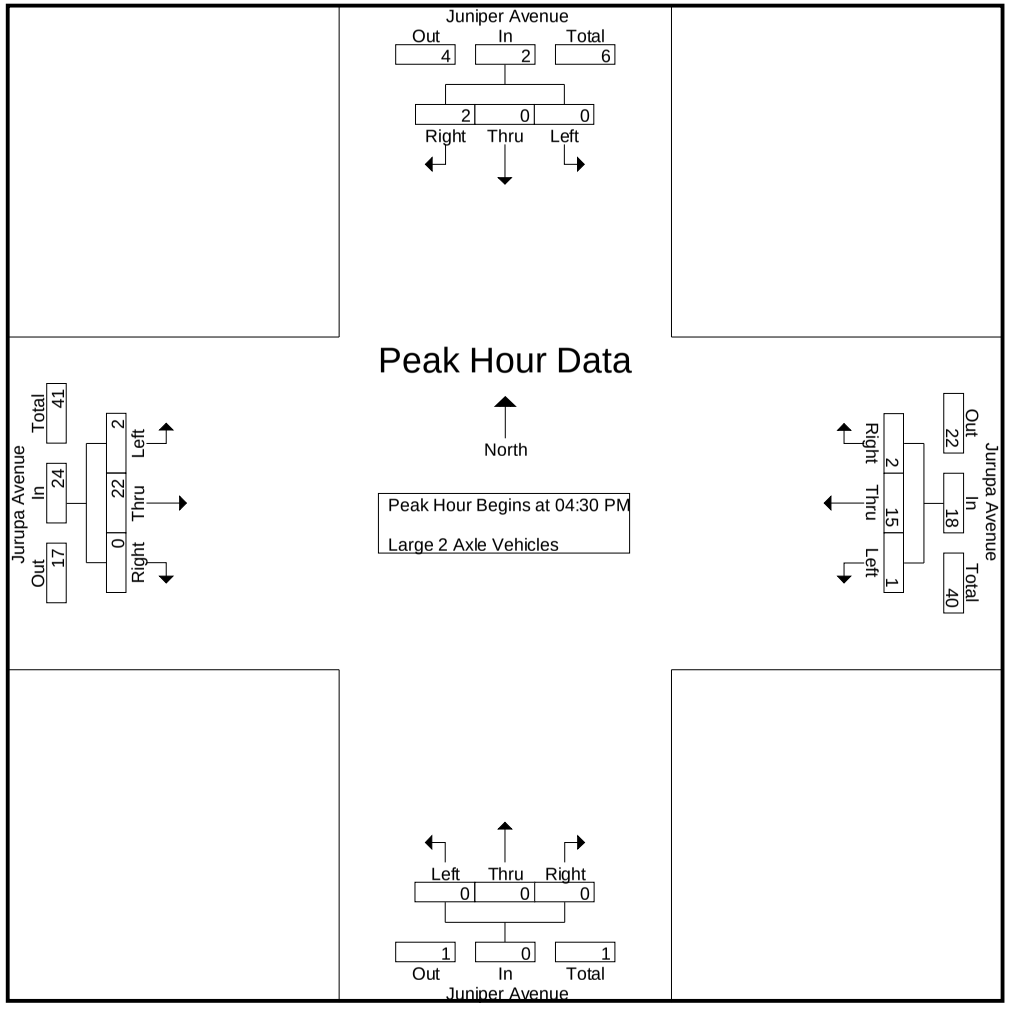
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	0	8	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	0	8	8
Grand Total	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	8	0	0	8	0	16	16
Apprch %	0	0	0			0	100	0			0	0	0			0	100	0					
Total %	0	0	0		0	0	50	0		50	0	0	0		0	0	50	0		50	0	100	

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
04:45 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	**4**
Total Volume	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.500	.000	.500	.500

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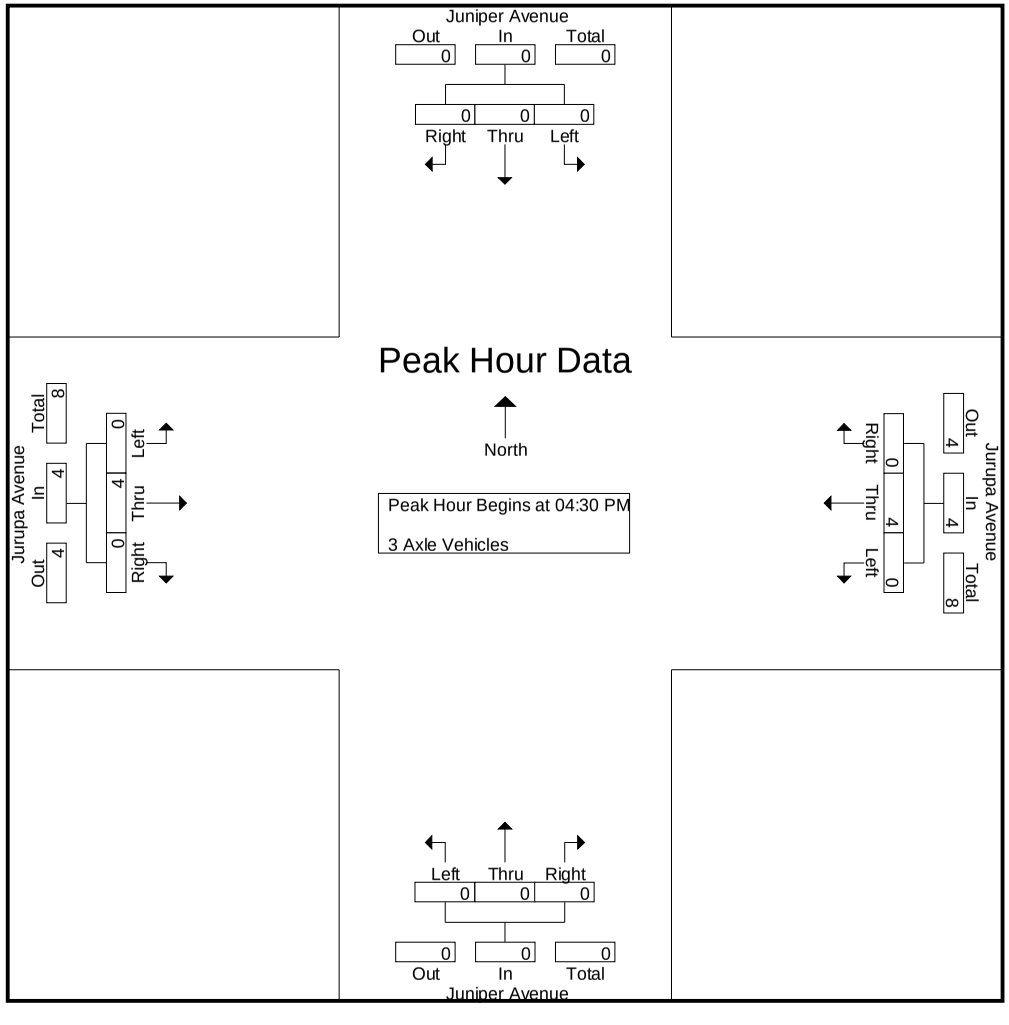
City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Juniper Avenue Southbound					Jurupa Avenue Westbound					Juniper Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	5	5
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	10	0	0	10	0	12	12
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	17	0	0	17	0	20	20
05:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	7	7
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	5	5
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	3	3
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
Total	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	12	0	0	12	0	19	19
Grand Total	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	29	0	0	29	0	39	39
Apprch %	0	0	0			0	100	0			0	0	0			0	100	0					
Total %	0	0	0		0	0	25.6	0		25.6	0	0	0		0	0	74.4	0		74.4	0	100	

	Juniper Avenue Southbound				Jurupa Avenue Westbound				Juniper Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	**10**	0	**10**	**12**
05:00 PM	0	0	0	0	0	**4**	0	**4**	0	0	0	0	0	3	0	3	7
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	4	0	4	5
Total Volume	0	0	0	0	0	7	0	7	0	0	0	0	0	18	0	18	25
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.438	.000	.438	.000	.000	.000	.000	.000	.450	.000	.450	.521

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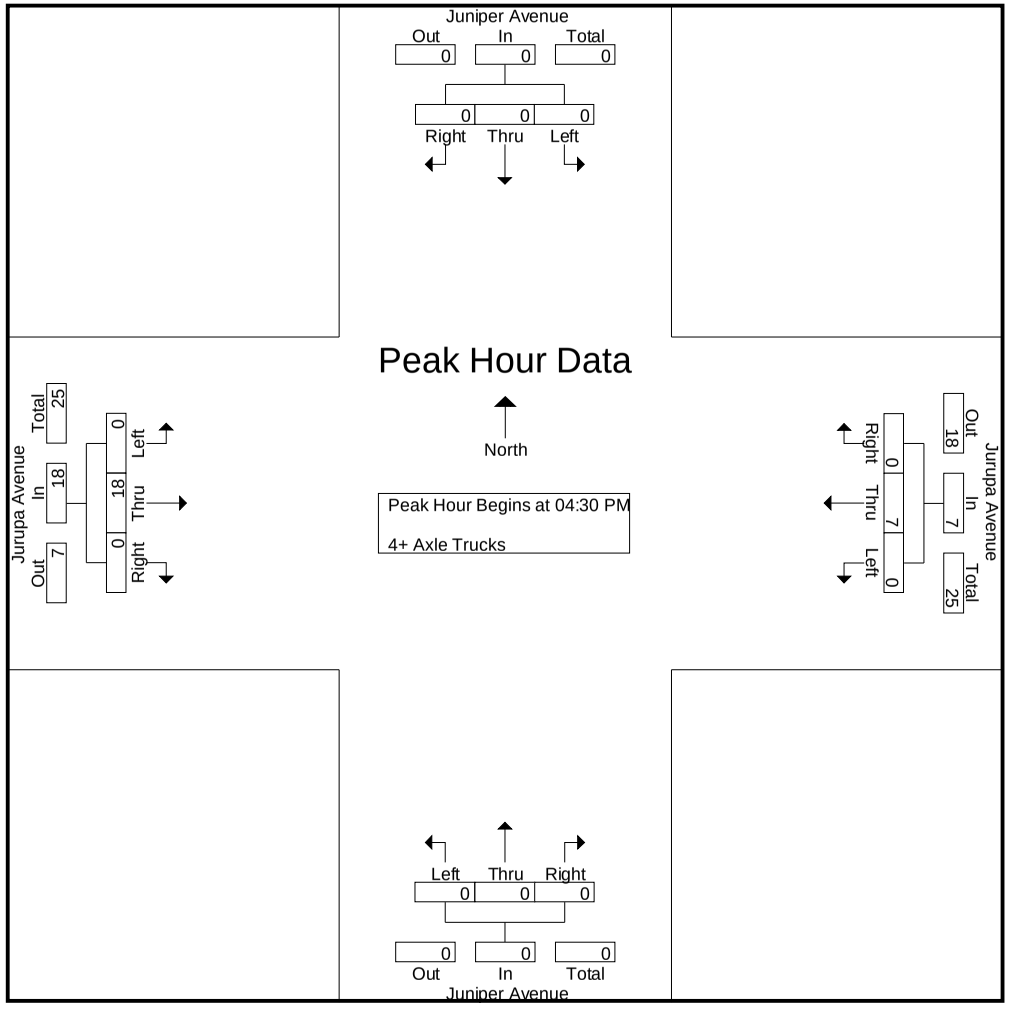
City of Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 21_FON_Juniper_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Location: Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Juniper Avenue	East Leg Jurupa Avenue	South Leg Juniper Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	2	0	0	0	2
8:30 AM	0	1	2	0	3
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	1	2	0	6

	North Leg Juniper Avenue	East Leg Jurupa Avenue	South Leg Juniper Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	1	0	1
4:45 PM	0	0	1	0	1
5:00 PM	2	0	1	0	3
5:15 PM	0	0	0	0	0
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	3	0	3	0	6

Location: Fontana
N/S: Juniper Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Juniper Avenue			Westbound Jurupa Avenue			Northbound Juniper Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	0	1

	Southbound Juniper Avenue			Westbound Jurupa Avenue			Northbound Juniper Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	14	142	9	2	165	8	23	24	18	55	14	193	13	4	220	19	16	15	13	50	37	490	527
07:15 AM	15	162	14	4	191	12	28	26	17	66	20	229	8	1	257	10	19	25	18	54	40	568	608
07:30 AM	19	195	11	1	225	13	14	26	14	53	7	285	7	1	299	24	20	26	22	70	38	647	685
07:45 AM	20	149	15	4	184	5	14	19	13	38	21	249	17	0	287	10	18	15	11	43	28	552	580
Total	68	648	49	11	765	38	79	95	62	212	62	956	45	6	1063	63	73	81	64	217	143	2257	2400
08:00 AM	24	136	16	5	176	4	17	15	13	36	21	285	7	1	313	19	12	11	9	42	28	567	595
08:15 AM	23	146	15	7	184	9	23	22	15	54	25	267	14	1	306	23	13	14	5	50	28	594	622
08:30 AM	14	162	10	3	186	15	9	28	17	52	23	235	9	3	267	18	13	8	7	39	30	544	574
08:45 AM	13	174	15	6	202	10	13	10	7	33	16	252	5	1	273	17	8	10	10	35	24	543	567
Total	74	618	56	21	748	38	62	75	52	175	85	1039	35	6	1159	77	46	43	31	166	110	2248	2358
Grand Total	142	1266	105	32	1513	76	141	170	114	387	147	1995	80	12	2222	140	119	124	95	383	253	4505	4758
Apprch %	9.4	83.7	6.9			19.6	36.4	43.9			6.6	89.8	3.6			36.6	31.1	32.4					
Total %	3.2	28.1	2.3		33.6	1.7	3.1	3.8		8.6	3.3	44.3	1.8		49.3	3.1	2.6	2.8		8.5	5.3	94.7	
Passenger Vehicles	135	1210	98		1471	69	133	160		470	145	1958	77		2191	128	114	123		460	0	0	4592
% Passenger Vehicles	95.1	95.6	93.3	87.5	95.2	90.8	94.3	94.1	94.7	93.8	98.6	98.1	96.2	91.7	98.1	91.4	95.8	99.2	100	96.2	0	0	96.5
Large 2 Axle Vehicles	5	36	2		44	7	7	6		24	2	28	3		34	8	1	0		9	0	0	111
% Large 2 Axle Vehicles	3.5	2.8	1.9	3.1	2.8	9.2	5	3.5	3.5	4.8	1.4	1.4	3.8	8.3	1.5	5.7	0.8	0	0	1.9	0	0	2.3
3 Axle Vehicles	1	7	4		14	0	1	0		1	0	4	0		4	2	4	0		6	0	0	25
% 3 Axle Vehicles	0.7	0.6	3.8	6.2	0.9	0	0.7	0	0	0.2	0	0.2	0	0	0.2	1.4	3.4	0	0	1.3	0	0	0.5
4+ Axle Trucks	1	13	1		16	0	0	4		6	0	5	0		5	2	0	1		3	0	0	30
% 4+ Axle Trucks	0.7	1	1	3.1	1	0	0	2.4	1.8	1.2	0	0.3	0	0	0.2	1.4	0	0.8	0	0.6	0	0	0.6

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	19	**195**	11	**225**	**13**	14	**26**	53	7	**285**	7	299	**24**	**20**	**26**	**70**	**647**
07:45 AM	20	149	15	184	5	14	19	38	21	249	**17**	287	10	18	15	43	552
08:00 AM	**24**	136	**16**	176	4	17	15	36	21	285	7	**313**	19	12	11	42	567
08:15 AM	23	146	15	184	9	**23**	22	**54**	**25**	267	14	306	23	13	14	50	594
Total Volume	86	626	57	769	31	68	82	181	74	1086	45	1205	76	63	66	205	2360
% App. Total	11.2	81.4	7.4		17.1	37.6	45.3		6.1	90.1	3.7		37.1	30.7	32.2		
PHF	.896	.803	.891	.854	.596	.739	.788	.838	.740	.953	.662	.962	.792	.788	.635	.732	.912

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City of Fontana
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E/W: Santa Ana Avenue
Weather: Clear

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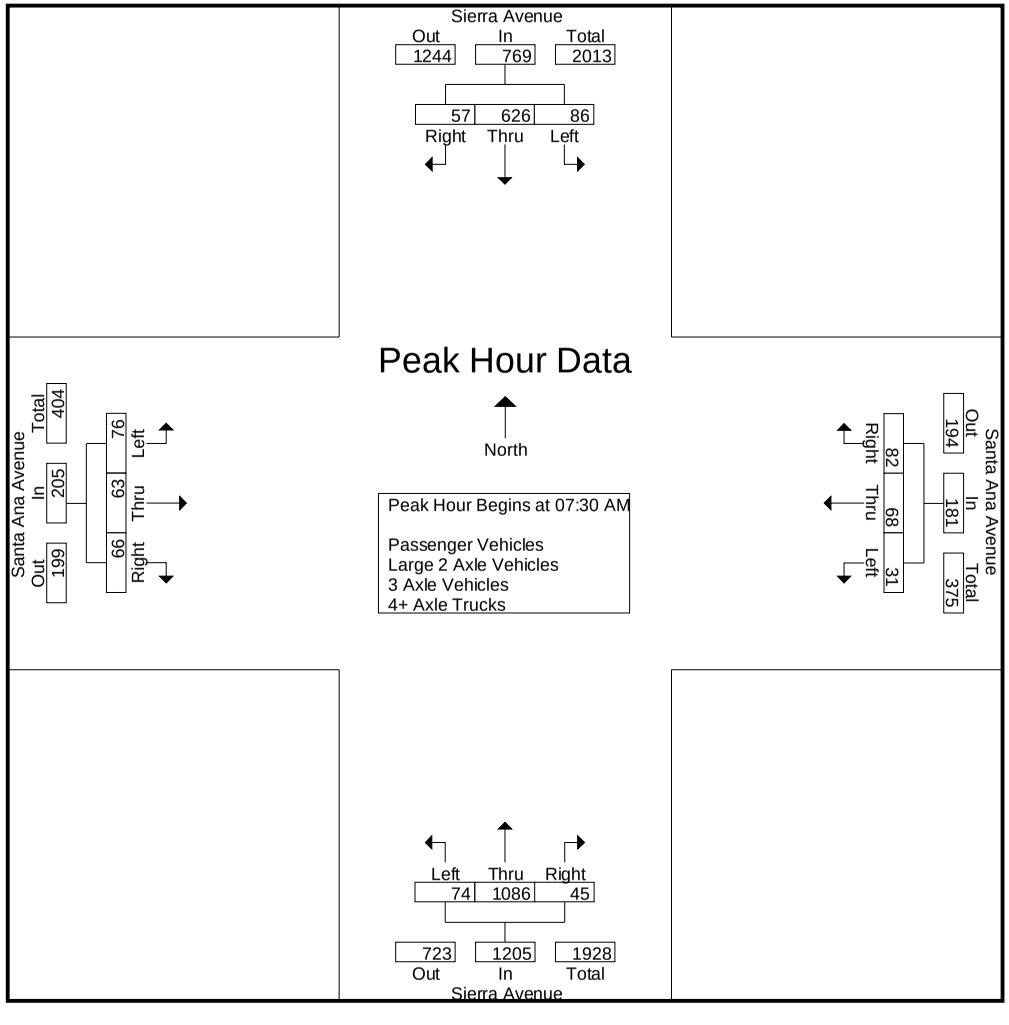
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
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Weather: Clear

File Name : 23_FON_Sierra_Santa Ana AM
Site Code : 05119181
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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	4	0	0	4	1	1	0	0	2	0	2	0	0	2	1	0	0	0	1	0	9	9
07:15 AM	1	5	0	0	6	1	0	0	0	1	0	6	0	0	6	0	0	0	0	0	0	13	13
07:30 AM	0	2	0	0	2	2	0	1	0	3	0	3	1	0	4	1	0	0	0	1	0	10	10
07:45 AM	0	7	1	1	8	0	2	0	0	2	0	3	0	0	3	0	1	0	0	1	1	14	15
Total	1	18	1	1	20	4	3	1	0	8	0	14	1	0	15	2	1	0	0	3	1	46	47
08:00 AM	1	4	0	0	5	0	2	1	1	3	1	2	0	0	3	2	0	0	0	2	1	13	14
08:15 AM	1	2	0	0	3	0	1	1	1	2	0	3	1	0	4	3	0	0	0	3	1	12	13
08:30 AM	0	5	1	0	6	3	0	3	2	6	0	6	1	1	7	0	0	0	0	0	3	19	22
08:45 AM	2	7	0	0	9	0	1	0	0	1	1	3	0	0	4	1	0	0	0	1	0	15	15
Total	4	18	1	0	23	3	4	5	4	12	2	14	2	1	18	6	0	0	0	6	5	59	64
Grand Total	5	36	2	1	43	7	7	6	4	20	2	28	3	1	33	8	1	0	0	9	6	105	111
Apprch %	11.6	83.7	4.7			35	35	30			6.1	84.8	9.1			88.9	11.1	0					
Total %	4.8	34.3	1.9		41	6.7	6.7	5.7		19	1.9	26.7	2.9		31.4	7.6	1	0		8.6	5.4	94.6	

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	2	0	2	**2**	0	**1**	**3**	0	**3**	**1**	**4**	1	0	0	1	10
07:45 AM	0	**7**	**1**	**8**	0	**2**	0	2	0	3	0	3	0	**1**	0	1	**14**
08:00 AM	**1**	4	0	5	0	2	1	3	**1**	2	0	3	2	0	0	2	13
08:15 AM	1	2	0	3	0	1	1	2	0	3	1	4	**3**	0	0	**3**	12
Total Volume	2	15	1	18	2	5	3	10	1	11	2	14	6	1	0	7	49
% App. Total	11.1	83.3	5.6		20	50	30		7.1	78.6	14.3		85.7	14.3	0		
PHF	.500	.536	.250	.563	.250	.625	.750	.833	.250	.917	.500	.875	.500	.250	.000	.583	.875

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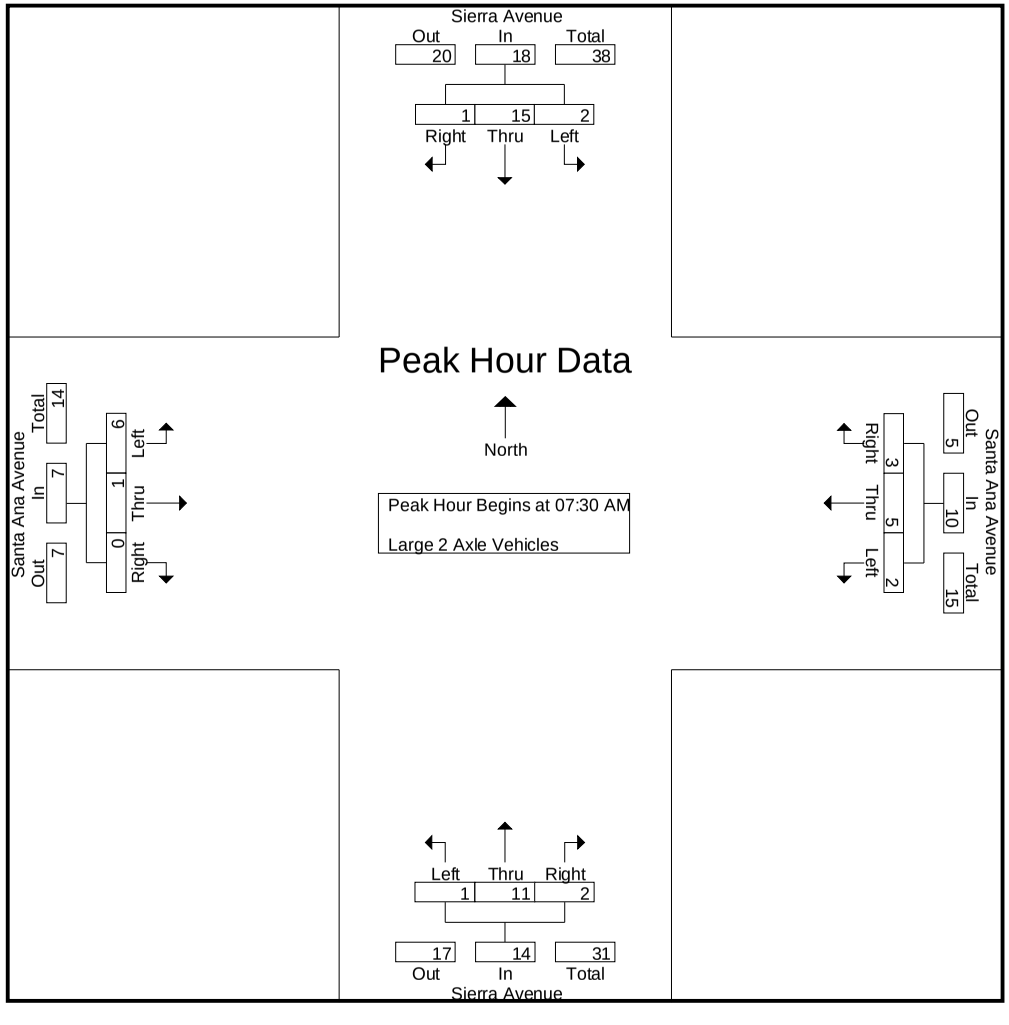

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Page No : 1

Groups Printed- 3 Axle Vehicles

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	1	1	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	3	4
07:15 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
07:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:45 AM	0	2	2	1	4	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	1	6	7
Total	1	2	4	2	7	0	1	0	0	1	0	2	0	0	2	0	2	0	0	2	2	12	14
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	4	4
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	3
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	3	3
Total	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	2	2	0	0	4	0	11	11
Grand Total	1	7	4	2	12	0	1	0	0	1	0	4	0	0	4	2	4	0	0	6	2	23	25
Apprch %	8.3	58.3	33.3			0	100	0			0	100	0			33.3	66.7	0					
Total %	4.3	30.4	17.4		52.2	0	4.3	0		4.3	0	17.4	0		17.4	8.7	17.4	0		26.1	8	92	

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	**2**	**2**	**4**	0	0	0	0	0	0	0	0	0	**2**	0	**2**	**6**
08:00 AM	0	1	0	1	0	0	0	0	0	**1**	0	**1**	**2**	0	0	2	4
08:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	4	3	7	0	0	0	0	0	1	0	1	2	2	0	4	12
% App. Total	0	57.1	42.9		0	0	0		0	100	0		50	50	0		
PHF	.000	.500	.375	.438	.000	.000	.000	.000	.000	.250	.000	.250	.250	.250	.000	.500	.500

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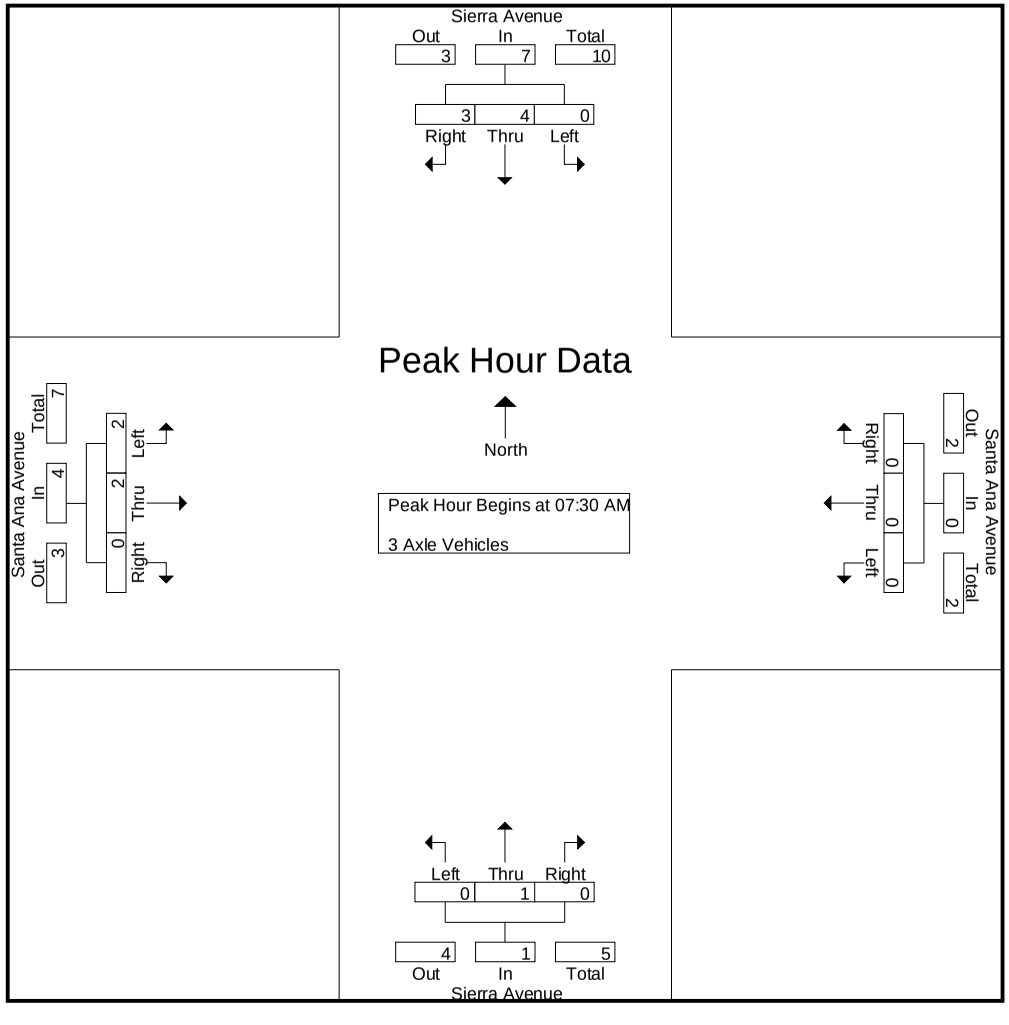

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Page No : 1

Groups Printed- 4+ Axle Trucks

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2
07:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
07:30 AM	0	2	0	0	2	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	1	4	5
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2
Total	0	5	0	0	5	0	0	1	1	1	0	3	0	0	3	1	0	0	0	1	1	10	11
08:00 AM	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
08:30 AM	0	4	1	1	5	0	0	2	1	2	0	1	0	0	1	1	0	0	0	1	2	9	11
08:45 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	2	2
Total	1	8	1	1	10	0	0	3	1	3	0	2	0	0	2	1	0	1	0	2	2	17	19
Grand Total	1	13	1	1	15	0	0	4	2	4	0	5	0	0	5	2	0	1	0	3	3	27	30
Apprch %	6.7	86.7	6.7			0	0	100			0	100	0			66.7	0	33.3					
Total %	3.7	48.1	3.7		55.6	0	0	14.8		14.8	0	18.5	0		18.5	7.4	0	3.7		11.1	10	90	

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	2	0	2	0	0	**1**	**1**	0	1	0	1	0	0	0	0	4
07:45 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	2
08:00 AM	**1**	**4**	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0	**5**
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
Total Volume	1	6	0	7	0	0	1	1	0	3	0	3	0	0	1	1	12
% App. Total	14.3	85.7	0		0	0	100		0	100	0		0	0	100		
PHF	.250	.375	.000	.350	.000	.000	.250	.250	.000	.375	.000	.375	.000	.000	.250	.250	.600

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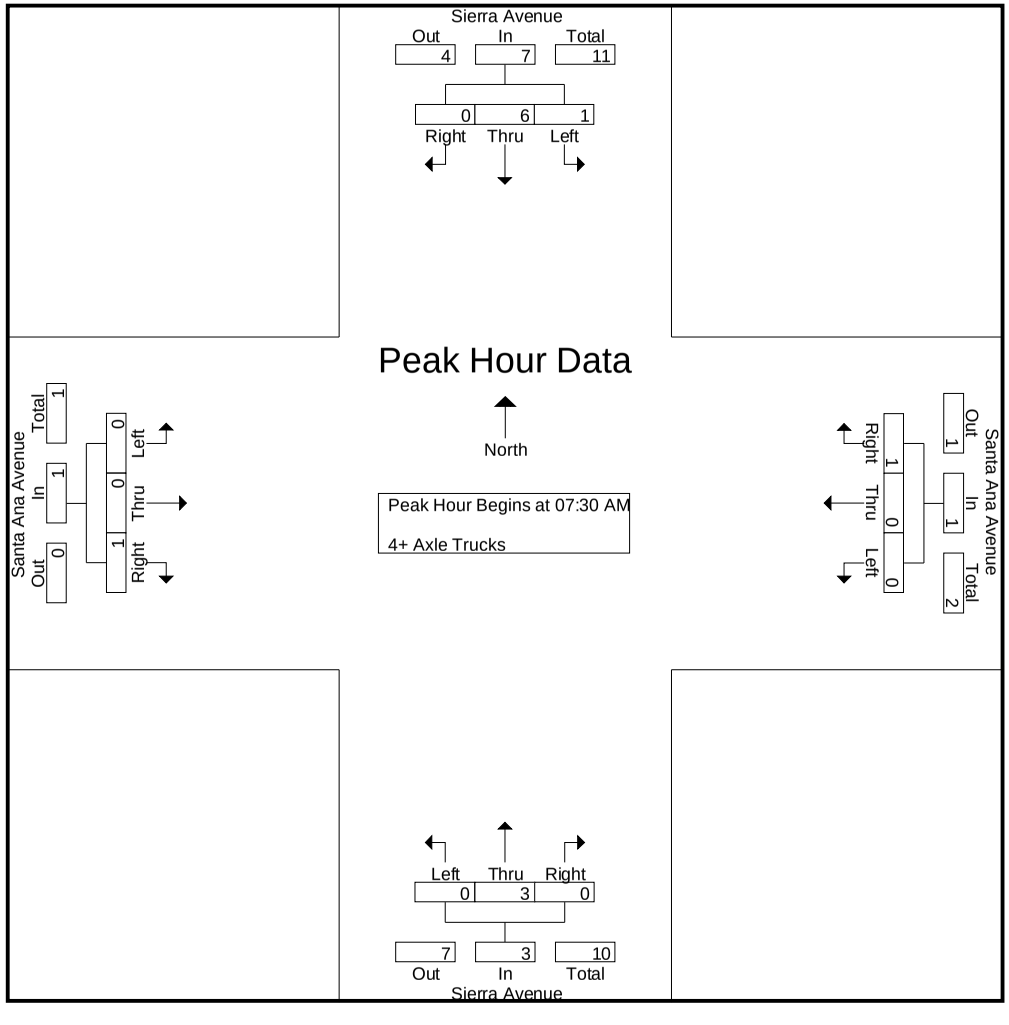

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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	32	246	26	8	304	23	18	16	9	57	40	292	16	1	348	43	29	31	29	103	47	812	859
04:15 PM	21	256	30	11	307	13	14	17	11	44	55	305	20	6	380	26	23	27	20	76	48	807	855
04:30 PM	25	242	32	12	299	21	25	19	8	65	42	311	11	1	364	44	28	26	21	98	42	826	868
04:45 PM	25	267	18	4	310	15	23	21	10	59	38	286	15	1	339	40	28	30	23	98	38	806	844
Total	103	1011	106	35	1220	72	80	73	38	225	175	1194	62	9	1431	153	108	114	93	375	175	3251	3426
05:00 PM	41	256	25	4	322	18	35	20	10	73	42	328	14	3	384	28	28	33	26	89	43	868	911
05:15 PM	23	286	22	4	331	16	31	18	6	65	46	339	11	3	396	22	29	26	25	77	38	869	907
05:30 PM	37	253	27	3	317	18	38	16	11	72	43	344	6	1	393	28	38	25	22	91	37	873	910
05:45 PM	43	244	21	5	308	15	28	22	11	65	33	300	10	0	343	24	29	18	14	71	30	787	817
Total	144	1039	95	16	1278	67	132	76	38	275	164	1311	41	7	1516	102	124	102	87	328	148	3397	3545
Grand Total	247	2050	201	51	2498	139	212	149	76	500	339	2505	103	16	2947	255	232	216	180	703	323	6648	6971
Apprch %	9.9	82.1	8			27.8	42.4	29.8			11.5	85	3.5			36.3	33	30.7					
Total %	3.7	30.8	3		37.6	2.1	3.2	2.2		7.5	5.1	37.7	1.5		44.3	3.8	3.5	3.2		10.6	4.6	95.4	
Passenger Vehicles	244	2017	196		2505	130	210	142		555	331	2445	97		2889	245	227	214		864	0	0	6813
% Passenger Vehicles	98.8	98.4	97.5	94.1	98.3	93.5	99.1	95.3	96.1	96.4	97.6	97.6	94.2	100	97.5	96.1	97.8	99.1	98.9	97.8	0	0	97.7
Large 2 Axle Vehicles	3	19	2		25	3	2	2		8	5	33	3		41	7	4	2		15	0	0	89
% Large 2 Axle Vehicles	1.2	0.9	1	2	1	2.2	0.9	1.3	1.3	1.4	1.5	1.3	2.9	0	1.4	2.7	1.7	0.9	1.1	1.7	0	0	1.3
3 Axle Vehicles	0	7	1		9	1	0	2		4	2	6	0		8	1	1	0		2	0	0	23
% 3 Axle Vehicles	0	0.3	0.5	2	0.4	0.7	0	1.3	1.3	0.7	0.6	0.2	0	0	0.3	0.4	0.4	0	0	0.2	0	0	0.3
4+ Axle Trucks	0	7	2		10	5	0	3		9	1	21	3		25	2	0	0		2	0	0	46
% 4+ Axle Trucks	0	0.3	1	2	0.4	3.6	0	2	1.3	1.6	0.3	0.8	2.9	0	0.8	0.8	0	0	0	0.2	0	0	0.7

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	25	267	18	310	15	23	**21**	59	38	286	**15**	339	**40**	28	30	**98**	806
05:00 PM	**41**	256	25	322	**18**	35	20	**73**	42	328	14	384	28	28	**33**	89	868
05:15 PM	23	**286**	22	**331**	16	31	18	65	**46**	339	11	**396**	22	29	26	77	869
05:30 PM	37	253	**27**	317	18	**38**	16	72	43	**344**	6	393	28	**38**	25	91	**873**
Total Volume	126	1062	92	1280	67	127	75	269	169	1297	46	1512	118	123	114	355	3416
% App. Total	9.8	83	7.2		24.9	47.2	27.9		11.2	85.8	3		33.2	34.6	32.1		
PHF	.768	.928	.852	.967	.931	.836	.893	.921	.918	.943	.767	.955	.738	.809	.864	.906	.978

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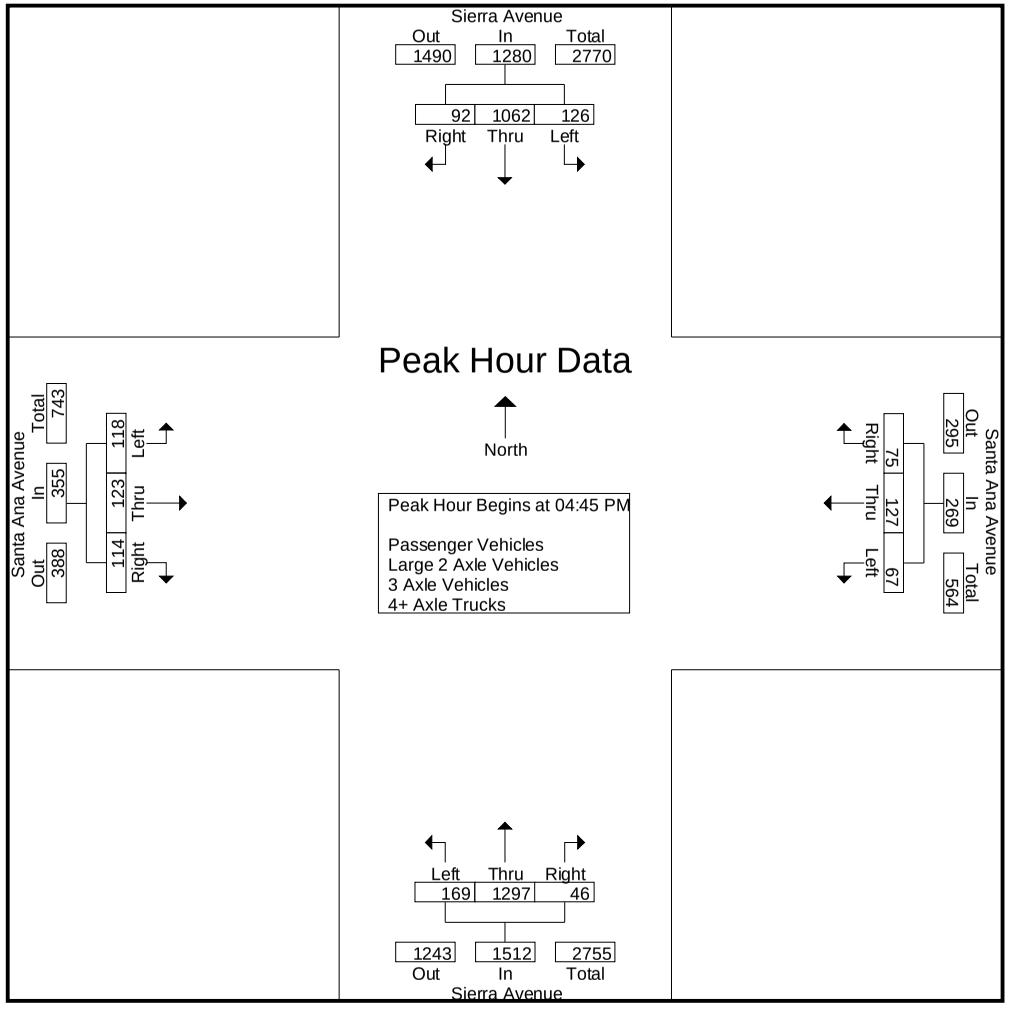
City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	3	1	0	5	0	0	0	0	0	0	6	0	0	6	2	0	0	0	2	0	13	13
04:15 PM	0	3	1	1	4	1	0	0	0	1	1	6	1	0	8	1	1	1	1	3	2	16	18
04:30 PM	1	1	0	0	2	0	0	0	0	0	1	6	0	0	7	1	0	0	0	1	0	10	10
04:45 PM	0	3	0	0	3	1	0	0	0	1	0	1	1	0	2	1	0	0	0	1	0	7	7
Total	2	10	2	1	14	2	0	0	0	2	2	19	2	0	23	5	1	1	1	7	2	46	48
05:00 PM	0	6	0	0	6	0	2	0	0	2	1	7	0	0	8	1	0	0	0	1	0	17	17
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	0	1	1	1	2	1	6	7
05:30 PM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	4
05:45 PM	0	1	0	0	1	1	0	2	1	3	2	3	0	0	5	1	2	0	0	3	1	12	13
Total	1	9	0	0	10	1	2	2	1	5	3	14	1	0	18	2	3	1	1	6	2	39	41
Grand Total	3	19	2	1	24	3	2	2	1	7	5	33	3	0	41	7	4	2	2	13	4	85	89
Apprch %	12.5	79.2	8.3			42.9	28.6	28.6			12.2	80.5	7.3			53.8	30.8	15.4					
Total %	3.5	22.4	2.4		28.2	3.5	2.4	2.4		8.2	5.9	38.8	3.5		48.2	8.2	4.7	2.4		15.3	4.5	95.5	

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	3	0	3	**1**	0	0	1	0	1	**1**	2	**1**	0	0	1	7
05:00 PM	0	**6**	0	**6**	0	**2**	0	**2**	**1**	**7**	0	**8**	1	0	0	1	**17**
05:15 PM	0	2	0	2	0	0	0	0	0	1	1	2	0	**1**	**1**	**2**	6
05:30 PM	**1**	0	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
Total Volume	1	11	0	12	1	2	0	3	1	12	2	15	2	1	1	4	34
% App. Total	8.3	91.7	0		33.3	66.7	0		6.7	80	13.3		50	25	25		
PHF	.250	.458	.000	.500	.250	.250	.000	.375	.250	.429	.500	.469	.500	.250	.250	.500	.500

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City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

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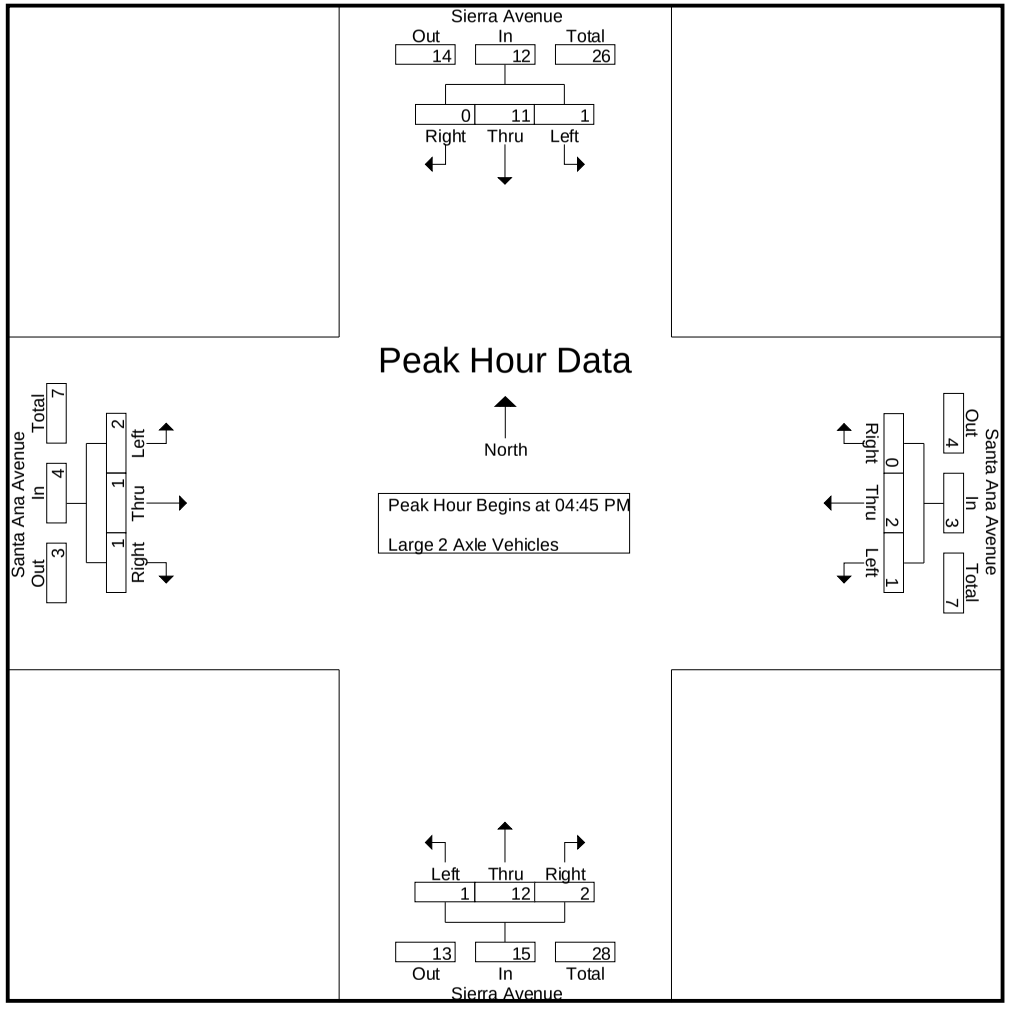
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3	1	0	0	0	1	0	5	5
04:15 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	2
04:30 PM	0	0	1	1	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	3	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	1	1	1	2	0	0	1	0	1	1	5	0	0	6	1	1	0	0	2	1	11	12
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	4	0	0	4	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	1	6	7
05:30 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	2
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	2
Total	0	6	0	0	6	1	0	1	1	2	1	1	0	0	2	0	0	0	0	0	1	10	11
Grand Total	0	7	1	1	8	1	0	2	1	3	2	6	0	0	8	1	1	0	0	2	2	21	23
Apprch %	0	87.5	12.5			33.3	0	66.7			25	75	0			50	50	0					
Total %	0	33.3	4.8		38.1	4.8	0	9.5		14.3	9.5	28.6	0		38.1	4.8	4.8	0		9.5	8.7	91.3	

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	**4**	0	**4**	**1**	0	**1**	**2**	0	0	0	0	0	0	0	0	**6**
05:30 PM	0	1	0	1	0	0	0	0	**1**	0	0	**1**	0	0	0	0	2
Total Volume	0	5	0	5	1	0	1	2	1	0	0	1	0	1	0	1	9
% App. Total	0	100	0		50	0	50		100	0	0		0	100	0		
PHF	.000	.313	.000	.313	.250	.000	.250	.250	.250	.000	.000	.250	.000	.250	.000	.250	.375

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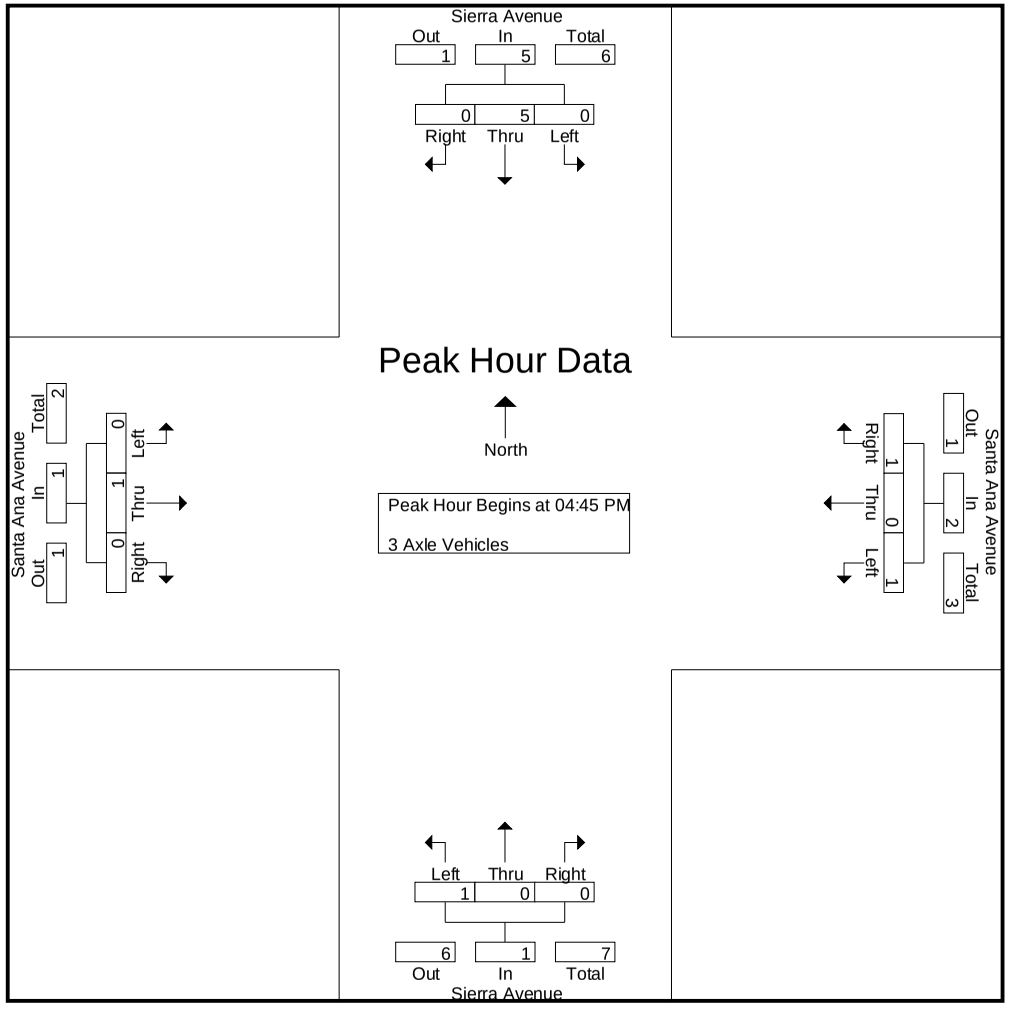
City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Sierra Avenue Southbound					Santa Ana Avenue Westbound					Sierra Avenue Northbound					Santa Ana Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	1	0	1	0	2	0	3	1	0	4	0	0	0	0	0	0	7	7
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3	1	0	0	0	1	0	4	4
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	2	2
04:45 PM	0	3	1	1	4	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	1	9	10
Total	0	4	1	1	5	3	0	1	0	4	1	8	2	0	11	2	0	0	0	2	1	22	23
05:00 PM	0	1	0	0	1	1	0	0	0	1	0	6	0	0	6	0	0	0	0	0	0	8	8
05:15 PM	0	0	0	0	0	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	5	5
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	4	4
05:45 PM	0	2	1	0	3	1	0	1	1	2	0	0	0	0	0	0	0	0	0	0	1	5	6
Total	0	3	1	0	4	2	0	2	1	4	0	13	1	0	14	0	0	0	0	0	1	22	23
Grand Total	0	7	2	1	9	5	0	3	1	8	1	21	3	0	25	2	0	0	0	2	2	44	46
Apprch %	0	77.8	22.2			62.5	0	37.5			4	84	12			100	0	0					
Total %	0	15.9	4.5		20.5	11.4	0	6.8		18.2	2.3	47.7	6.8		56.8	4.5	0	0		4.5	4.3	95.7	

	Sierra Avenue Southbound				Santa Ana Avenue Westbound				Sierra Avenue Northbound				Santa Ana Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	**3**	**1**	**4**	**1**	0	0	**1**	0	4	0	4	0	0	0	0	**9**
05:00 PM	0	1	0	1	1	0	0	1	0	**6**	0	**6**	0	0	0	0	8
05:15 PM	0	0	0	0	0	0	**1**	1	0	4	0	4	0	0	0	0	5
05:30 PM	0	0	0	0	0	0	0	0	0	3	**1**	4	0	0	0	0	4
Total Volume	0	4	1	5	2	0	1	3	0	17	1	18	0	0	0	0	26
% App. Total	0	80	20		66.7	0	33.3		0	94.4	5.6		0	0	0		
PHF	.000	.333	.250	.313	.500	.000	.250	.750	.000	.708	.250	.750	.000	.000	.000	.000	.722

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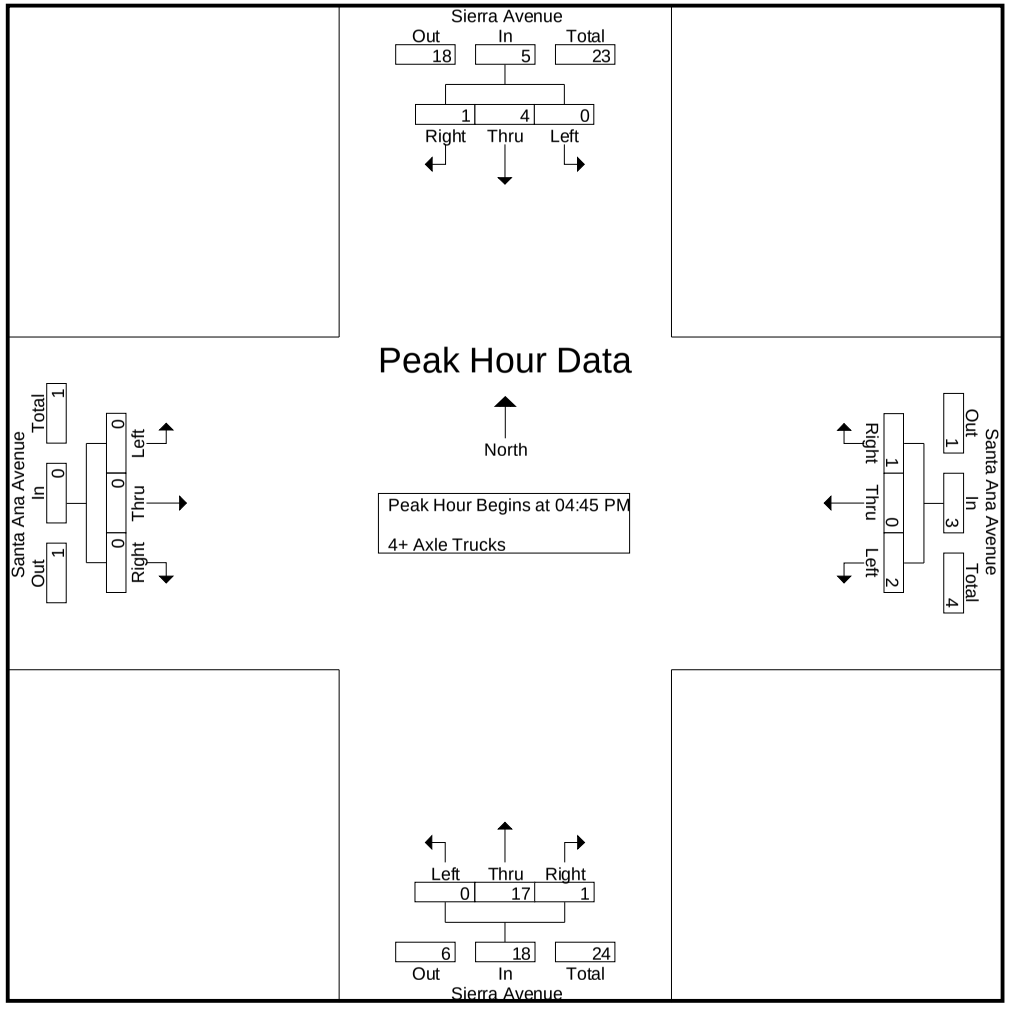
City of Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue
Weather: Clear

File Name : 23_FON_Sierra_Santa Ana PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Location: Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Sierra Avenue	East Leg Santa Ana Avenue	South Leg Sierra Avenue	West Leg Santa Ana Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	1	1	3
7:15 AM	1	1	1	0	3
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	1	1
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	1	4	2	2	9

	North Leg Sierra Avenue	East Leg Santa Ana Avenue	South Leg Sierra Avenue	West Leg Santa Ana Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	0	0	1
4:15 PM	0	0	1	0	1
4:30 PM	0	3	0	0	3
4:45 PM	0	1	0	0	1
5:00 PM	0	1	1	0	2
5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	0	1
5:45 PM	0	2	0	0	2
TOTAL VOLUMES:	1	8	2	0	11

Location: Fontana
N/S: Sierra Avenue
E/W: Santa Ana Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Sierra Avenue			Westbound Santa Ana Avenue			Northbound Sierra Avenue			Eastbound Santa Ana Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

	Southbound Sierra Avenue			Westbound Santa Ana Avenue			Northbound Sierra Avenue			Eastbound Santa Ana Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	2	0	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	2	0	0	0	0	0	2	0	0	2	0	6

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City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	6	100	40	24	146	34	66	16	7	116	67	145	11	9	223	53	52	63	30	168	70	653	723
07:15 AM	8	92	44	32	144	47	77	25	16	149	61	145	16	11	222	46	47	52	27	145	86	660	746
07:30 AM	6	133	48	31	187	29	53	30	16	112	49	175	6	3	230	61	56	38	32	155	82	684	766
07:45 AM	3	87	37	22	127	17	63	22	12	102	60	190	20	4	270	52	57	53	28	162	66	661	727
Total	23	412	169	109	604	127	259	93	51	479	237	655	53	27	945	212	212	206	117	630	304	2658	2962
08:00 AM	9	71	34	19	114	30	70	18	11	118	43	191	15	12	249	49	46	35	21	130	63	611	674
08:15 AM	7	85	31	13	123	26	57	11	8	94	58	189	12	5	259	50	37	45	32	132	58	608	666
08:30 AM	12	90	42	25	144	39	34	19	14	92	41	164	12	8	217	72	25	44	25	141	72	594	666
08:45 AM	6	95	27	13	128	15	40	16	15	71	58	181	9	6	248	64	15	25	13	104	47	551	598
Total	34	341	134	70	509	110	201	64	48	375	200	725	48	31	973	235	123	149	91	507	240	2364	2604
Grand Total	57	753	303	179	1113	237	460	157	99	854	437	1380	101	58	1918	447	335	355	208	1137	544	5022	5566
Apprch %	5.1	67.7	27.2			27.8	53.9	18.4			22.8	71.9	5.3			39.3	29.5	31.2					
Total %	1.1	15	6		22.2	4.7	9.2	3.1		17	8.7	27.5	2		38.2	8.9	6.7	7.1		22.6	9.8	90.2	
Passenger Vehicles	54	729	272		1215	229	450	153		928	426	1354	97		1934	427	320	345		1290	0	0	5367
% Passenger Vehicles	94.7	96.8	89.8	89.4	94	96.6	97.8	97.5	97	97.4	97.5	98.1	96	98.3	97.9	95.5	95.5	97.2	95.2	95.9	0	0	96.4
Large 2 Axle Vehicles	2	20	17		49	6	7	2		17	7	21	4		33	14	13	9		45	0	0	144
% Large 2 Axle Vehicles	3.5	2.7	5.6	5.6	3.8	2.5	1.5	1.3	2	1.8	1.6	1.5	4	1.7	1.7	3.1	3.9	2.5	4.3	3.3	0	0	2.6
3 Axle Vehicles	0	1	5		10	1	2	1		5	2	2	0		4	4	2	0		6	0	0	25
% 3 Axle Vehicles	0	0.1	1.7	2.2	0.8	0.4	0.4	0.6	1	0.5	0.5	0.1	0	0	0.2	0.9	0.6	0	0	0.4	0	0	0.4
4+ Axle Trucks	1	3	9		18	1	1	1		3	2	3	0		5	2	0	1		4	0	0	30
% 4+ Axle Trucks	1.8	0.4	3	2.8	1.4	0.4	0.2	0.6	0	0.3	0.5	0.2	0	0	0.3	0.4	0	0.3	0.5	0.3	0	0	0.5

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	6	100	40	146	34	66	16	116	**67**	145	11	223	53	52	**63**	**168**	653
07:15 AM	**8**	92	44	144	**47**	**77**	25	**149**	61	145	16	222	46	47	52	145	660
07:30 AM	6	**133**	**48**	**187**	29	53	**30**	112	49	175	6	230	**61**	56	38	155	**684**
07:45 AM	3	87	37	127	17	63	22	102	60	**190**	**20**	**270**	52	**57**	53	162	661
Total Volume	23	412	169	604	127	259	93	479	237	655	53	945	212	212	206	630	2658
% App. Total	3.8	68.2	28		26.5	54.1	19.4		25.1	69.3	5.6		33.7	33.7	32.7		
PHF	.719	.774	.880	.807	.676	.841	.775	.804	.884	.862	.663	.875	.869	.930	.817	.938	.971

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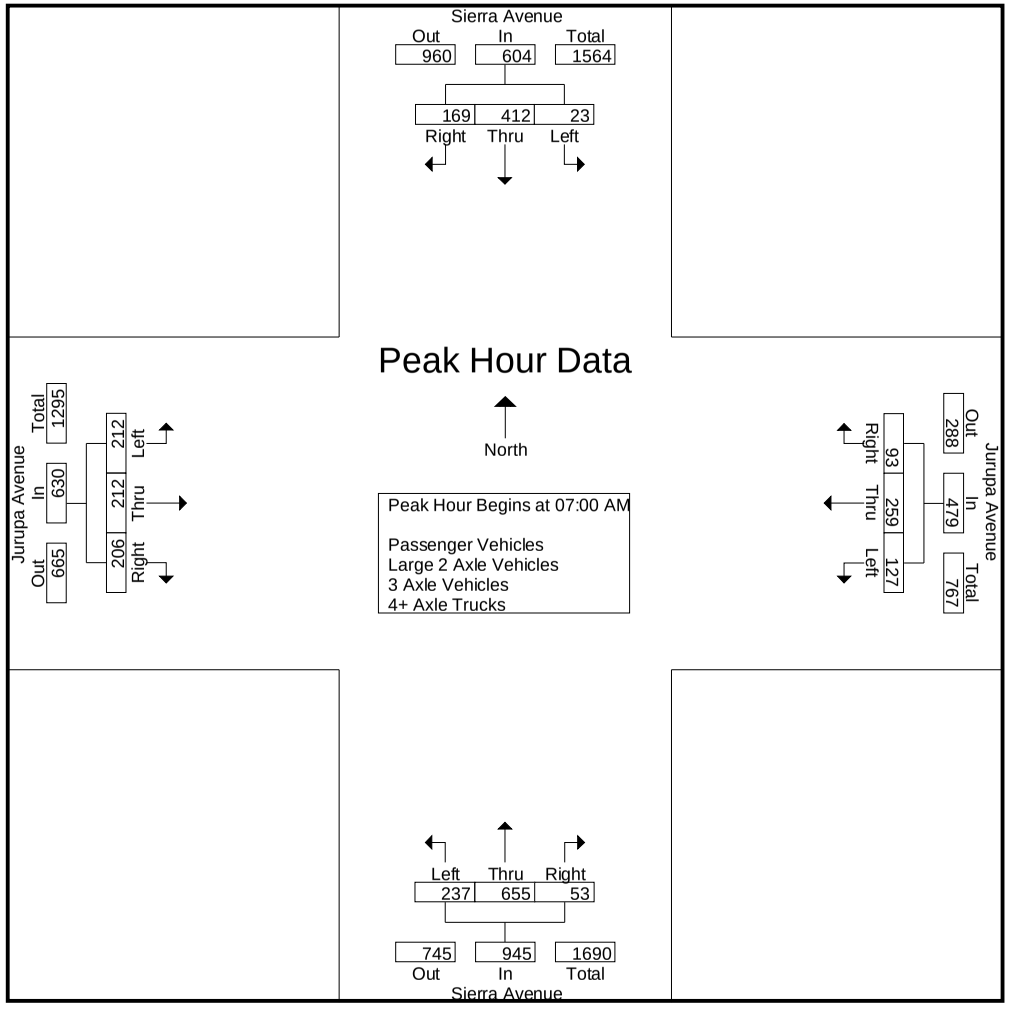
City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	2	2	1	4	0	1	0	0	1	0	4	0	0	4	1	0	1	1	2	2	11	13
07:15 AM	0	5	3	2	8	1	0	0	0	1	1	2	0	0	3	3	2	1	1	6	3	18	21
07:30 AM	1	2	3	1	6	2	0	0	0	2	1	2	1	0	4	2	3	1	1	6	2	18	20
07:45 AM	0	1	1	1	2	0	1	1	1	2	2	2	0	0	4	1	3	1	1	5	3	13	16
Total	1	10	9	5	20	3	2	1	1	6	4	10	1	0	15	7	8	4	4	19	10	60	70
08:00 AM	0	0	1	1	1	2	1	0	0	3	1	4	1	0	6	0	2	0	0	2	1	12	13
08:15 AM	0	1	2	1	3	0	2	0	0	2	2	2	2	1	6	3	1	1	1	5	3	16	19
08:30 AM	1	4	3	2	8	0	2	1	1	3	0	2	0	0	2	4	2	4	4	10	7	23	30
08:45 AM	0	5	2	1	7	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	1	11	12
Total	1	10	8	5	19	3	5	1	1	9	3	11	3	1	17	7	5	5	5	17	12	62	74
Grand Total	2	20	17	10	39	6	7	2	2	15	7	21	4	1	32	14	13	9	9	36	22	122	144
Apprch %	5.1	51.3	43.6			40	46.7	13.3			21.9	65.6	12.5			38.9	36.1	25					
Total %	1.6	16.4	13.9		32	4.9	5.7	1.6		12.3	5.7	17.2	3.3		26.2	11.5	10.7	7.4		29.5	15.3	84.7	

3.1-111

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	2	2	4	0	**1**	0	1	0	**4**	0	**4**	1	0	**1**	2	11
07:15 AM	0	**5**	**3**	**8**	1	0	0	1	1	2	0	3	**3**	2	1	**6**	**18**
07:30 AM	**1**	2	3	6	**2**	0	0	**2**	1	2	**1**	4	2	**3**	1	6	18
07:45 AM	0	1	1	2	0	1	**1**	2	**2**	2	0	4	1	3	1	5	13
Total Volume	1	10	9	20	3	2	1	6	4	10	1	15	7	8	4	19	60
% App. Total	5	50	45		50	33.3	16.7		26.7	66.7	6.7		36.8	42.1	21.1		
PHF	.250	.500	.750	.625	.375	.500	.250	.750	.500	.625	.250	.938	.583	.667	1.00	.792	.833

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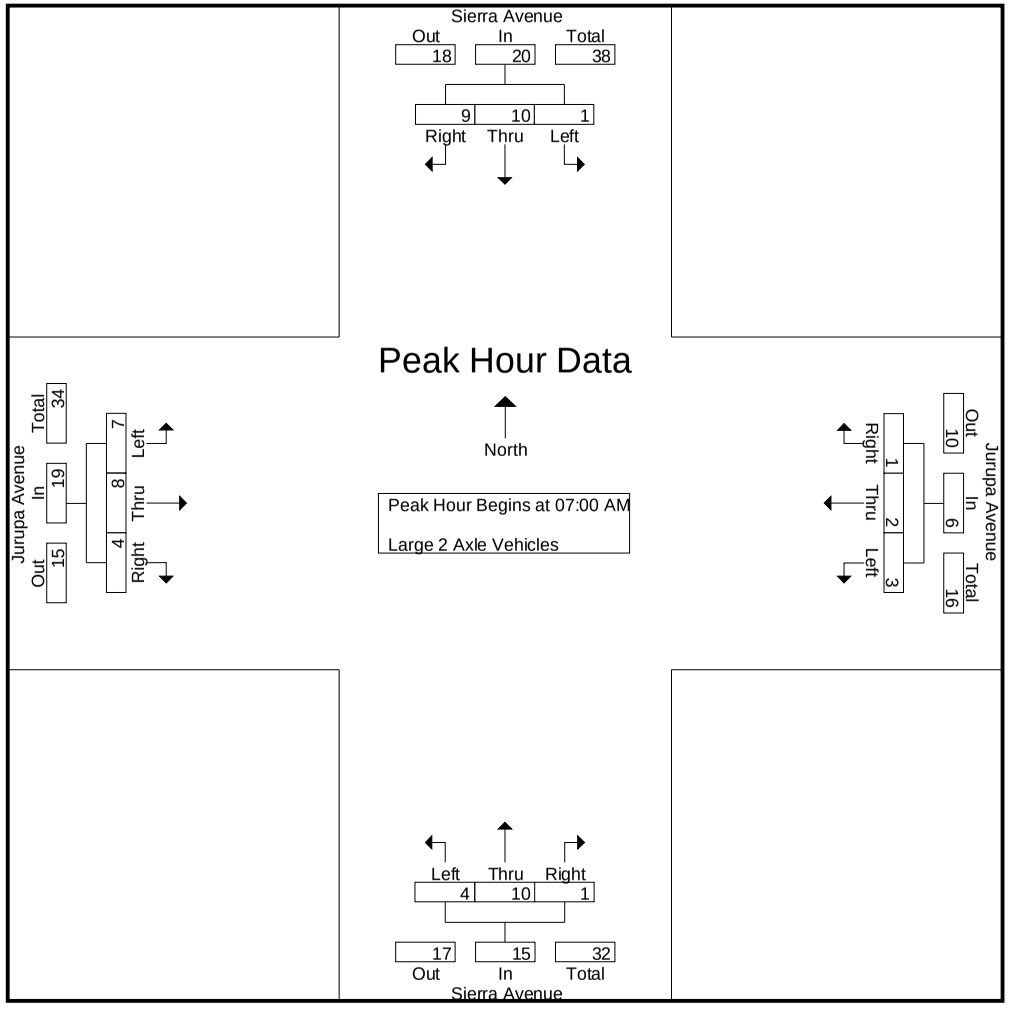

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City of Fontana
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File Name : 24_FON_Sierra_Jurupa AM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	1	1	2	3
07:45 AM	0	0	1	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	3
Total	0	0	1	1	1	0	1	1	1	2	0	1	0	0	1	2	0	0	0	2	2	6	8
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	3	3
08:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2
08:30 AM	0	0	2	2	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	3	5
08:45 AM	0	0	1	1	1	0	0	0	0	0	2	0	0	0	2	2	1	0	0	3	1	6	7
Total	0	1	4	3	5	1	1	0	0	2	2	1	0	0	3	2	2	0	0	4	3	14	17
Grand Total	0	1	5	4	6	1	2	1	1	4	2	2	0	0	4	4	2	0	0	6	5	20	25
Apprch %	0	16.7	83.3			25	50	25			50	50	0			66.7	33.3	0					
Total %	0	5	25		30	5	10	5		20	10	10	0		20	20	10	0		30	20	80	

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**1**	0	0	**1**	**2**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1	0	0	1	2
07:45 AM	0	0	**1**	**1**	0	**1**	0	1	0	0	0	0	0	0	0	0	2
Total Volume	0	0	1	1	0	1	1	2	0	1	0	1	2	0	0	2	6
% App. Total	0	0	100		0	50	50		0	100	0		100	0	0		
PHF	.000	.000	.250	.250	.000	.250	.250	.500	.000	.250	.000	.250	.500	.000	.000	.500	.750

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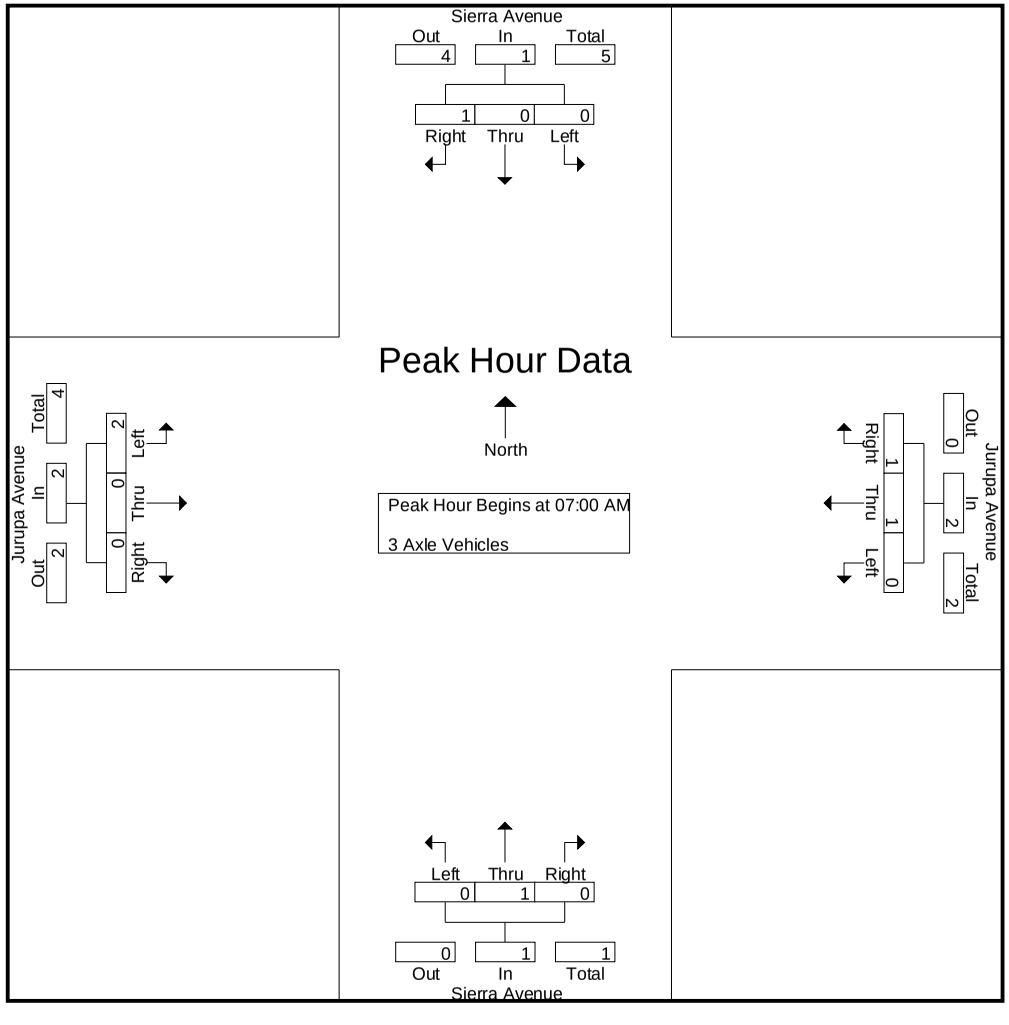

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Weather: Clear

File Name : 24_FON_Sierra_Jurupa AM
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Page No : 1

Groups Printed- 4+ Axle Trucks

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
07:15 AM	0	0	2	1	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	1	4	5
07:30 AM	0	0	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
07:45 AM	0	0	1	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	3	3
Total	0	0	6	2	6	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	2	10	12
08:00 AM	1	1	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	6
08:15 AM	0	2	0	0	2	1	1	0	0	2	1	0	0	0	1	0	0	1	1	1	1	6	7
08:30 AM	0	0	1	1	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	1	3	4
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1
Total	1	3	3	3	7	1	1	0	0	2	1	1	0	0	2	2	0	1	1	3	4	14	18
Grand Total	1	3	9	5	13	1	1	1	0	3	2	3	0	0	5	2	0	1	1	3	6	24	30
Apprch %	7.7	23.1	69.2			33.3	33.3	33.3			40	60	0			66.7	0	33.3					
Total %	4.2	12.5	37.5		54.2	4.2	4.2	4.2		12.5	8.3	12.5	0		20.8	8.3	0	4.2		12.5	20	80	

3.1-115

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	**2**	**2**	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	**4**
07:30 AM	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	1	1	0	0	**1**	**1**	0	1	0	1	0	0	0	0	3
Total Volume	0	0	6	6	0	0	1	1	1	2	0	3	0	0	0	0	10
% App. Total	0	0	100		0	0	100		33.3	66.7	0		0	0	0		
PHF	.000	.000	.750	.750	.000	.000	.250	.250	.250	.500	.000	.375	.000	.000	.000	.000	.625

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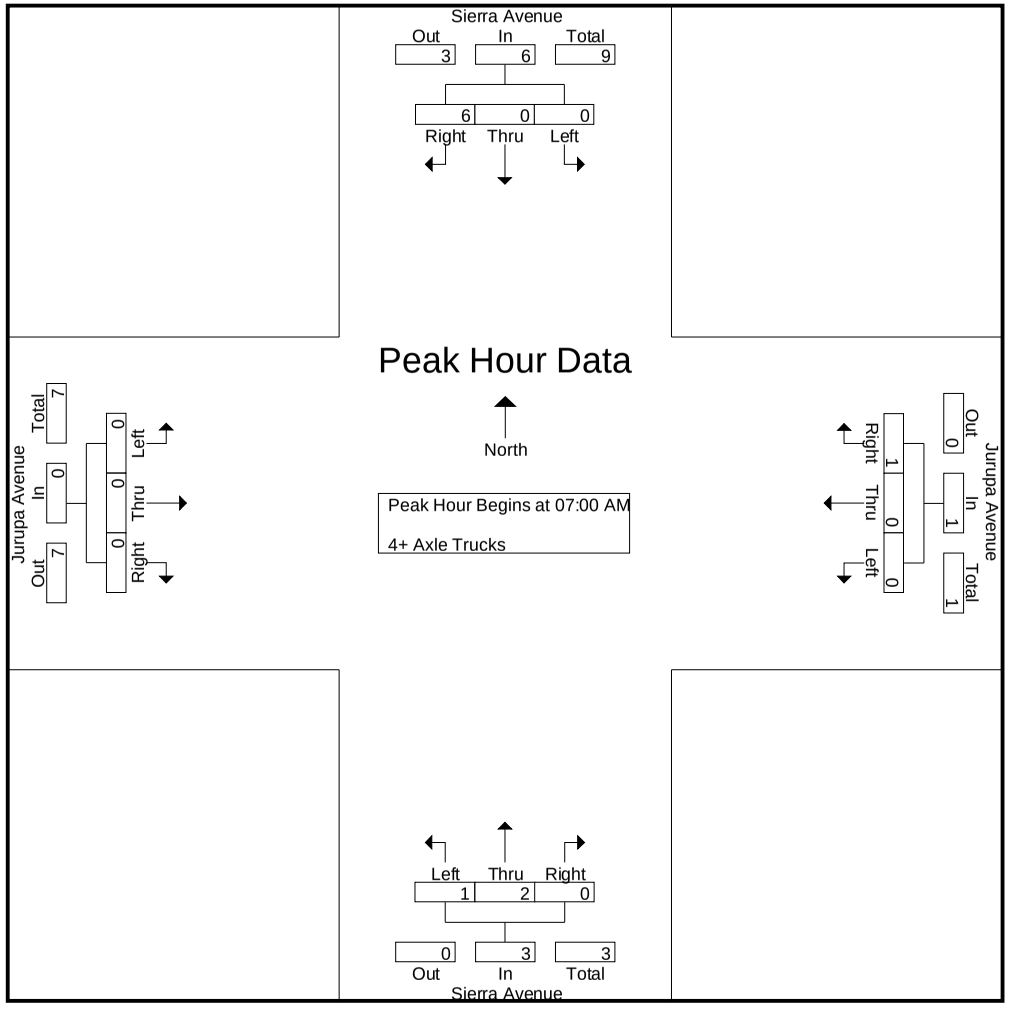

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Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	17	127	53	16	197	21	73	16	11	110	55	193	26	6	274	98	53	93	45	244	78	825	903
04:15 PM	21	121	56	11	198	35	60	15	12	110	61	237	18	7	316	93	51	72	36	216	66	840	906
04:30 PM	17	127	47	17	191	31	77	12	10	120	57	214	17	5	288	88	61	88	43	237	75	836	911
04:45 PM	19	140	56	17	215	33	66	21	11	120	55	186	27	13	268	97	95	83	45	275	86	878	964
Total	74	515	212	61	801	120	276	64	44	460	228	830	88	31	1146	376	260	336	169	972	305	3379	3684
05:00 PM	26	126	47	10	199	42	59	25	20	126	57	239	21	7	317	87	105	60	27	252	64	894	958
05:15 PM	19	158	59	20	236	35	64	17	13	116	59	246	26	10	331	103	56	72	33	231	76	914	990
05:30 PM	22	139	64	18	225	29	69	17	12	115	79	221	23	12	323	77	52	57	34	186	76	849	925
05:45 PM	10	125	43	12	178	28	85	15	8	128	70	215	36	25	321	93	44	68	44	205	89	832	921
Total	77	548	213	60	838	134	277	74	53	485	265	921	106	54	1292	360	257	257	138	874	305	3489	3794
Grand Total	151	1063	425	121	1639	254	553	138	97	945	493	1751	194	85	2438	736	517	593	307	1846	610	6868	7478
Apprch %	9.2	64.9	25.9			26.9	58.5	14.6			20.2	71.8	8			39.9	28	32.1					
Total %	2.2	15.5	6.2		23.9	3.7	8.1	2		13.8	7.2	25.5	2.8		35.5	10.7	7.5	8.6		26.9	8.2	91.8	
Passenger Vehicles	147	1047	404		1715	253	547	134		1028	475	1713	190		2461	697	503	582		2085	0	0	7289
% Passenger Vehicles	97.4	98.5	95.1	96.7	97.4	99.6	98.9	97.1	96.9	98.7	96.3	97.8	97.9	97.6	97.5	94.7	97.3	98.1	98.7	96.8	0	0	97.5
Large 2 Axle Vehicles	4	12	5		22	1	6	2		10	14	31	4		51	10	11	7		31	0	0	114
% Large 2 Axle Vehicles	2.6	1.1	1.2	0.8	1.2	0.4	1.1	1.4	1	1	2.8	1.8	2.1	2.4	2	1.4	2.1	1.2	1	1.4	0	0	1.5
3 Axle Vehicles	0	1	5		7	0	0	0		0	3	3	0		6	6	1	1		8	0	0	21
% 3 Axle Vehicles	0	0.1	1.2	0.8	0.4	0	0	0	0	0	0.6	0.2	0	0	0.2	0.8	0.2	0.2	0	0.4	0	0	0.3
4+ Axle Trucks	0	3	11		16	0	0	2		4	1	4	0		5	23	2	3		29	0	0	54
% 4+ Axle Trucks	0	0.3	2.6	1.7	0.9	0	0	1.4	2.1	0.4	0.2	0.2	0	0	0.2	3.1	0.4	0.5	0.3	1.3	0	0	0.7

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	19	140	56	215	33	66	21	120	55	186	**27**	268	97	95	**83**	**275**	878
05:00 PM	**26**	126	47	199	**42**	59	**25**	**126**	57	239	21	317	87	**105**	60	252	894
05:15 PM	19	**158**	59	**236**	35	64	17	116	59	**246**	26	**331**	**103**	56	72	231	**914**
05:30 PM	22	139	**64**	225	29	**69**	17	115	**79**	221	23	323	77	52	57	186	849
Total Volume	86	563	226	875	139	258	80	477	250	892	97	1239	364	308	272	944	3535
% App. Total	9.8	64.3	25.8		29.1	54.1	16.8		20.2	72	7.8		38.6	32.6	28.8		
PHF	.827	.891	.883	.927	.827	.935	.800	.946	.791	.907	.898	.936	.883	.733	.819	.858	.967

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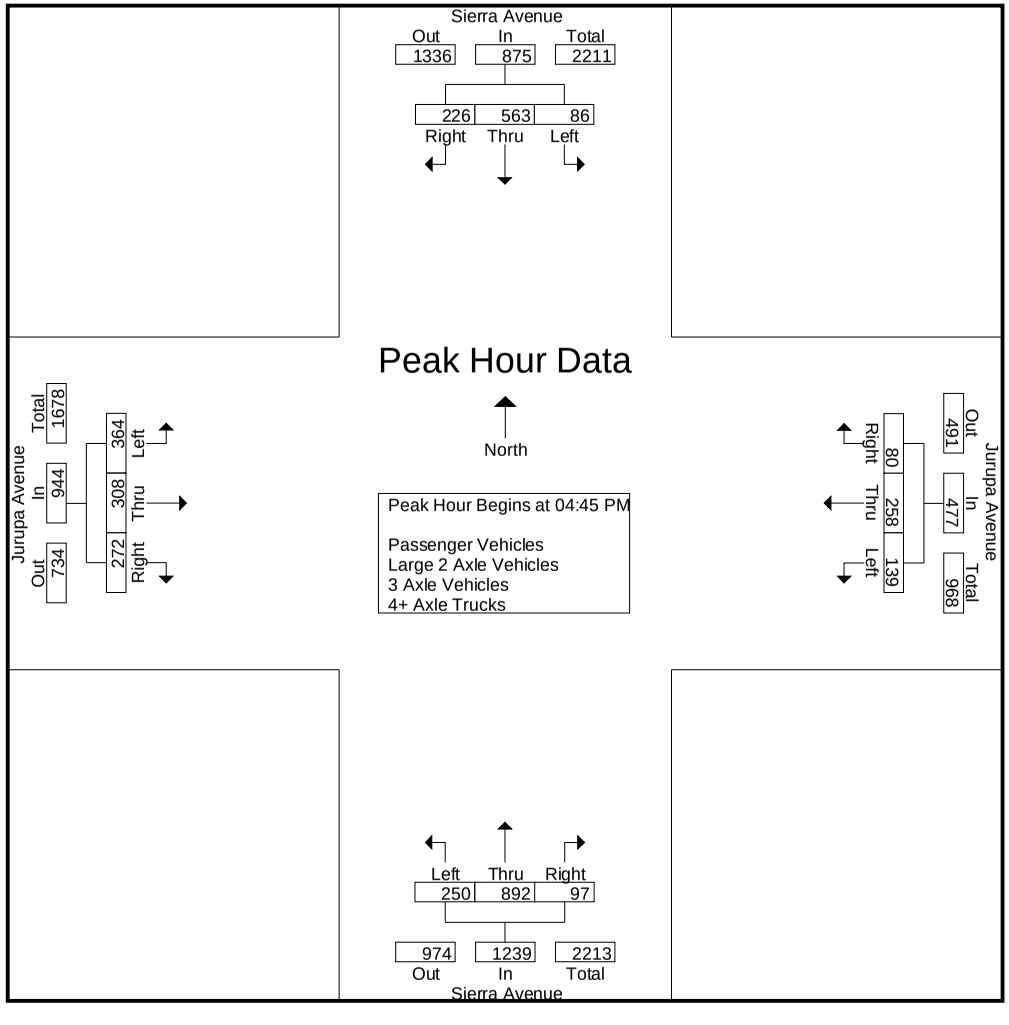

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File Name : 24_FON_Sierra_Jurupa PM
Site Code : 05119181
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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	2	0	0	0	2	0	2	2	1	4	1	4	1	1	6	1	1	1	1	3	3	15	18
04:15 PM	0	2	1	0	3	0	1	0	0	1	4	4	1	0	9	1	3	0	0	4	0	17	17
04:30 PM	0	2	2	1	4	0	0	0	0	0	3	4	0	0	7	2	1	3	1	6	2	17	19
04:45 PM	1	1	1	0	3	0	1	0	0	1	1	3	0	0	4	1	2	0	0	3	0	11	11
Total	3	5	4	1	12	0	4	2	1	6	9	15	2	1	26	5	7	4	2	16	5	60	65
05:00 PM	1	2	1	0	4	0	2	0	0	2	1	8	0	0	9	1	1	1	1	3	1	18	19
05:15 PM	0	3	0	0	3	1	0	0	0	1	2	2	0	0	4	2	2	2	0	6	0	14	14
05:30 PM	0	1	0	0	1	0	0	0	0	0	1	4	1	0	6	1	1	0	0	2	0	9	9
05:45 PM	0	1	0	0	1	0	0	0	0	0	1	2	1	1	4	1	0	0	0	1	1	6	7
Total	1	7	1	0	9	1	2	0	0	3	5	16	2	1	23	5	4	3	1	12	2	47	49
Grand Total	4	12	5	1	21	1	6	2	1	9	14	31	4	2	49	10	11	7	3	28	7	107	114
Apprch %	19	57.1	23.8			11.1	66.7	22.2			28.6	63.3	8.2			35.7	39.3	25					
Total %	3.7	11.2	4.7		19.6	0.9	5.6	1.9		8.4	13.1	29	3.7		45.8	9.3	10.3	6.5		26.2	6.1	93.9	

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	1	**1**	3	0	1	0	1	1	3	0	4	1	**2**	0	3	11
05:00 PM	1	2	1	**4**	0	**2**	0	**2**	1	**8**	0	**9**	1	1	1	3	**18**
05:15 PM	0	**3**	0	3	**1**	0	0	1	**2**	2	0	4	**2**	2	**2**	**6**	14
05:30 PM	0	1	0	1	0	0	0	0	1	4	**1**	6	1	1	0	2	9
Total Volume	2	7	2	11	1	3	0	4	5	17	1	23	5	6	3	14	52
% App. Total	18.2	63.6	18.2		25	75	0		21.7	73.9	4.3		35.7	42.9	21.4		
PHF	.500	.583	.500	.688	.250	.375	.000	.500	.625	.531	.250	.639	.625	.750	.375	.583	.722

Counts Unlimited
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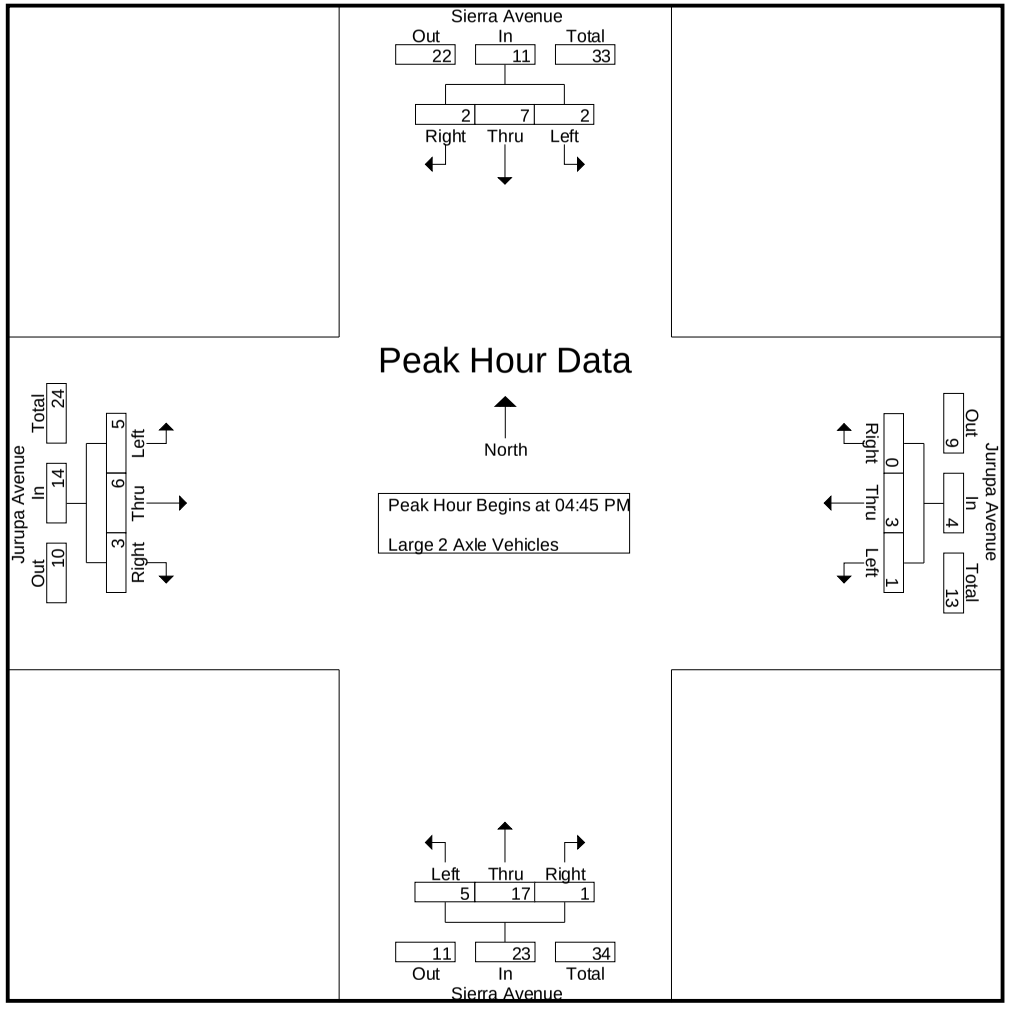
(951) 268-6268

City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	0	3	3
04:15 PM	0	0	1	1	1	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	1	4	5
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2	2
Total	0	0	1	1	1	0	0	0	0	0	3	2	0	0	5	3	1	1	0	5	1	11	12
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	4	4
05:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2
05:45 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	3	3
Total	0	1	4	0	5	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	9	9
Grand Total	0	1	5	1	6	0	0	0	0	0	3	3	0	0	6	6	1	1	0	8	1	20	21
Apprch %	0	16.7	83.3			0	0	0			50	50	0			75	12.5	12.5					
Total %	0	5	25		30	0	0	0		0	15	15	0		30	30	5	5		40	4.8	95.2	

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	**2**	0	0	**2**	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	**1**	**2**	**3**	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**4**
05:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Volume	0	1	3	4	0	0	0	0	2	0	0	2	2	0	0	2	8
% App. Total	0	25	75		0	0	0		100	0	0		100	0	0		
PHF	.000	.250	.375	.333	.000	.000	.000	.000	.250	.000	.000	.250	.500	.000	.000	.500	.500

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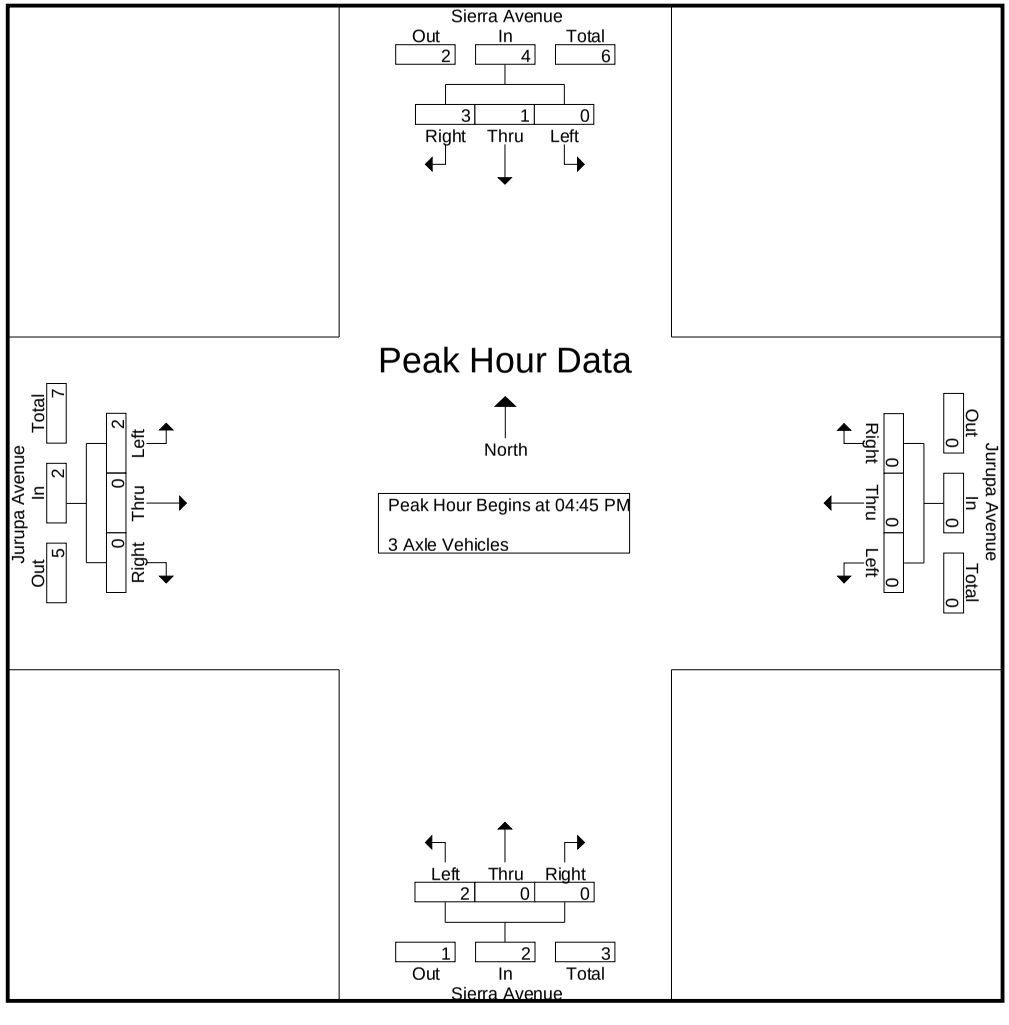
City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



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City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Sierra Avenue Southbound					Jurupa Avenue Westbound					Sierra Avenue Northbound					Jurupa Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	4	0	0	0	4	0	8	8
04:15 PM	0	0	1	1	1	0	0	0	0	0	0	1	0	0	1	2	0	1	0	3	1	5	6
04:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2
04:45 PM	0	0	3	1	3	0	0	0	0	0	0	0	0	0	0	4	1	1	1	6	2	9	11
Total	0	1	6	2	7	0	0	0	0	0	0	3	0	0	3	11	1	2	1	14	3	24	27
05:00 PM	0	2	3	0	5	0	0	1	1	1	0	0	0	0	0	6	0	1	0	7	1	13	14
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	1	0	0	4	0	5	5
05:30 PM	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	3	0	0	0	3	1	5	6
05:45 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	2	5	0	7	0	0	2	2	2	1	1	0	0	2	12	1	1	0	14	2	25	27
Grand Total	0	3	11	2	14	0	0	2	2	2	1	4	0	0	5	23	2	3	1	28	5	49	54
Apprch %	0	21.4	78.6			0	0	100			20	80	0			82.1	7.1	10.7					
Total %	0	6.1	22.4		28.6	0	0	4.1		4.1	2	8.2	0		10.2	46.9	4.1	6.1		57.1	9.3	90.7	

	Sierra Avenue Southbound				Jurupa Avenue Westbound				Sierra Avenue Northbound				Jurupa Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	**3**	3	0	0	0	0	0	0	0	0	4	**1**	**1**	6	9
05:00 PM	0	**2**	3	**5**	0	0	**1**	**1**	0	0	0	0	**6**	0	1	**7**	**13**
05:15 PM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	3	1	0	4	5
05:30 PM	0	0	0	0	0	0	1	1	0	**1**	0	1	3	0	0	3	5
Total Volume	0	2	6	8	0	0	2	2	1	1	0	2	16	2	2	20	32
% App. Total	0	25	75		0	0	100		50	50	0		80	10	10		
PHF	.000	.250	.500	.400	.000	.000	.500	.500	.250	.250	.000	.500	.667	.500	.500	.714	.615

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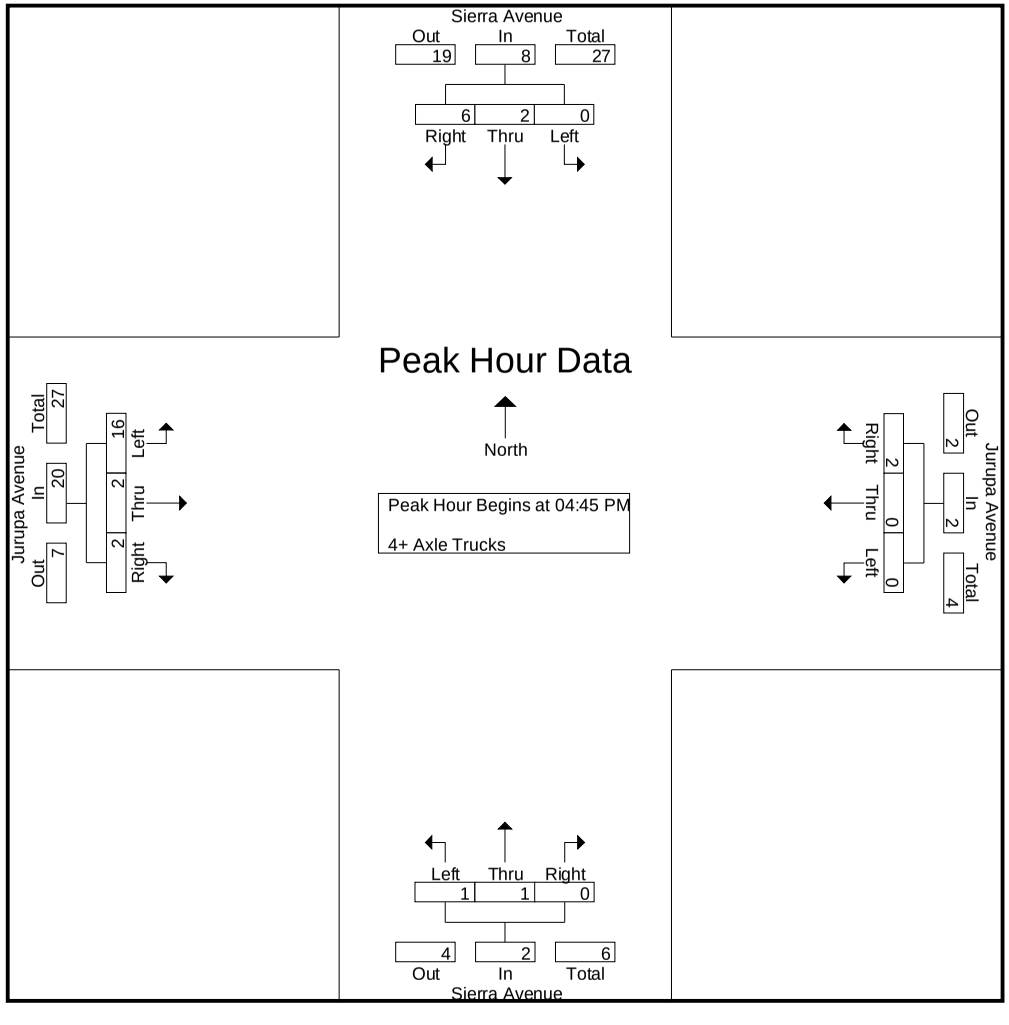
City of Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue
Weather: Clear

File Name : 24_FON_Sierra_Jurupa PM
Site Code : 05119181
Start Date : 3/14/2019
Page No : 2



Location: Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

PEDESTRIANS

	North Leg Sierra Avenue	East Leg Jurupa Avenue	South Leg Sierra Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	0	1
8:15 AM	3	0	0	1	4
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	5	0	0	1	6

	North Leg Sierra Avenue	East Leg Jurupa Avenue	South Leg Sierra Avenue	West Leg Jurupa Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Fontana
N/S: Sierra Avenue
E/W: Jurupa Avenue

Date: 3/14/2019
Day: Thursday

BICYCLES

	Southbound Sierra Avenue			Westbound Jurupa Avenue			Northbound Sierra Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	0	1

	Southbound Sierra Avenue			Westbound Jurupa Avenue			Northbound Sierra Avenue			Eastbound Jurupa Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	1	0	0	2

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email: counts@countsunlimited.com

City of Fontana
Cypress Avenue
N/ Jurupa Avenue
24 Hour Directional Volume Count

FON003
Site Code: 051-19181

Start	14-Mar-19	Northbound		Hour Totals		Southbound		Hour Totals		Combined Totals	
Time	Thu	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		2	23			3	31				
12:15		3	26			5	11				
12:30		3	26			2	21				
12:45		2	21	10	96	1	32	11	95	21	191
01:00		0	19			2	27				
01:15		0	26			1	23				
01:30		3	15			1	25				
01:45		7	30	10	90	1	31	5	106	15	196
02:00		2	34			4	32				
02:15		1	41			3	30				
02:30		2	45			1	**60**				
02:45		1	46	6	166	1	**44**	9	166	15	332
03:00		3	55			4	**38**				
03:15		2	**63**			0	**44**				
03:30		6	**57**			7	29				
03:45		5	**53**	16	228	2	31	13	142	29	370
04:00		3	**72**			5	26				
04:15		4	51			12	24				
04:30		10	65			13	67				
04:45		7	56	24	244	8	29	38	146	62	390
05:00		8	47			7	37				
05:15		25	61			12	34				
05:30		33	40			17	30				
05:45		35	44	101	192	16	42	52	143	153	335
06:00		13	45			14	31				
06:15		19	37			15	37				
06:30		28	27			22	25				
06:45		25	36	85	145	**22**	30	73	123	158	268
07:00		**34**	41			**25**	29				
07:15		**50**	35			**22**	35				
07:30		**36**	31			**39**	23				
07:45		**44**	18	164	125	19	22	105	109	269	234
08:00		14	8			22	19				
08:15		37	9			23	23				
08:30		34	9			16	21				
08:45		36	23	121	49	19	22	80	85	201	134
09:00		29	14			19	14				
09:15		24	11			11	12				
09:30		35	11			13	12				
09:45		20	11	108	47	15	10	58	48	166	95
10:00		28	12			12	12				
10:15		26	6			11	7				
10:30		25	5			26	8				
10:45		13	3	92	26	11	7	60	34	152	60
11:00		25	5			29	6				
11:15		25	6			17	6				
11:30		32	5			20	7				
11:45		15	3	97	19	21	5	87	24	184	43
Total		834	1427	834	1427	591	1221	591	1221	1425	2648
Combined Total		2261		2261		1812		1812		4073	
AM Peak	-	07:00	-	-	-	06:45	-	-	-	-	-
Vol.	-	164	-	-	-	108	-	-	-	-	-
P.H.F.		0.820				0.692					
PM Peak	-	-	03:15	-	-	-	02:30	-	-	-	-
Vol.	-	-	245	-	-	-	186	-	-	-	-
P.H.F.			0.851				0.775				
Percentage		36.9%	63.1%			32.6%	67.4%				
ADT/AADT		ADT 4,073		AADT 4,073							

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City of Fontana
Juniper Avenue
N/ Jurupa Avenue
24 Hour Directional Volume Count

FON004
Site Code: 051-19181

Start Time	14-Mar-19 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	13			0	10				
12:15		3	13			0	17				
12:30		0	14			2	12				
12:45		1	15	4	55	1	13	3	52	7	107
01:00		3	9			1	17				
01:15		1	10			2	16				
01:30		2	8			0	15				
01:45		3	15	9	42	1	21	4	69	13	111
02:00		0	14			0	18				
02:15		0	26			0	9				
02:30		0	21			1	30				
02:45		1	**40**	1	101	0	20	1	77	2	178
03:00		4	**33**			1	18				
03:15		2	**31**			2	11				
03:30		2	**25**			1	15				
03:45		3	26	11	115	2	20	6	64	17	179
04:00		1	17			3	16				
04:15		1	26			2	**23**				
04:30		1	30			3	**24**				
04:45		2	29	5	102	4	**25**	12	88	17	190
05:00		1	19			0	**30**				
05:15		6	28			2	15				
05:30		4	17			5	18				
05:45		5	22	16	86	8	20	15	83	31	169
06:00		10	11			5	24				
06:15		6	17			9	16				
06:30		10	20			15	19				
06:45		9	14	35	62	19	31	48	90	83	152
07:00		11	11			**20**	15				
07:15		19	11			**18**	12				
07:30		**17**	6			**15**	11				
07:45		**9**	8	56	36	**20**	13	73	51	129	87
08:00		**11**	11			12	12				
08:15		**23**	7			15	4				
08:30		10	6			8	8				
08:45		10	6	54	30	12	10	47	34	101	64
09:00		11	6			18	7				
09:15		11	4			12	9				
09:30		10	5			13	10				
09:45		14	2	46	17	10	9	53	35	99	52
10:00		14	2			11	4				
10:15		12	2			13	5				
10:30		10	1			11	4				
10:45		12	3	48	8	13	2	48	15	96	23
11:00		9	3			12	3				
11:15		9	3			12	2				
11:30		19	3			14	5				
11:45		16	0	53	9	10	0	48	10	101	19
Total		338	663	338	663	358	668	358	668	696	1331
Combined Total		1001		1001		1026		1026		2027	
AM Peak	-	07:30	-	-	-	07:00	-	-	-	-	-
Vol.	-	60	-	-	-	73	-	-	-	-	-
P.H.F.		0.652				0.913					
PM Peak	-	-	02:45	-	-	-	04:15	-	-	-	-
Vol.	-	-	129	-	-	-	102	-	-	-	-
P.H.F.			0.806				0.850				
Percentage		33.8%	66.2%			34.9%	65.1%				
ADT/AADT		ADT 2,027		AADT 2,027							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
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City of Fontana
Jurupa Avenue
E/ Cypress Avenue
24 Hour Directional Volume Count

FON007
Site Code: 051-19181

Start Time	14-Mar-19 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		30	136			22	102				
12:15		17	110			19	116				
12:30		24	119			15	124				
12:45		12	135	83	500	14	127	70	469	153	969
01:00		13	127			13	124				
01:15		13	110			14	134				
01:30		17	177			13	136				
01:45		11	153	54	567	19	145	59	539	113	1106
02:00		16	170			8	134				
02:15		13	178			18	127				
02:30		12	224			13	152				
02:45		9	284	50	856	17	161	56	574	106	1430
03:00		13	245			18	138				
03:15		15	231			12	212				
03:30		17	245			23	162				
03:45		15	253	60	974	51	157	104	669	164	1643
04:00		19	235			22	171				
04:15		32	224			27	176				
04:30		24	**241**			64	164				
04:45		32	**297**	107	997	74	**193**	187	704	294	1701
05:00		31	**229**			37	**154**				
05:15		43	**240**			68	**179**				
05:30		47	206			110	**191**				
05:45		58	180	179	855	123	170	338	694	517	1549
06:00		56	192			73	177				
06:15		64	176			92	171				
06:30		107	150			129	144				
06:45		108	161	335	679	154	146	448	638	783	1317
07:00		**153**	163			**169**	147				
07:15		**151**	136			**170**	115				
07:30		**149**	122			**166**	138				
07:45		**149**	126	602	547	**161**	131	666	531	1268	1078
08:00		118	114			135	99				
08:15		127	84			153	118				
08:30		135	85			110	117				
08:45		104	71	484	354	116	121	514	455	998	809
09:00		159	79			110	96				
09:15		116	56			84	98				
09:30		112	48			85	86				
09:45		106	47	493	230	88	77	367	357	860	587
10:00		98	51			105	68				
10:15		99	34			101	48				
10:30		119	50			93	40				
10:45		96	39	412	174	90	42	389	198	801	372
11:00		132	37			110	31				
11:15		124	23			120	26				
11:30		128	23			109	29				
11:45		136	23	520	106	100	21	439	107	959	213
Total		3379	6839	3379	6839	3637	5935	3637	5935	7016	12774
Combined Total		10218		10218		9572		9572		19790	
AM Peak	-	07:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	602	-	-	-	666	-	-	-	-	-
P.H.F.		0.984				0.979					
PM Peak	-	-	04:30	-	-	-	04:45	-	-	-	-
Vol.	-	-	1007	-	-	-	717	-	-	-	-
P.H.F.			0.848				0.929				
Percentage		33.1%	66.9%			38.0%	62.0%				
ADT/AADT		ADT 19,790		AADT 19,790							

Counts Unlimited, Inc.

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City of Fontana
Jurupa Avenue
W/ Citrus Avenue
24 Hour Directional Volume Count

FON006
Site Code: 051-19181

Start Time	14-Mar-19 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		10	118			17	93				
12:15		14	105			17	93				
12:30		25	117			14	97				
12:45		13	115	62	455	13	113	61	396	123	851
01:00		10	118			12	98				
01:15		8	123			11	114				
01:30		11	133			11	119				
01:45		9	179	38	553	15	127	49	458	87	1011
02:00		20	185			8	121				
02:15		14	204			17	104				
02:30		13	272			10	125				
02:45		9	298	56	959	12	131	47	481	103	1440
03:00		7	318			7	115				
03:15		10	330			15	109				
03:30		20	286			20	**139**				
03:45		21	292	58	1226	41	**134**	83	497	141	1723
04:00		17	**296**			26	**108**				
04:15		23	**299**			31	**135**				
04:30		20	**291**			58	123				
04:45		28	**378**	88	1264	73	121	188	487	276	1751
05:00		24	291			37	124				
05:15		34	284			78	122				
05:30		38	264			129	122				
05:45		38	227	134	1066	117	125	361	493	495	1559
06:00		49	206			77	130				
06:15		53	194			87	125				
06:30		77	133			142	110				
06:45		105	190	284	723	168	91	474	456	758	1179
07:00		**126**	128			**166**	112				
07:15		**156**	122			**170**	68				
07:30		**142**	111			**158**	109				
07:45		**116**	110	540	471	**181**	90	675	379	1215	850
08:00		117	97			123	85				
08:15		113	63			154	80				
08:30		132	79			84	75				
08:45		118	70	480	309	109	78	470	318	950	627
09:00		135	69			92	74				
09:15		91	53			69	65				
09:30		93	44			56	64				
09:45		113	38	432	204	72	63	289	266	721	470
10:00		85	43			71	48				
10:15		97	37			80	38				
10:30		101	43			86	30				
10:45		95	24	378	147	78	29	315	145	693	292
11:00		131	24			98	19				
11:15		116	29			99	18				
11:30		122	25			82	18				
11:45		112	20	481	98	84	20	363	75	844	173
Total		3031	7475	3031	7475	3375	4451	3375	4451	6406	11926
Combined Total		10506		10506		7826		7826		18332	
AM Peak	-	07:00	-	-	-	07:00	-	-	-	-	-
Vol.	-	540	-	-	-	675	-	-	-	-	-
P.H.F.		0.865				0.932					
PM Peak	-	-	04:00	-	-	-	03:30	-	-	-	-
Vol.	-	-	1264	-	-	-	516	-	-	-	-
P.H.F.			0.836				0.928				
Percentage		28.9%	71.1%			43.1%	56.9%				
ADT/AADT		ADT 18,332		AADT 18,332							

APPENDIX 3.2:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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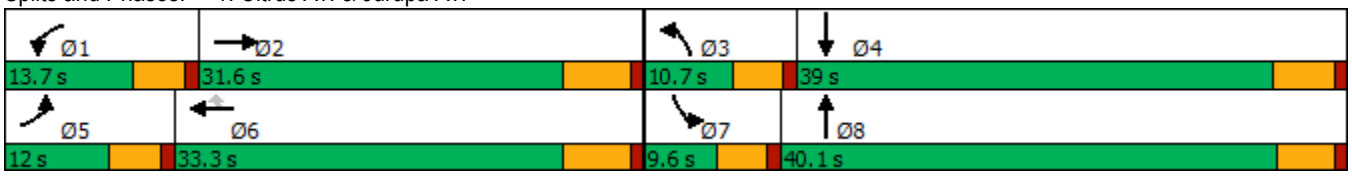
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	181	382	63	517	105	59	291	62	113
Future Volume (vph)	181	382	63	517	105	59	291	62	113
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	12.0	31.6	13.7	33.3	33.3	10.7	40.1	9.6	39.0
Total Split (%)	12.6%	33.3%	14.4%	35.1%	35.1%	11.3%	42.2%	10.1%	41.1%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 61.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	382	13	63	517	105	59	291	99	62	113	159
Future Volume (veh/h)	181	382	13	63	517	105	59	291	99	62	113	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	197	415	12	68	562	75	64	316	83	67	123	113
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	246	1497	43	109	1107	343	105	558	144	108	369	311
Arrive On Green	0.14	0.29	0.29	0.06	0.21	0.21	0.06	0.20	0.20	0.06	0.20	0.20
Sat Flow, veh/h	1810	5180	149	1810	5187	1606	1810	2838	734	1810	1858	1566
Grp Volume(v), veh/h	197	276	151	68	562	75	64	199	200	67	119	117
Grp Sat Flow(s),veh/h/ln	1810	1729	1871	1810	1729	1606	1810	1805	1767	1810	1805	1618
Q Serve(g_s), s	5.5	3.2	3.2	1.9	4.9	2.0	1.8	5.2	5.3	1.9	2.9	3.2
Cycle Q Clear(g_c), s	5.5	3.2	3.2	1.9	4.9	2.0	1.8	5.2	5.3	1.9	2.9	3.2
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.42	1.00		0.97
Lane Grp Cap(c), veh/h	246	999	540	109	1107	343	105	355	348	108	358	321
V/C Ratio(X)	0.80	0.28	0.28	0.62	0.51	0.22	0.61	0.56	0.57	0.62	0.33	0.36
Avail Cap(c_a), veh/h	259	1724	933	318	2757	853	213	1221	1195	175	1172	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	14.2	14.2	23.7	17.9	16.8	23.8	18.8	18.8	23.8	17.8	17.9
Incr Delay (d2), s/veh	14.3	0.1	0.3	2.2	0.4	0.3	2.1	1.4	1.5	2.2	0.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	1.0	1.1	0.8	1.7	0.7	0.8	2.0	2.0	0.8	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	14.4	14.5	25.9	18.3	17.1	25.9	20.1	20.3	25.9	18.3	18.6
LnGrp LOS	D	B	B	C	B	B	C	C	C	C	B	B
Approach Vol, veh/h		624			705			463			303	
Approach Delay, s/veh		21.2			18.9			21.0			20.1	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	20.8	7.6	15.7	11.6	16.8	7.7	15.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	9.1	25.8	6.1	33.6	7.4	27.5	5.0	* 35
Max Q Clear Time (g_c+I1), s	3.9	5.2	3.8	5.2	7.5	6.9	3.9	7.3
Green Ext Time (p_c), s	0.0	2.3	0.0	1.3	0.0	3.6	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	551	673	37	0	35
Future Vol, veh/h	0	551	673	37	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	586	716	39	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	378
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	534
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	534
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

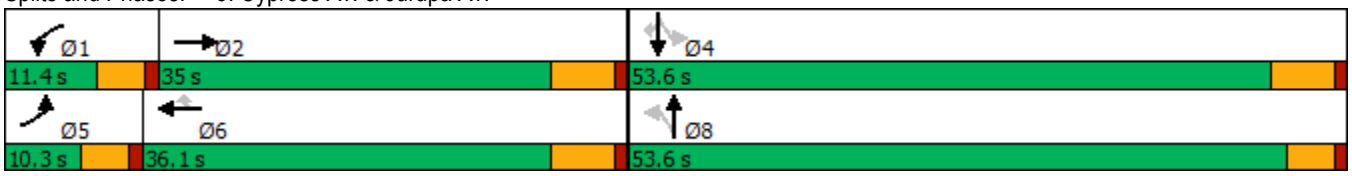
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	534
HCM Lane V/C Ratio	-	-	-	0.07
HCM Control Delay (s)	-	-	-	12.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

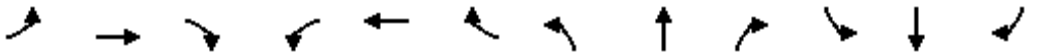
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	82	465	46	619	40	26	65	36	23	54
Future Volume (vph)	82	465	46	619	40	26	65	36	23	54
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.3	35.0	11.4	36.1	36.1	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.3%	35.0%	11.4%	36.1%	36.1%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 54.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	465	14	46	619	40	26	65	122	36	23	54
Future Volume (veh/h)	82	465	14	46	619	40	26	65	122	36	23	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	85	479	14	47	638	28	27	67	75	37	24	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	139	1475	43	92	1344	417	523	210	235	422	488	414
Arrive On Green	0.08	0.28	0.28	0.05	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1810	5180	151	1810	5187	1610	1383	818	916	1265	1900	1610
Grp Volume(v), veh/h	85	319	174	47	638	28	27	0	142	37	24	21
Grp Sat Flow(s),veh/h/ln	1810	1729	1873	1810	1729	1610	1383	0	1734	1265	1900	1610
Q Serve(g_s), s	1.8	2.9	2.9	1.0	4.1	0.5	0.6	0.0	2.6	1.0	0.4	0.4
Cycle Q Clear(g_c), s	1.8	2.9	2.9	1.0	4.1	0.5	1.0	0.0	2.6	3.6	0.4	0.4
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	139	985	533	92	1344	417	523	0	446	422	488	414
V/C Ratio(X)	0.61	0.32	0.33	0.51	0.47	0.07	0.05	0.00	0.32	0.09	0.05	0.05
Avail Cap(c_a), veh/h	259	2539	1375	309	3952	1227	1872	0	2137	1618	2284	1935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	11.2	11.2	18.4	12.4	11.1	11.5	0.0	12.0	13.4	11.1	11.1
Incr Delay (d2), s/veh	1.6	0.2	0.4	1.6	0.3	0.1	0.0	0.0	0.4	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.8	0.9	0.4	1.1	0.1	0.2	0.0	0.9	0.2	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.4	11.4	11.6	20.0	12.7	11.2	11.5	0.0	12.4	13.5	11.2	11.2
LnGrp LOS	B	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		578			713			169			82	
Approach Delay, s/veh		12.6			13.1			12.2			12.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	17.1		16.0	7.6	16.1		16.0				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	6.8	29.2		47.8	5.7	30.3		* 49				
Max Q Clear Time (g_c+I1), s	3.0	4.9		5.6	3.8	6.1		4.6				
Green Ext Time (p_c), s	0.0	2.8		0.3	0.0	4.2		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		12.8
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	136	23	26	134	14	23	25	20	37	34	10
Future Vol, veh/h	3	136	23	26	134	14	23	25	20	37	34	10
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	186	32	36	184	19	32	34	27	51	47	14
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

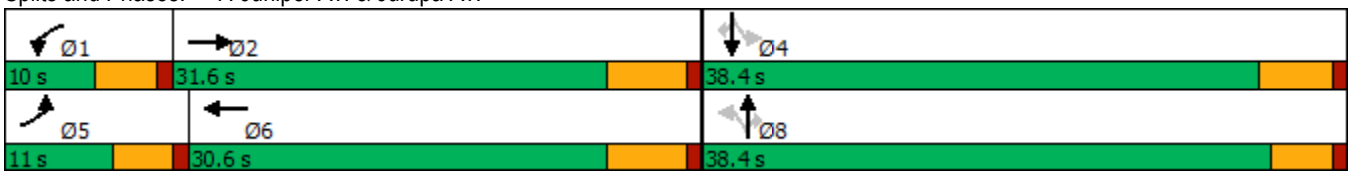
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	10.9	9.2	9.2	9.8
HCM LOS	B	A	A	A

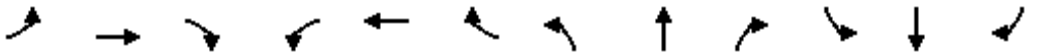
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	48%	0%	2%	28%	0%	52%	0%
Vol Thru, %	52%	0%	84%	72%	83%	48%	0%
Vol Right, %	0%	100%	14%	0%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	20	162	93	81	71	10
LT Vol	23	0	3	26	0	37	0
Through Vol	25	0	136	67	67	34	0
RT Vol	0	20	23	0	14	0	10
Lane Flow Rate	66	27	222	127	111	97	14
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.111	0.039	0.326	0.192	0.16	0.163	0.019
Departure Headway (Hd)	6.053	5.102	5.281	5.439	5.177	6.042	5.07
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	587	694	677	655	688	588	698
Service Time	3.844	2.892	3.349	3.209	2.946	3.832	2.859
HCM Lane V/C Ratio	0.112	0.039	0.328	0.194	0.161	0.165	0.02
HCM Control Delay	9.6	8.1	10.9	9.5	8.9	10	8
HCM Lane LOS	A	A	B	A	A	A	A
HCM 95th-tile Q	0.4	0.1	1.4	0.7	0.6	0.6	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	36	574	12	654	5	5	17	35	6	42
Future Volume (vph)	36	574	12	654	5	5	17	35	6	42
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 43.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	574	3	12	654	27	5	5	17	35	6	42
Future Volume (veh/h)	36	574	3	12	654	27	5	5	17	35	6	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	38	598	2	12	681	25	5	5	7	36	6	12
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	79	1592	5	28	1389	51	318	272	428	503	71	428
Arrive On Green	0.04	0.30	0.30	0.02	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1810	5337	18	1810	5136	188	654	1022	1610	1224	267	1610
Grp Volume(v), veh/h	38	387	213	12	458	248	10	0	7	42	0	12
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1866	1677	0	1610	1491	0	1610
Q Serve(g_s), s	0.8	3.3	3.3	0.2	4.2	4.2	0.0	0.0	0.1	0.4	0.0	0.2
Cycle Q Clear(g_c), s	0.8	3.3	3.3	0.2	4.2	4.2	0.1	0.0	0.1	0.7	0.0	0.2
Prop In Lane	1.00		0.01	1.00		0.10	0.50		1.00	0.86		1.00
Lane Grp Cap(c), veh/h	79	1031	566	28	935	504	590	0	428	574	0	428
V/C Ratio(X)	0.48	0.38	0.38	0.42	0.49	0.49	0.02	0.00	0.02	0.07	0.00	0.03
Avail Cap(c_a), veh/h	308	2372	1301	260	2281	1230	1617	0	1447	1478	0	1413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	10.4	10.4	18.3	11.5	11.5	10.2	0.0	10.2	10.4	0.0	10.2
Incr Delay (d2), s/veh	1.7	0.2	0.4	3.7	0.4	0.7	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.9	1.0	0.1	1.1	1.3	0.1	0.0	0.0	0.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	10.7	10.8	22.0	11.9	12.3	10.2	0.0	10.2	10.4	0.0	10.2
LnGrp LOS	B	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		638			718			17			54	
Approach Delay, s/veh		11.2			12.2			10.2			10.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	17.0		15.4	6.2	16.0		15.4				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.2	5.3		2.7	2.8	6.2		2.1				
Green Ext Time (p_c), s	0.0	3.3		0.2	0.0	3.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		11.7
HCM 6th LOS		B

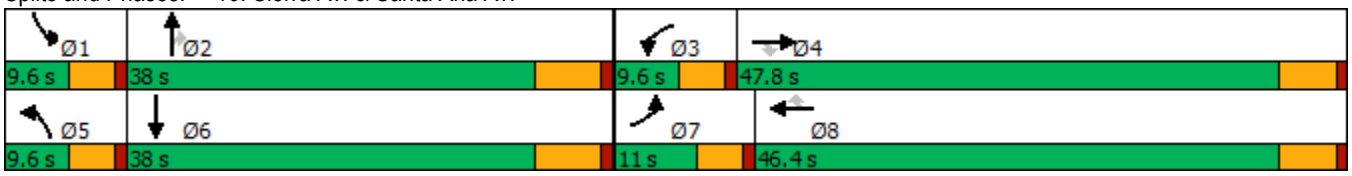
Notes

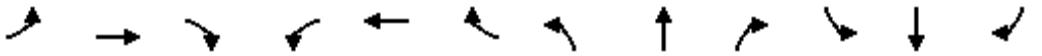
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	85	67	68	33	73	87	75	1105	47	90	659
Future Volume (vph)	85	67	68	33	73	87	75	1105	47	90	659
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	11.0	47.8	47.8	9.6	46.4	46.4	9.6	38.0	38.0	9.6	38.0
Total Split (%)	10.5%	45.5%	45.5%	9.1%	44.2%	44.2%	9.1%	36.2%	36.2%	9.1%	36.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 70
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	67	68	33	73	87	75	1105	47	90	659	63
Future Volume (veh/h)	85	67	68	33	73	87	75	1105	47	90	659	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	93	74	23	36	80	36	82	1214	49	99	724	50
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	120	694	309	68	590	263	218	1855	568	236	1798	124
Arrive On Green	0.07	0.19	0.19	0.04	0.16	0.16	0.06	0.36	0.36	0.07	0.36	0.36
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1589	3510	4956	341
Grp Volume(v), veh/h	93	74	23	36	80	36	82	1214	49	99	504	270
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1589	1755	1729	1838
Q Serve(g_s), s	3.0	1.0	0.7	1.2	1.1	1.2	1.4	11.8	1.2	1.6	6.5	6.6
Cycle Q Clear(g_c), s	3.0	1.0	0.7	1.2	1.1	1.2	1.4	11.8	1.2	1.6	6.5	6.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	120	694	309	68	590	263	218	1855	568	236	1255	667
V/C Ratio(X)	0.78	0.11	0.07	0.53	0.14	0.14	0.38	0.65	0.09	0.42	0.40	0.40
Avail Cap(c_a), veh/h	192	2542	1134	150	2458	1096	292	2740	839	292	1826	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	20.1	19.9	28.5	21.5	21.5	27.1	16.2	12.8	27.0	14.3	14.3
Incr Delay (d2), s/veh	4.0	0.1	0.1	2.4	0.1	0.2	0.4	0.4	0.1	0.4	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.4	0.2	0.5	0.4	0.4	0.5	3.7	0.4	0.6	2.1	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	20.1	20.0	30.8	21.6	21.8	27.5	16.6	12.9	27.4	14.5	14.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		190			152			1345			873	
Approach Delay, s/veh		25.8			23.8			17.1			16.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	27.7	6.9	17.0	8.3	28.0	8.6	15.2
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	31.8	5.0	42.4	5.0	31.8	6.4	41.0
Max Q Clear Time (g_c+I1), s	3.6	13.8	3.2	3.0	3.4	8.6	5.0	3.2
Green Ext Time (p_c), s	0.0	7.5	0.0	0.5	0.0	4.5	0.0	0.6

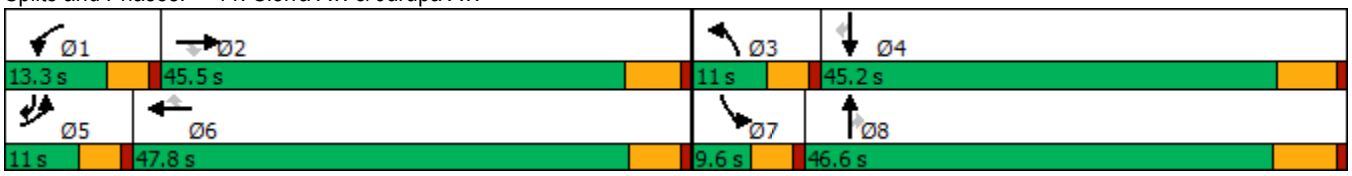
Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

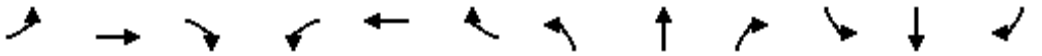
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	220	210	130	263	98	243	671	54	24	422	192
Future Volume (vph)	222	220	210	130	263	98	243	671	54	24	422	192
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	11.0	45.5	45.5	13.3	47.8	47.8	11.0	46.6	46.6	9.6	45.2	11.0
Total Split (%)	9.6%	39.6%	39.6%	11.6%	41.6%	41.6%	9.6%	40.5%	40.5%	8.3%	39.3%	9.6%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 68.9
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	220	210	130	263	98	243	671	54	24	422	192
Future Volume (veh/h)	222	220	210	130	263	98	243	671	54	24	422	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	229	227	95	134	271	48	251	692	28	25	435	86
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	342	746	333	281	683	304	366	1036	462	102	765	498
Arrive On Green	0.10	0.21	0.21	0.08	0.19	0.19	0.10	0.29	0.29	0.03	0.21	0.21
Sat Flow, veh/h	3510	3610	1610	3510	3610	1608	3510	3610	1610	3510	3610	1610
Grp Volume(v), veh/h	229	227	95	134	271	48	251	692	28	25	435	86
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1608	1755	1805	1610	1755	1805	1610
Q Serve(g_s), s	3.4	2.9	2.7	2.0	3.6	1.4	3.7	9.1	0.7	0.4	5.8	2.1
Cycle Q Clear(g_c), s	3.4	2.9	2.7	2.0	3.6	1.4	3.7	9.1	0.7	0.4	5.8	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	342	746	333	281	683	304	366	1036	462	102	765	498
V/C Ratio(X)	0.67	0.30	0.29	0.48	0.40	0.16	0.69	0.67	0.06	0.25	0.57	0.17
Avail Cap(c_a), veh/h	415	2648	1181	564	2828	1260	415	2675	1193	324	2602	1317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	18.2	18.1	23.8	19.2	18.3	23.4	17.0	14.0	25.7	19.1	13.6
Incr Delay (d2), s/veh	1.8	0.2	0.5	0.5	0.4	0.2	2.9	0.8	0.1	0.5	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.0	0.8	0.7	1.3	0.4	1.4	3.0	0.2	0.1	2.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	18.4	18.6	24.3	19.6	18.6	26.3	17.8	14.1	26.2	19.8	13.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		551			453			971			546	
Approach Delay, s/veh		21.3			20.9			19.9			19.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	17.0	10.2	18.0	9.9	16.0	6.2	22.0
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	8.7	39.7	6.4	* 39	6.4	* 42	5.0	40.1
Max Q Clear Time (g_c+I1), s	4.0	4.9	5.7	7.8	5.4	5.6	2.4	11.1
Green Ext Time (p_c), s	0.1	1.6	0.0	2.9	0.0	1.9	0.0	4.4

Intersection Summary	
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

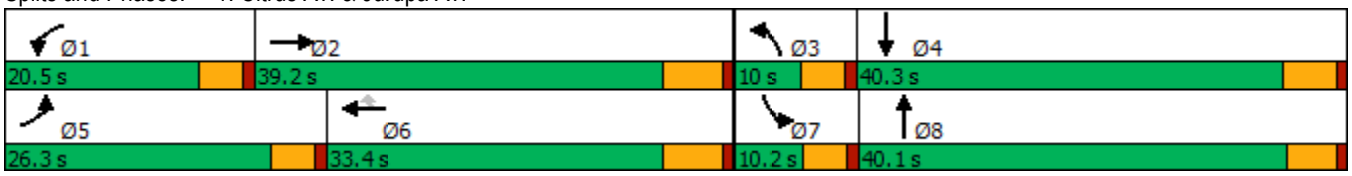
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

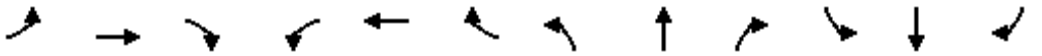
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	328	822	129	390	115	18	147	74	202
Future Volume (vph)	328	822	129	390	115	18	147	74	202
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	26.3	39.2	20.5	33.4	33.4	10.0	40.1	10.2	40.3
Total Split (%)	23.9%	35.6%	18.6%	30.4%	30.4%	9.1%	36.5%	9.3%	36.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 76.9
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	822	51	129	390	115	18	147	82	74	202	100
Future Volume (veh/h)	328	822	51	129	390	115	18	147	82	74	202	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	357	893	40	140	424	51	20	160	66	80	220	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	415	1573	70	181	932	289	43	445	176	113	564	197
Arrive On Green	0.23	0.31	0.31	0.10	0.18	0.18	0.02	0.18	0.18	0.06	0.21	0.21
Sat Flow, veh/h	1810	5089	227	1810	5187	1610	1810	2524	999	1810	2625	916
Grp Volume(v), veh/h	357	606	327	140	424	51	20	113	113	80	149	150
Grp Sat Flow(s),veh/h/ln	1810	1729	1858	1810	1729	1610	1810	1805	1718	1810	1805	1735
Q Serve(g_s), s	11.0	8.5	8.5	4.4	4.2	1.6	0.6	3.2	3.4	2.5	4.1	4.3
Cycle Q Clear(g_c), s	11.0	8.5	8.5	4.4	4.2	1.6	0.6	3.2	3.4	2.5	4.1	4.3
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.58	1.00		0.53
Lane Grp Cap(c), veh/h	415	1069	574	181	932	289	43	318	303	113	388	373
V/C Ratio(X)	0.86	0.57	0.57	0.77	0.45	0.18	0.47	0.35	0.37	0.71	0.38	0.40
Avail Cap(c_a), veh/h	678	1994	1071	497	2471	767	169	1091	1038	175	1088	1045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	16.8	16.8	25.4	21.2	20.1	27.9	21.0	21.0	26.6	19.5	19.5
Incr Delay (d2), s/veh	3.3	0.5	0.9	2.6	0.3	0.3	2.9	0.7	0.8	3.0	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	2.8	3.1	1.8	1.5	0.6	0.3	1.3	1.3	1.1	1.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	17.2	17.7	28.1	21.6	20.4	30.8	21.6	21.8	29.7	20.1	20.2
LnGrp LOS	C	B	B	C	C	C	C	C	C	C	C	C
Approach Vol, veh/h		1290			615			246			379	
Approach Delay, s/veh		19.4			23.0			22.5			22.2	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	23.7	6.0	17.8	17.9	16.2	8.2	15.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	15.9	33.4	5.4	34.9	21.7	27.6	5.6	* 35
Max Q Clear Time (g_c+I1), s	6.4	10.5	2.6	6.3	13.0	6.2	4.5	5.4
Green Ext Time (p_c), s	0.1	5.8	0.0	1.7	0.4	2.7	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1033	625	27	0	32
Future Vol, veh/h	0	1033	625	27	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1123	679	29	0	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	354
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	553
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	553
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

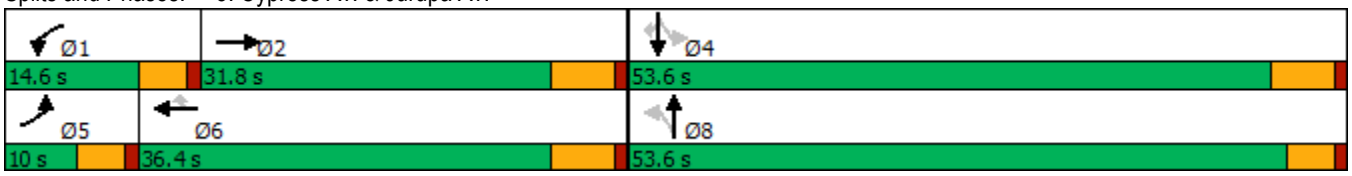
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	553
HCM Lane V/C Ratio	-	-	-	0.063
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

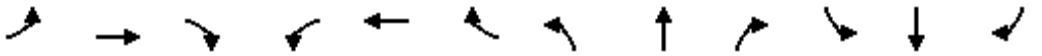
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	122	939	115	580	57	9	49	61	44	69
Future Volume (vph)	122	939	115	580	57	9	49	61	44	69
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	31.8	14.6	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	31.8%	14.6%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 60.1
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	939	22	115	580	57	9	49	61	61	44	69
Future Volume (veh/h)	122	939	22	115	580	57	9	49	61	61	44	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	130	999	19	122	617	40	10	52	30	65	47	39
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	167	1725	33	158	1683	522	431	252	145	408	423	359
Arrive On Green	0.09	0.33	0.33	0.09	0.32	0.32	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1810	5240	100	1810	5187	1610	1332	1130	652	1337	1900	1610
Grp Volume(v), veh/h	130	659	359	122	617	40	10	0	82	65	47	39
Grp Sat Flow(s),veh/h/ln	1810	1729	1882	1810	1729	1610	1332	0	1783	1337	1900	1610
Q Serve(g_s), s	3.2	7.1	7.1	3.0	4.1	0.8	0.3	0.0	1.7	1.9	0.9	0.9
Cycle Q Clear(g_c), s	3.2	7.1	7.1	3.0	4.1	0.8	1.2	0.0	1.7	3.6	0.9	0.9
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	167	1138	620	158	1683	522	431	0	397	408	423	359
V/C Ratio(X)	0.78	0.58	0.58	0.77	0.37	0.08	0.02	0.00	0.21	0.16	0.11	0.11
Avail Cap(c_a), veh/h	218	2002	1090	403	3534	1097	1588	0	1945	1533	2022	1714
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	12.5	12.5	20.1	11.6	10.5	14.4	0.0	14.2	15.7	13.9	13.9
Incr Delay (d2), s/veh	9.1	0.5	0.9	3.0	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.0	2.3	1.2	1.2	0.2	0.1	0.0	0.6	0.5	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	12.9	13.3	23.1	11.8	10.6	14.4	0.0	14.5	15.9	14.0	14.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		1148			779			92			151	
Approach Delay, s/veh		14.9			13.5			14.5			14.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	20.6		15.8	8.7	20.4		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	10.0	26.0		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	5.0	9.1		5.6	5.2	6.1		3.7				
Green Ext Time (p_c), s	0.1	5.7		0.5	0.0	4.1		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		14.4	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	11.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	199	23	49	227	52	30	52	64	62	48	2
Future Vol, veh/h	6	199	23	49	227	52	30	52	64	62	48	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	224	26	55	255	58	34	58	72	70	54	2
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

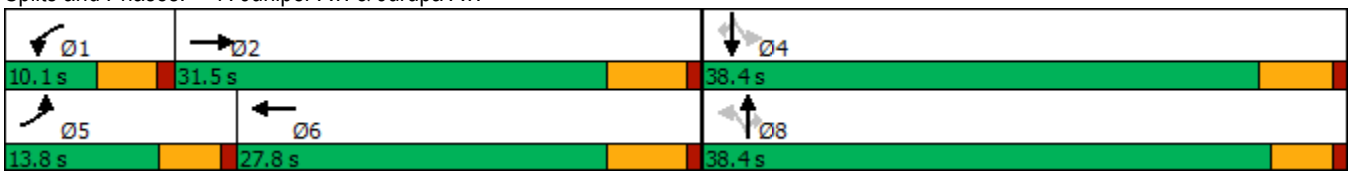
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	13.1	10.8	10.1	11.5
HCM LOS	B	B	B	B

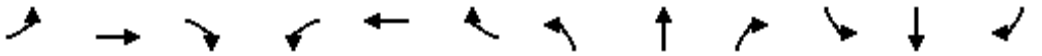
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	37%	0%	3%	30%	0%	56%	0%
Vol Thru, %	63%	0%	87%	70%	69%	44%	0%
Vol Right, %	0%	100%	10%	0%	31%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	64	228	163	166	110	2
LT Vol	30	0	6	49	0	62	0
Through Vol	52	0	199	114	114	48	0
RT Vol	0	64	23	0	52	0	2
Lane Flow Rate	92	72	256	183	186	124	2
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.17	0.115	0.419	0.301	0.287	0.233	0.004
Departure Headway (Hd)	6.641	5.742	5.895	5.939	5.564	6.785	5.785
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	540	623	610	604	645	529	617
Service Time	4.387	3.487	3.933	3.675	3.301	4.533	3.532
HCM Lane V/C Ratio	0.17	0.116	0.42	0.303	0.288	0.234	0.003
HCM Control Delay	10.8	9.2	13.1	11.2	10.5	11.6	8.6
HCM Lane LOS	B	A	B	B	B	B	A
HCM 95th-tile Q	0.6	0.4	2.1	1.3	1.2	0.9	0

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	77	980	28	671	7	15	5	34	22	64
Future Volume (vph)	77	980	28	671	7	15	5	34	22	64
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	13.8	31.5	10.1	27.8	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	17.3%	39.4%	12.6%	34.8%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 49
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	980	5	28	671	54	7	15	5	34	22	64
Future Volume (veh/h)	77	980	5	28	671	54	7	15	5	34	22	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	84	1065	5	30	729	54	8	16	2	37	24	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	134	1866	9	63	1534	113	203	338	393	340	190	392
Arrive On Green	0.07	0.35	0.35	0.04	0.31	0.31	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1810	5328	25	1810	4928	363	372	1386	1610	837	778	1604
Grp Volume(v), veh/h	84	691	379	30	510	273	24	0	2	61	0	24
Grp Sat Flow(s),veh/h/ln	1810	1729	1895	1810	1729	1833	1758	0	1610	1615	0	1604
Q Serve(g_s), s	1.9	6.9	6.9	0.7	5.1	5.1	0.0	0.0	0.0	0.0	0.0	0.5
Cycle Q Clear(g_c), s	1.9	6.9	6.9	0.7	5.1	5.1	0.4	0.0	0.0	1.1	0.0	0.5
Prop In Lane	1.00		0.01	1.00		0.20	0.33		1.00	0.61		1.00
Lane Grp Cap(c), veh/h	134	1211	664	63	1077	571	542	0	393	530	0	392
V/C Ratio(X)	0.63	0.57	0.57	0.47	0.47	0.48	0.04	0.00	0.01	0.12	0.00	0.06
Avail Cap(c_a), veh/h	390	2084	1142	233	1784	946	1466	0	1276	1364	0	1242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	11.3	11.3	20.2	11.9	11.9	12.3	0.0	12.2	12.6	0.0	12.4
Incr Delay (d2), s/veh	1.8	0.4	0.8	2.0	0.3	0.6	0.0	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	2.1	0.3	1.4	1.6	0.2	0.0	0.0	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	11.7	12.0	22.2	12.2	12.5	12.4	0.0	12.2	12.7	0.0	12.4
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1154			813			26			85	
Approach Delay, s/veh		12.5			12.7			12.4			12.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	20.7		15.8	7.8	19.1		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.5	25.7		33.0	9.2	22.0		* 34				
Max Q Clear Time (g_c+I1), s	2.7	8.9		3.1	3.9	7.1		2.4				
Green Ext Time (p_c), s	0.0	6.0		0.3	0.0	4.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.5
HCM 6th LOS		B

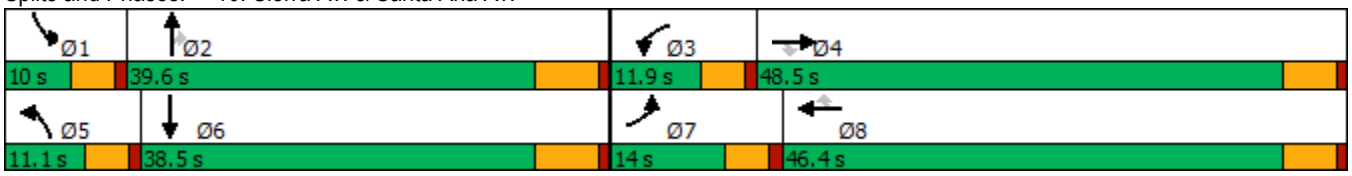
Notes

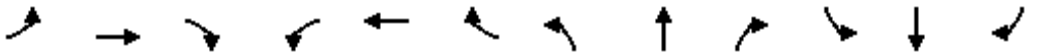
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	120	126	115	74	129	79	172	1343	50	127	1089
Future Volume (vph)	120	126	115	74	129	79	172	1343	50	127	1089
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	14.0	48.5	48.5	11.9	46.4	46.4	11.1	39.6	39.6	10.0	38.5
Total Split (%)	12.7%	44.1%	44.1%	10.8%	42.2%	42.2%	10.1%	36.0%	36.0%	9.1%	35.0%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 80.2
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	126	115	74	129	79	172	1343	50	127	1089	94
Future Volume (veh/h)	120	126	115	74	129	79	172	1343	50	127	1089	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	122	129	19	76	132	43	176	1370	43	130	1111	81
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	157	665	296	103	557	249	268	1964	600	240	1828	133
Arrive On Green	0.09	0.18	0.18	0.06	0.15	0.15	0.08	0.38	0.38	0.07	0.37	0.37
Sat Flow, veh/h	1810	3610	1608	1810	3610	1610	3510	5187	1586	3510	4934	359
Grp Volume(v), veh/h	122	129	19	76	132	43	176	1370	43	130	778	414
Grp Sat Flow(s),veh/h/ln	1810	1805	1608	1810	1805	1610	1755	1729	1586	1755	1729	1835
Q Serve(g_s), s	4.4	2.0	0.6	2.8	2.1	1.5	3.2	14.9	1.2	2.4	12.2	12.2
Cycle Q Clear(g_c), s	4.4	2.0	0.6	2.8	2.1	1.5	3.2	14.9	1.2	2.4	12.2	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	157	665	296	103	557	249	268	1964	600	240	1281	680
V/C Ratio(X)	0.78	0.19	0.06	0.74	0.24	0.17	0.66	0.70	0.07	0.54	0.61	0.61
Avail Cap(c_a), veh/h	255	2336	1040	198	2222	991	343	2601	795	285	1677	890
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	23.0	22.4	30.9	24.7	24.5	29.9	17.5	13.2	30.0	17.0	17.0
Incr Delay (d2), s/veh	3.2	0.1	0.1	3.9	0.2	0.3	1.4	0.5	0.0	0.7	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.8	0.2	1.2	0.9	0.6	1.3	4.9	0.4	0.9	4.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.0	23.1	22.5	34.8	24.9	24.8	31.3	18.0	13.3	30.7	17.5	17.9
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		270			251			1589			1322	
Approach Delay, s/veh		27.5			27.9			19.4			18.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	31.4	8.4	17.7	9.7	30.9	10.4	15.7
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.4	33.4	7.3	43.1	6.5	32.3	9.4	41.0
Max Q Clear Time (g_c+I1), s	4.4	16.9	4.8	4.0	5.2	14.2	6.4	4.1
Green Ext Time (p_c), s	0.0	8.2	0.0	0.8	0.0	6.8	0.0	0.9

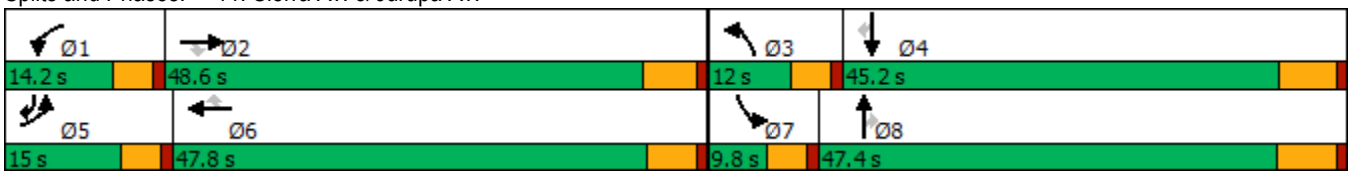
Intersection Summary	
HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

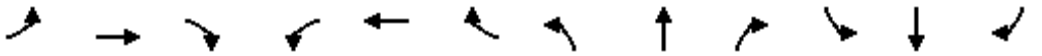
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	404	318	279	140	261	84	260	911	98	88	576	245
Future Volume (vph)	404	318	279	140	261	84	260	911	98	88	576	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	15.0	48.6	48.6	14.2	47.8	47.8	12.0	47.4	47.4	9.8	45.2	15.0
Total Split (%)	12.5%	40.5%	40.5%	11.8%	39.8%	39.8%	10.0%	39.5%	39.5%	8.2%	37.7%	12.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 81.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	318	279	140	261	84	260	911	98	88	576	245
Future Volume (veh/h)	404	318	279	140	261	84	260	911	98	88	576	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	416	328	145	144	269	27	268	939	58	91	594	186
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	506	794	354	236	516	230	359	1249	550	208	1094	720
Arrive On Green	0.14	0.22	0.22	0.07	0.14	0.14	0.10	0.35	0.35	0.06	0.30	0.30
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	3610	1590	3510	3610	1610
Grp Volume(v), veh/h	416	328	145	144	269	27	268	939	58	91	594	186
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1805	1590	1755	1805	1610
Q Serve(g_s), s	8.0	5.5	5.4	2.8	4.8	1.0	5.2	16.1	1.7	1.8	9.6	5.0
Cycle Q Clear(g_c), s	8.0	5.5	5.4	2.8	4.8	1.0	5.2	16.1	1.7	1.8	9.6	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	506	794	354	236	516	230	359	1249	550	208	1094	720
V/C Ratio(X)	0.82	0.41	0.41	0.61	0.52	0.12	0.75	0.75	0.11	0.44	0.54	0.26
Avail Cap(c_a), veh/h	522	2210	986	482	2189	976	372	2112	930	261	2013	1130
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	23.4	23.4	31.7	27.7	26.1	30.5	20.2	15.5	31.8	20.3	12.1
Incr Delay (d2), s/veh	9.2	0.3	0.8	1.0	0.8	0.2	6.8	0.9	0.1	0.5	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.1	1.8	1.1	2.0	0.4	2.3	5.7	0.5	0.7	3.5	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	23.7	24.1	32.7	28.6	26.3	37.2	21.1	15.6	32.3	20.8	12.3
LnGrp LOS	D	C	C	C	C	C	D	C	B	C	C	B
Approach Vol, veh/h		889			440			1265			871	
Approach Delay, s/veh		30.6			29.8			24.3			20.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	21.2	11.8	27.7	14.7	15.8	8.7	30.7
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	9.6	42.8	7.4	* 39	10.4	* 42	5.2	40.9
Max Q Clear Time (g_c+I1), s	4.8	7.5	7.2	11.6	10.0	6.8	3.8	18.1
Green Ext Time (p_c), s	0.1	2.5	0.0	4.3	0.0	1.8	0.0	6.1

Intersection Summary	
HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 3.3:

EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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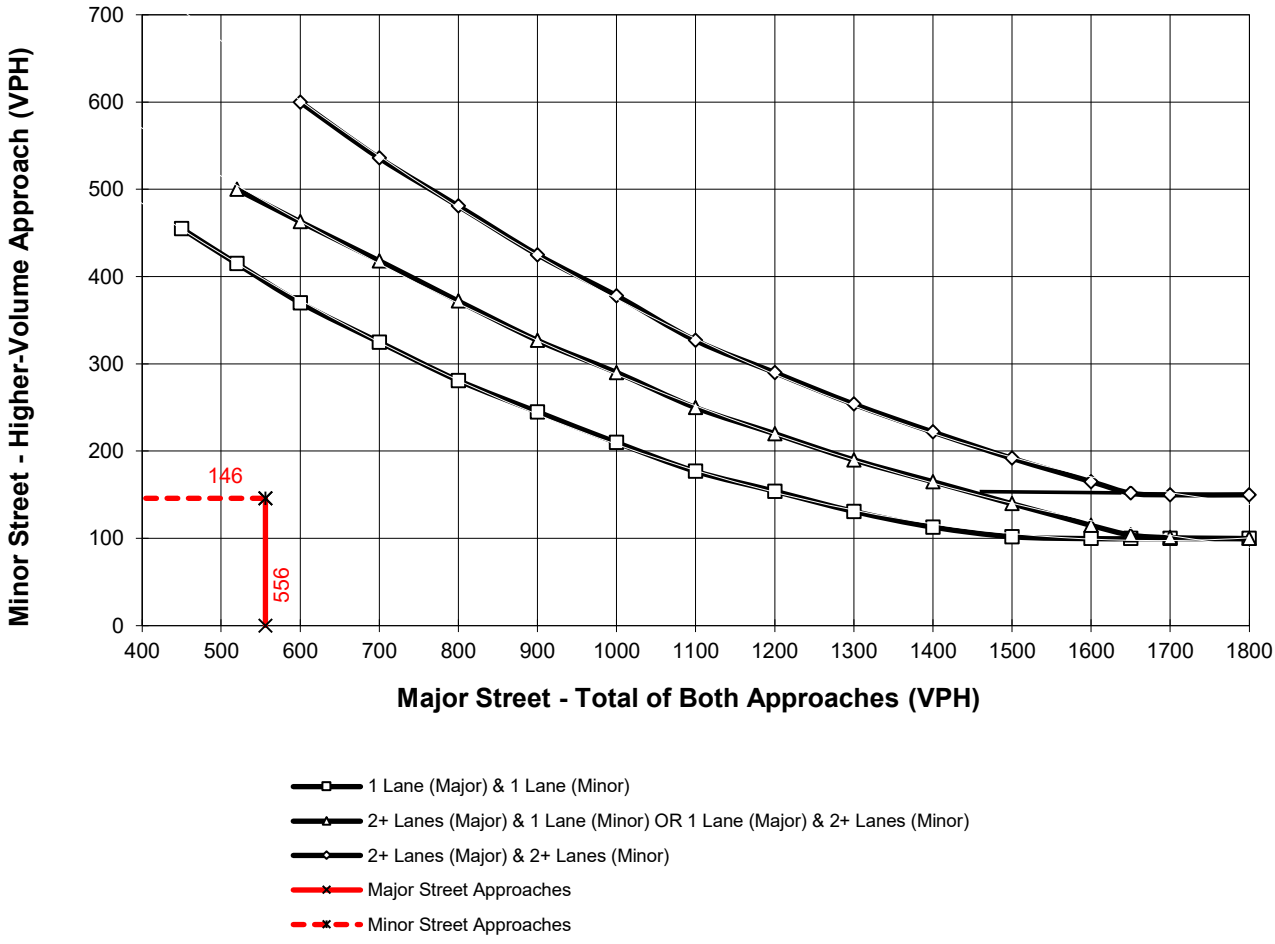
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

Major Street Name = **Santa Ana Av**
Total of Both Approaches (VPH) = **556**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Juniper Av**
High Volume Approach (VPH) = **146**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project:	Fontana Foothills	Job #:	12997
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	1/15/20

LOCATION: Citrus Avenue & Jurupa Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	59	53	-6	-10%	18	18	0	0%
	Through	291	310	19	7%	147	136	-11	-7%
	Right	99	89	-10	-10%	82	77	-5	-6%
	NB Total	449	452	3	1%	247	231	-16	-6%
SOUTH BOUND	Left	62	75	13	21%	74	125	51	69%
	Through	113	115	2	2%	202	237	35	17%
	Right	159	192	33	21%	100	179	80	80%
	SB Total	334	382	48	14%	376	541	166	44%
EAST BOUND	Left	181	255	75	41%	328	386	59	18%
	Through	382	456	74	19%	822	987	166	20%
	Right	13	13	0	0%	51	42	-9	-18%
	EB Total	576	724	149	26%	1,200	1,415	215	18%
WEST BOUND	Left	63	62	-1	-1%	129	111	-18	-14%
	Through	517	605	88	17%	390	513	123	32%
	Right	105	146	41	39%	115	139	25	21%
	WB Total	685	813	129	19%	634	763	130	20%
TOTAL ENTERING VOLUME		2,043	2,371	328	16%	2,456	2,950	494	20%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	382	541			
North Leg	Outbound	711	661			
North Leg	**TOTAL**	**1,093**	**1,202**	**14%**	**15%**	**7,873**
South Leg	Inbound	452	231			
South Leg	Outbound	190	390			
South Leg	**TOTAL**	**642**	**621**	**20%**	**20%**	**3,154**
East Leg	Inbound	813	763			
East Leg	Outbound	620	1,189			
East Leg	**TOTAL**	**1,433**	**1,952**	**12%**	**17%**	**11,494**
West Leg	Inbound	724	1,415			
West Leg	Outbound	850	710			
West Leg	**TOTAL**	**1,574**	**2,125**	**12%**	**17%**	**12,664**
OVERALL TOTAL		***4,742***	***5,900***	**13%**	***17%***	***35,185***

U:\UcJobs_12600-13000_12900\12997\Post Processing\[01 Citrus_Jurupa.xls]Output (3)

Project:	Fontana Foothills	Job #:	12997
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	1/15/20

LOCATION: Oleander Avenue & Jurupa Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	NB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
SOUTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	35	244	209	597%	32	173	142	449%
	SB Total	35	244	209	597%	32	173	142	449%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	551	664	114	21%	1,033	1,180	148	14%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	551	664	114	21%	1,033	1,180	148	14%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	673	611	-62	-9%	625	597	-28	-4%
	Right	37	111	74	200%	27	280	253	937%
	WB Total	710	722	13	2%	652	877	226	35%
TOTAL ENTERING VOLUME		1,295	1,630	335	26%	1,716	2,230	515	30%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	244	173			
North Leg	Outbound	111	280			
North Leg	**TOTAL**	**355**	**453**	**5%**	**6%**	**7,873**
South Leg	Inbound	0	0			
South Leg	Outbound	0	0			
South Leg	**TOTAL**	**0**	**0**	**0%**	**0%**	**3,154**
East Leg	Inbound	722	877			
East Leg	Outbound	664	1,180			
East Leg	**TOTAL**	**1,386**	**2,057**	**12%**	**18%**	**11,494**
West Leg	Inbound	664	1,180			
West Leg	Outbound	855	770			
West Leg	**TOTAL**	**1,519**	**1,950**	**12%**	**15%**	**12,664**
OVERALL TOTAL		***3,260***	***4,460***	**9%**	***13%***	***35,185***

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Project:	Fontana Foothills	Job #:	12997
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	1/15/20

LOCATION: Cypress Avenue & Jurupa Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	26	26	0	0%	9	9	0	0%
	Through	65	60	-5	-8%	49	46	-3	-6%
	Right	122	124	2	2%	61	66	5	8%
	NB Total	213	210	-3	-1%	119	121	2	2%
SOUTH BOUND	Left	36	40	4	11%	61	63	2	3%
	Through	23	22	-1	-4%	44	35	-9	-20%
	Right	54	58	4	7%	69	64	-5	-7%
	SB Total	113	120	7	6%	174	162	-12	-7%
EAST BOUND	Left	82	90	8	10%	122	124	2	2%
	Through	465	566	102	22%	939	1,101	162	17%
	Right	14	15	1	7%	22	20	-2	-9%
	EB Total	561	671	111	20%	1,083	1,245	162	15%
WEST BOUND	Left	46	44	-2	-4%	115	126	11	10%
	Through	619	676	57	9%	580	747	168	29%
	Right	40	40	0	0%	57	70	14	24%
	WB Total	705	760	55	8%	751	943	192	26%
TOTAL ENTERING VOLUME		1,592	1,761	169.5	11%	2,127	2,471	344	16%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	120	162			
North Leg	Outbound	190	240			
North Leg	**TOTAL**	**310**	**402**	**60%**	**78%**	**514**
South Leg	Inbound	210	121			
South Leg	Outbound	81	181			
South Leg	**TOTAL**	**291**	**302**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	760	943			
East Leg	Outbound	730	1,230			
East Leg	**TOTAL**	**1,490**	**2,173**	**14%**	**20%**	**10,972**
West Leg	Inbound	671	1,245			
West Leg	Outbound	760	820			
West Leg	**TOTAL**	**1,431**	**2,065**	**13%**	**18%**	**11,265**
OVERALL TOTAL		***3,522***	***4,942***	**15%**	***22%***	***22,751***

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Project: Fontana Foothills
Scenario: Horizon Year (2040)

Job #: 12997
Analyst: CS
Date: 1/15/20

LOCATION: Juniper Avenue & Santa Ana Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	1	25	24	2400%	1	49	48	4800%
	Through	2	12	10	500%	2	32	30	1500%
	Right	1	34	33	3300%	1	79	78	7800%
	NB Total	4	71	67	1675%	4	160	156	3900%
SOUTH BOUND	Left	1	8	7	700%	1	9	8	800%
	Through	2	16	14	700%	2	15	13	650%
	Right	1	6	5	500%	1	6	5	500%
	SB Total	4	30	26	650%	4	30	26	650%
EAST BOUND	Left	1	6	5	500%	1	10	9	900%
	Through	2	147	145	7250%	2	212	210	10500%
	Right	1	31	30	3000%	1	39	38	3800%
	EB Total	4	184	180	4500%	4	261	257	6425%
WEST BOUND	Left	1	63	62	6200%	1	75	74	7400%
	Through	2	219	217	10850%	2	255	253	12650%
	Right	1	12	11	1100%	1	18	17	1700%
	WB Total	4	294	290	7250%	4	348	344	8600%
TOTAL ENTERING VOLUME		16	579	563	3519%	16	799	783	4894%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	30	30			
North Leg	Outbound	30	60			
North Leg	**TOTAL**	**60**	**90**	**6%**	**9%**	**1,027**
South Leg	Inbound	71	160			
South Leg	Outbound	110	129			
South Leg	**TOTAL**	**181**	**289**	**6%**	**9%**	**3,289**
East Leg	Inbound	294	348			
East Leg	Outbound	189	300			
East Leg	**TOTAL**	**483**	**648**	**7%**	**10%**	**6,717**
West Leg	Inbound	184	261			
West Leg	Outbound	250	310			
West Leg	**TOTAL**	**434**	**571**	**7%**	**10%**	**5,789**
OVERALL TOTAL		***1,158***	***1,598***	***7%***	***9%***	***16,822***

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Project:	Fontana Foothills	Job #:	12997
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	1/15/20

LOCATION: Juniper Avenue & Jurupa Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	1	0	-1	-100%	1	0	-1	-100%
	Through	1	0	-1	-100%	1	0	-1	-100%
	Right	1	0	-1	-100%	1	0	-1	-100%
	NB Total	3	0	-3	-100%	3	0	-3	-100%
SOUTH BOUND	Left	1	24	23	2300%	1	47	46	4600%
	Through	1	0	-1	-100%	1	0	-1	-100%
	Right	1	16	15	1500%	1	43	42	4200%
	SB Total	3	40	37	1233%	3	90	87	2900%
EAST BOUND	Left	1	24	23	2300%	1	36	35	3500%
	Through	3	406	403	13433%	3	543	540	18000%
	Right	1	0	-1	-100%	1	0	-1	-100%
	EB Total	5	430	425	8500%	5	579	574	11480%
WEST BOUND	Left	1	0	-1	-100%	1	0	-1	-100%
	Through	3	284	281	9367%	3	487	484	16133%
	Right	1	26	25	2500%	1	34	33	3300%
	WB Total	5	310	305	6100%	5	521	516	10320%
TOTAL ENTERING VOLUME		16	780	764	4775%	16	1,190	1174	7338%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	40	90			
North Leg	Outbound	50	70			
North Leg	**TOTAL**	**90**	**160**	**5%**	**9%**	**1,727**
South Leg	Inbound	0	0			
South Leg	Outbound	0	0			
South Leg	**TOTAL**	**0**	**0**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	310	521			
East Leg	Outbound	430	590			
East Leg	**TOTAL**	**740**	**1,111**	**7%**	**10%**	**11,105**
West Leg	Inbound	430	579			
West Leg	Outbound	300	530			
West Leg	**TOTAL**	**730**	**1,109**	**7%**	**10%**	**10,972**
OVERALL TOTAL		***1,560***	***2,380***	***7%***	***10%***	***23,804***

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Project:	Fontana Foothills	Job #:	12997
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	1/15/20

LOCATION: Sierra Avenue & Santa Ana Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	75	122	47	63%	172	210	39	22%
	Through	1,105	1,218	114	10%	1,343	1,518	175	13%
	Right	47	55	8	17%	50	66	16	32%
	NB Total	1,227	1,395	169	14%	1,565	1,794	230	15%
SOUTH BOUND	Left	90	108	18	20%	127	185	58	46%
	Through	659	892	233	35%	1,089	1,154	66	6%
	Right	63	104	42	66%	94	127	33	35%
	SB Total	812	1,104	293	36%	1,310	1,466	157	12%
EAST BOUND	Left	85	108	23	27%	120	154	34	28%
	Through	67	90	23	34%	126	189	64	51%
	Right	68	103	35	51%	115	126	11	10%
	EB Total	220	301	81	37%	361	469	109	30%
WEST BOUND	Left	33	35	2	6%	74	74	1	1%
	Through	73	97	24	33%	129	164	35	27%
	Right	87	78	-9	-10%	79	92	14	17%
	WB Total	193	210	17	9%	281	330	49	17%
TOTAL ENTERING VOLUME		2,451	3,010	559	23%	3,516	4,059	544	15%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,104	1,466			
North Leg	Outbound	1,404	1,764			
North Leg	**TOTAL**	**2,508**	**3,230**	**7%**	**9%**	**35,957**
South Leg	Inbound	1,395	1,794			
South Leg	Outbound	1,030	1,354			
South Leg	**TOTAL**	**2,425**	**3,148**	**6%**	**8%**	**38,800**
East Leg	Inbound	210	330			
East Leg	Outbound	253	440			
East Leg	**TOTAL**	**463**	**770**	**13%**	**22%**	**3,452**
West Leg	Inbound	301	469			
West Leg	Outbound	323	501			
West Leg	**TOTAL**	**624**	**970**	**9%**	**14%**	**6,717**
OVERALL TOTAL		***6,020***	***8,118***	**7%**	***10%***	***84,926***

U:\UcJobs_12600-13000_12900\12997\Post Processing\[10 Sierra_Santa Ana.xls]Output (3)

Project:	Fontana Foothills	Job #:	12997
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	1/15/20

LOCATION: Sierra Avenue & Jurupa Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	243	268	25	10%	260	315	55	21%
	Through	671	843	173	26%	911	1,030	119	13%
	Right	54	62	8	15%	98	94	-4	-4%
	NB Total	968	1,173	206	21%	1,269	1,439	170	13%
SOUTH BOUND	Left	24	31	7	29%	88	91	3	3%
	Through	422	651	229	54%	576	611	36	6%
	Right	192	240	49	25%	245	318	74	30%
	SB Total	638	922	285	45%	908	1,020	112	12%
EAST BOUND	Left	222	260	38	17%	404	515	111	27%
	Through	220	236	16	7%	318	345	27	8%
	Right	210	266	56	27%	279	311	32	11%
	EB Total	652	762	110	17%	1,001	1,171	170	17%
WEST BOUND	Left	130	153	23	18%	140	138	-2	-1%
	Through	263	252	-11	-4%	261	317	56	21%
	Right	98	107	10	10%	84	95	11	13%
	WB Total	490	512	22	4%	485	550	65	13%
TOTAL ENTERING VOLUME		2,747	3,369	622	23%	3,663	4,180	517	14%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	922	1,020			
North Leg	Outbound	1,210	1,640			
North Leg	**TOTAL**	**2,132**	**2,660**	**6%**	**7%**	**35,706**
South Leg	Inbound	1,173	1,439			
South Leg	Outbound	1,070	1,060			
South Leg	**TOTAL**	**2,243**	**2,499**	**6%**	**7%**	**37,879**
East Leg	Inbound	512	550			
East Leg	Outbound	329	530			
East Leg	**TOTAL**	**841**	**1,080**	**16%**	**20%**	**5,327**
West Leg	Inbound	762	1,171			
West Leg	Outbound	760	950			
West Leg	**TOTAL**	**1,522**	**2,121**	**14%**	**19%**	**11,105**
OVERALL TOTAL		***6,738***	***8,360***	***7%***	***9%***	***90,017***

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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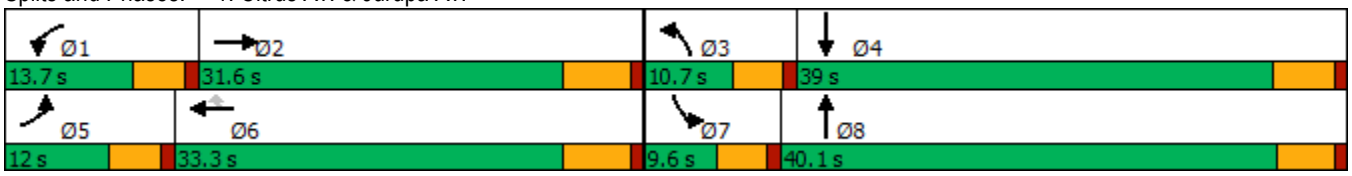
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	181	400	63	522	110	59	291	79	113
Future Volume (vph)	181	400	63	522	110	59	291	79	113
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	12.0	31.6	13.7	33.3	33.3	10.7	40.1	9.6	39.0
Total Split (%)	12.6%	33.3%	14.4%	35.1%	35.1%	11.3%	42.2%	10.1%	41.1%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 63.5
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	400	13	63	522	110	59	291	99	79	113	159
Future Volume (veh/h)	181	400	13	63	522	110	59	291	99	79	113	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	197	435	12	68	567	81	64	316	83	86	123	113
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	245	1501	41	108	1108	343	105	551	142	123	380	320
Arrive On Green	0.14	0.29	0.29	0.06	0.21	0.21	0.06	0.19	0.19	0.07	0.20	0.20
Sat Flow, veh/h	1810	5187	142	1810	5187	1606	1810	2838	734	1810	1858	1566
Grp Volume(v), veh/h	197	289	158	68	567	81	64	199	200	86	119	117
Grp Sat Flow(s),veh/h/ln	1810	1729	1872	1810	1729	1606	1810	1805	1767	1810	1805	1618
Q Serve(g_s), s	5.5	3.4	3.4	1.9	5.1	2.2	1.8	5.2	5.4	2.4	3.0	3.2
Cycle Q Clear(g_c), s	5.5	3.4	3.4	1.9	5.1	2.2	1.8	5.2	5.4	2.4	3.0	3.2
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.42	1.00		0.97
Lane Grp Cap(c), veh/h	245	1000	542	108	1108	343	105	350	343	123	369	331
V/C Ratio(X)	0.80	0.29	0.29	0.63	0.51	0.24	0.61	0.57	0.58	0.70	0.32	0.35
Avail Cap(c_a), veh/h	255	1700	920	314	2718	841	210	1204	1178	172	1155	1036
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	14.5	14.5	24.1	18.2	17.1	24.2	19.2	19.2	23.9	17.8	17.9
Incr Delay (d2), s/veh	14.9	0.2	0.3	2.2	0.4	0.4	2.2	1.5	1.6	2.7	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.1	1.2	0.8	1.7	0.7	0.8	2.1	2.1	1.0	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.9	14.6	14.8	26.3	18.6	17.4	26.3	20.6	20.8	26.6	18.3	18.5
LnGrp LOS	D	B	B	C	B	B	C	C	C	C	B	B
Approach Vol, veh/h		644			716			463			322	
Approach Delay, s/veh		21.5			19.2			21.5			20.6	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	21.0	7.6	16.1	11.7	17.0	8.2	15.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	9.1	25.8	6.1	33.6	7.4	27.5	5.0	* 35
Max Q Clear Time (g_c+I1), s	3.9	5.4	3.8	5.2	7.5	7.1	4.4	7.4
Green Ext Time (p_c), s	0.0	2.4	0.0	1.3	0.0	3.7	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	586	684	37	0	35
Future Vol, veh/h	0	586	684	37	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	623	728	39	0	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	384
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	529
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	529
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

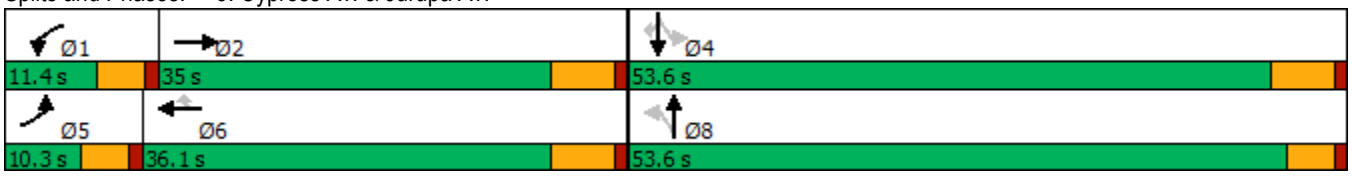
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	529
HCM Lane V/C Ratio	-	-	-	0.07
HCM Control Delay (s)	-	-	-	12.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

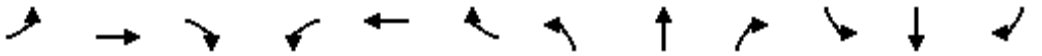
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	82	500	46	630	40	26	65	36	23	54
Future Volume (vph)	82	500	46	630	40	26	65	36	23	54
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.3	35.0	11.4	36.1	36.1	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.3%	35.0%	11.4%	36.1%	36.1%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 54.5
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	500	14	46	630	40	26	65	122	36	23	54
Future Volume (veh/h)	82	500	14	46	630	40	26	65	122	36	23	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	85	515	14	47	649	28	27	67	75	37	24	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	138	1493	40	92	1359	422	521	209	234	420	486	412
Arrive On Green	0.08	0.29	0.29	0.05	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1810	5192	141	1810	5187	1610	1383	818	916	1265	1900	1610
Grp Volume(v), veh/h	85	342	187	47	649	28	27	0	142	37	24	21
Grp Sat Flow(s),veh/h/ln	1810	1729	1875	1810	1729	1610	1383	0	1734	1265	1900	1610
Q Serve(g_s), s	1.8	3.1	3.1	1.0	4.2	0.5	0.6	0.0	2.7	1.0	0.4	0.4
Cycle Q Clear(g_c), s	1.8	3.1	3.1	1.0	4.2	0.5	1.0	0.0	2.7	3.6	0.4	0.4
Prop In Lane	1.00		0.08	1.00		1.00	1.00		0.53	1.00		1.00
Lane Grp Cap(c), veh/h	138	994	539	92	1359	422	521	0	444	420	486	412
V/C Ratio(X)	0.61	0.34	0.35	0.51	0.48	0.07	0.05	0.00	0.32	0.09	0.05	0.05
Avail Cap(c_a), veh/h	258	2529	1371	308	3936	1222	1864	0	2128	1611	2274	1927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	11.2	11.3	18.5	12.4	11.1	11.6	0.0	12.0	13.5	11.2	11.2
Incr Delay (d2), s/veh	1.6	0.2	0.4	1.6	0.3	0.1	0.0	0.0	0.4	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	1.0	0.4	1.2	0.1	0.2	0.0	0.9	0.2	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	11.5	11.6	20.1	12.7	11.1	11.6	0.0	12.5	13.6	11.2	11.3
LnGrp LOS	B	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		614			724			169			82	
Approach Delay, s/veh		12.6			13.1			12.3			12.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	17.3		16.0	7.7	16.3		16.0				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	6.8	29.2		47.8	5.7	30.3		* 49				
Max Q Clear Time (g_c+I1), s	3.0	5.1		5.6	3.8	6.2		4.7				
Green Ext Time (p_c), s	0.0	3.0		0.3	0.0	4.2		1.0				

Intersection Summary		
HCM 6th Ctrl Delay		12.8
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	136	30	29	134	14	25	26	23	37	39	10
Future Vol, veh/h	3	136	30	29	134	14	25	26	23	37	39	10
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	186	41	40	184	19	34	36	32	51	53	14
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	11.2	9.4	9.2	9.9
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	49%	0%	2%	30%	0%	49%	0%
Vol Thru, %	51%	0%	80%	70%	83%	51%	0%
Vol Right, %	0%	100%	18%	0%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	23	169	96	81	76	10
LT Vol	25	0	3	29	0	37	0
Through Vol	26	0	136	67	67	39	0
RT Vol	0	23	30	0	14	0	10
Lane Flow Rate	70	32	232	132	111	104	14
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.119	0.045	0.342	0.201	0.161	0.176	0.019
Departure Headway (Hd)	6.111	5.154	5.313	5.51	5.236	6.078	5.123
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	581	686	671	646	679	585	690
Service Time	3.909	2.951	3.388	3.287	3.013	3.874	2.919
HCM Lane V/C Ratio	0.12	0.047	0.346	0.204	0.163	0.178	0.02
HCM Control Delay	9.7	8.2	11.2	9.7	9	10.2	8
HCM Lane LOS	A	A	B	A	A	B	A
HCM 95th-tile Q	0.4	0.1	1.5	0.7	0.6	0.6	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	4	0	3	0	71	17	6	91	0
Future Vol, veh/h	0	0	0	4	0	3	0	71	17	6	91	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	4	0	3	0	77	18	7	99	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	199	199	86	-	0	0	95	0	0
Stage 1	86	86	-	-	-	-	-	-	-
Stage 2	113	113	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	794	700	978	0	-	-	1512	-	0
Stage 1	942	827	-	0	-	-	-	-	0
Stage 2	917	806	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	790	0	978	-	-	-	1512	-	-
Mov Cap-2 Maneuver	790	0	-	-	-	-	-	-	-
Stage 1	942	0	-	-	-	-	-	-	-
Stage 2	912	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	861	1512	-
HCM Lane V/C Ratio	-	-	0.009	0.004	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	8	0	3	0	85	28	8	87	0
Future Vol, veh/h	0	0	0	8	0	3	0	85	28	8	87	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	9	0	3	0	92	30	9	95	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	220	220	107	-	0	0	122	0	0
Stage 1	107	107	-	-	-	-	-	-	-
Stage 2	113	113	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	773	682	953	0	-	-	1478	-	0
Stage 1	922	811	-	0	-	-	-	-	0
Stage 2	917	806	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	768	0	953	-	-	-	1478	-	-
Mov Cap-2 Maneuver	768	0	-	-	-	-	-	-	-
Stage 1	922	0	-	-	-	-	-	-	-
Stage 2	911	0	-	-	-	-	-	-	-

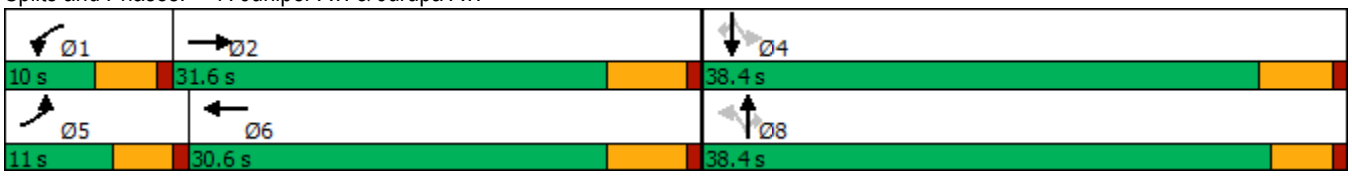
Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.6
HCM LOS	A		

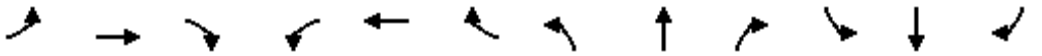
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	811	1478	-
HCM Lane V/C Ratio	-	-	0.015	0.006	-
HCM Control Delay (s)	-	-	9.5	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	71	574	12	658	5	5	17	41	6	48
Future Volume (vph)	71	574	12	658	5	5	17	41	6	48
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 46.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	574	3	12	658	38	5	5	17	41	6	48
Future Volume (veh/h)	71	574	3	12	658	38	5	5	17	41	6	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	74	598	2	12	685	37	5	5	7	43	6	18
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	128	1734	6	28	1360	73	305	261	412	493	58	412
Arrive On Green	0.07	0.32	0.32	0.02	0.27	0.27	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1810	5337	18	1810	5038	271	652	1020	1610	1254	228	1610
Grp Volume(v), veh/h	74	387	213	12	469	253	10	0	7	49	0	18
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1851	1673	0	1610	1482	0	1610
Q Serve(g_s), s	1.6	3.3	3.3	0.3	4.5	4.5	0.0	0.0	0.1	0.6	0.0	0.3
Cycle Q Clear(g_c), s	1.6	3.3	3.3	0.3	4.5	4.5	0.2	0.0	0.1	0.9	0.0	0.3
Prop In Lane	1.00		0.01	1.00		0.15	0.50		1.00	0.88		1.00
Lane Grp Cap(c), veh/h	128	1124	616	28	933	500	566	0	412	551	0	412
V/C Ratio(X)	0.58	0.34	0.34	0.42	0.50	0.51	0.02	0.00	0.02	0.09	0.00	0.04
Avail Cap(c_a), veh/h	296	2280	1251	250	2192	1173	1550	0	1391	1415	0	1358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	10.0	10.0	19.1	12.1	12.1	10.9	0.0	10.9	11.2	0.0	11.0
Incr Delay (d2), s/veh	1.5	0.2	0.3	3.7	0.4	0.8	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.9	1.0	0.1	1.2	1.4	0.1	0.0	0.0	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	10.2	10.4	22.8	12.5	12.9	10.9	0.0	10.9	11.2	0.0	11.0
LnGrp LOS	B	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		674			734			17			67	
Approach Delay, s/veh		11.3			12.8			10.9			11.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	18.5		15.4	7.4	16.4		15.4				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.3	5.3		2.9	3.6	6.5		2.2				
Green Ext Time (p_c), s	0.0	3.3		0.2	0.0	4.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		12.0
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	632	706	5	0	1
Future Vol, veh/h	0	632	706	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	687	767	5	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	386
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	528
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	528
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	528
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	11.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	632	708	9	0	3
Future Vol, veh/h	0	632	708	9	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	687	770	10	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	390
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	524
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	524
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

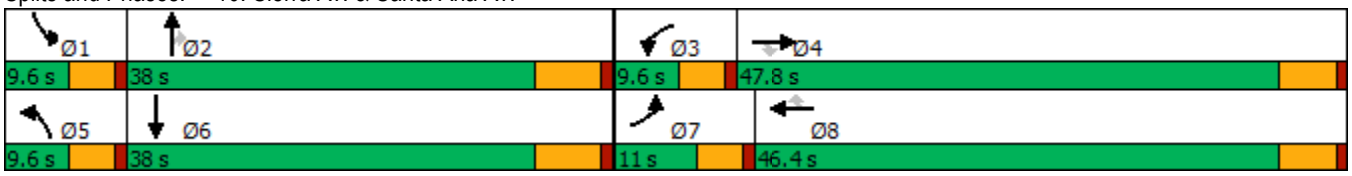
Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

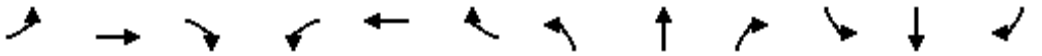
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	524
HCM Lane V/C Ratio	-	-	-	0.006
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	86	68	68	41	73	87	75	1107	48	90	669
Future Volume (vph)	86	68	68	41	73	87	75	1107	48	90	669
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	11.0	47.8	47.8	9.6	46.4	46.4	9.6	38.0	38.0	9.6	38.0
Total Split (%)	10.5%	45.5%	45.5%	9.1%	44.2%	44.2%	9.1%	36.2%	36.2%	9.1%	36.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 69.9
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	68	68	41	73	87	75	1107	48	90	669	66
Future Volume (veh/h)	86	68	68	41	73	87	75	1107	48	90	669	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	95	75	23	45	80	36	82	1216	50	99	735	54
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	123	676	301	79	590	263	217	1854	568	235	1789	131
Arrive On Green	0.07	0.19	0.19	0.04	0.16	0.16	0.06	0.36	0.36	0.07	0.36	0.36
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1589	3510	4932	361
Grp Volume(v), veh/h	95	75	23	45	80	36	82	1216	50	99	514	275
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1589	1755	1729	1835
Q Serve(g_s), s	3.1	1.0	0.7	1.5	1.1	1.2	1.4	11.9	1.3	1.6	6.7	6.8
Cycle Q Clear(g_c), s	3.1	1.0	0.7	1.5	1.1	1.2	1.4	11.9	1.3	1.6	6.7	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	123	676	301	79	590	263	217	1854	568	235	1254	665
V/C Ratio(X)	0.78	0.11	0.08	0.57	0.14	0.14	0.38	0.66	0.09	0.42	0.41	0.41
Avail Cap(c_a), veh/h	192	2534	1130	150	2450	1093	291	2731	836	291	1820	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	20.4	20.2	28.3	21.6	21.6	27.2	16.3	12.9	27.1	14.4	14.4
Incr Delay (d2), s/veh	3.9	0.1	0.1	2.4	0.1	0.2	0.4	0.4	0.1	0.4	0.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.4	0.2	0.6	0.4	0.4	0.5	3.8	0.4	0.6	2.1	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.6	20.4	20.3	30.7	21.7	21.9	27.6	16.7	12.9	27.5	14.6	14.8
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		193			161			1348			888	
Approach Delay, s/veh		25.9			24.3			17.2			16.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	27.8	7.3	16.7	8.3	28.1	8.7	15.3
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	31.8	5.0	42.4	5.0	31.8	6.4	41.0
Max Q Clear Time (g_c+I1), s	3.6	13.9	3.5	3.0	3.4	8.8	5.1	3.2
Green Ext Time (p_c), s	0.0	7.6	0.0	0.5	0.0	4.6	0.0	0.6

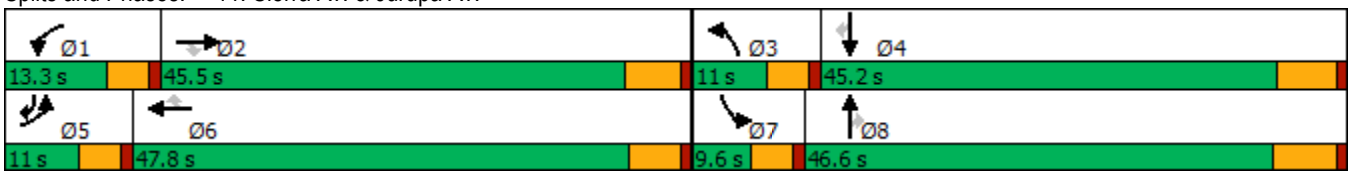
Intersection Summary	
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

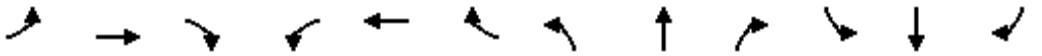
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	220	212	130	264	98	249	671	54	24	422	210
Future Volume (vph)	225	220	212	130	264	98	249	671	54	24	422	210
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	11.0	45.5	45.5	13.3	47.8	47.8	11.0	46.6	46.6	9.6	45.2	11.0
Total Split (%)	9.6%	39.6%	39.6%	11.6%	41.6%	41.6%	9.6%	40.5%	40.5%	8.3%	39.3%	9.6%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 68.9
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	220	212	130	264	98	249	671	54	24	422	210
Future Volume (veh/h)	225	220	212	130	264	98	249	671	54	24	422	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	232	227	98	134	272	48	257	692	28	25	435	104
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	346	749	334	281	682	304	372	1036	462	102	758	497
Arrive On Green	0.10	0.21	0.21	0.08	0.19	0.19	0.11	0.29	0.29	0.03	0.21	0.21
Sat Flow, veh/h	3510	3610	1610	3510	3610	1608	3510	3610	1610	3510	3610	1610
Grp Volume(v), veh/h	232	227	98	134	272	48	257	692	28	25	435	104
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1608	1755	1805	1610	1755	1805	1610
Q Serve(g_s), s	3.5	2.9	2.8	2.0	3.6	1.4	3.8	9.2	0.7	0.4	5.9	2.6
Cycle Q Clear(g_c), s	3.5	2.9	2.8	2.0	3.6	1.4	3.8	9.2	0.7	0.4	5.9	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	346	749	334	281	682	304	372	1036	462	102	758	497
V/C Ratio(X)	0.67	0.30	0.29	0.48	0.40	0.16	0.69	0.67	0.06	0.25	0.57	0.21
Avail Cap(c_a), veh/h	415	2645	1180	564	2825	1258	415	2671	1192	324	2598	1317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	18.2	18.1	23.8	19.3	18.4	23.4	17.0	14.0	25.7	19.2	13.9
Incr Delay (d2), s/veh	2.0	0.2	0.5	0.5	0.4	0.2	3.2	0.8	0.1	0.5	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.0	0.9	0.8	1.3	0.4	1.5	3.0	0.2	0.1	2.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	18.4	18.6	24.3	19.7	18.6	26.6	17.8	14.1	26.2	19.9	14.1
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		557			454			977			564	
Approach Delay, s/veh		21.4			20.9			20.0			19.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	17.0	10.3	17.9	9.9	16.0	6.2	22.1
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	8.7	39.7	6.4	* 39	6.4	* 42	5.0	40.1
Max Q Clear Time (g_c+I1), s	4.0	4.9	5.8	7.9	5.5	5.6	2.4	11.2
Green Ext Time (p_c), s	0.1	1.7	0.0	3.0	0.0	1.9	0.0	4.4

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

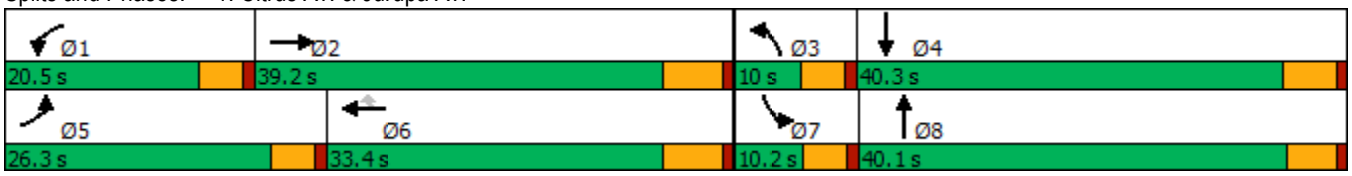
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

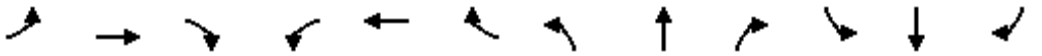
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	328	830	129	411	135	18	147	81	202
Future Volume (vph)	328	830	129	411	135	18	147	81	202
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	26.3	39.2	20.5	33.4	33.4	10.0	40.1	10.2	40.3
Total Split (%)	23.9%	35.6%	18.6%	30.4%	30.4%	9.1%	36.5%	9.3%	36.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 77.4
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	830	51	129	411	135	18	147	82	81	202	100
Future Volume (veh/h)	328	830	51	129	411	135	18	147	82	81	202	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	357	902	40	140	447	73	20	160	66	88	220	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	415	1570	69	181	929	288	43	443	175	118	570	199
Arrive On Green	0.23	0.31	0.31	0.10	0.18	0.18	0.02	0.18	0.18	0.07	0.22	0.22
Sat Flow, veh/h	1810	5091	225	1810	5187	1610	1810	2524	999	1810	2625	916
Grp Volume(v), veh/h	357	612	330	140	447	73	20	113	113	88	149	150
Grp Sat Flow(s),veh/h/ln	1810	1729	1859	1810	1729	1610	1810	1805	1718	1810	1805	1735
Q Serve(g_s), s	11.0	8.6	8.7	4.4	4.5	2.3	0.6	3.2	3.4	2.8	4.1	4.3
Cycle Q Clear(g_c), s	11.0	8.6	8.7	4.4	4.5	2.3	0.6	3.2	3.4	2.8	4.1	4.3
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.58	1.00		0.53
Lane Grp Cap(c), veh/h	415	1066	573	181	929	288	43	317	302	118	392	377
V/C Ratio(X)	0.86	0.57	0.58	0.77	0.48	0.25	0.47	0.36	0.38	0.75	0.38	0.40
Avail Cap(c_a), veh/h	675	1986	1068	495	2462	764	168	1087	1034	174	1083	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.5	16.9	16.9	25.5	21.4	20.5	28.0	21.1	21.2	26.7	19.4	19.5
Incr Delay (d2), s/veh	3.4	0.5	0.9	2.7	0.4	0.5	2.9	0.7	0.8	3.9	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	2.9	3.2	1.8	1.6	0.8	0.3	1.3	1.3	1.2	1.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	17.4	17.8	28.2	21.8	21.0	30.9	21.8	21.9	30.6	20.0	20.2
LnGrp LOS	C	B	B	C	C	C	C	C	C	C	C	C
Approach Vol, veh/h		1299			660			246			387	
Approach Delay, s/veh		19.6			23.1			22.6			22.5	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	23.7	6.0	18.0	17.9	16.2	8.4	15.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	15.9	33.4	5.4	34.9	21.7	27.6	5.6	* 35
Max Q Clear Time (g_c+I1), s	6.4	10.7	2.6	6.3	13.0	6.5	4.8	5.4
Green Ext Time (p_c), s	0.1	5.8	0.0	1.7	0.4	2.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1048	665	27	0	32
Future Vol, veh/h	0	1048	665	27	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1139	723	29	0	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	376
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	535
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	535
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

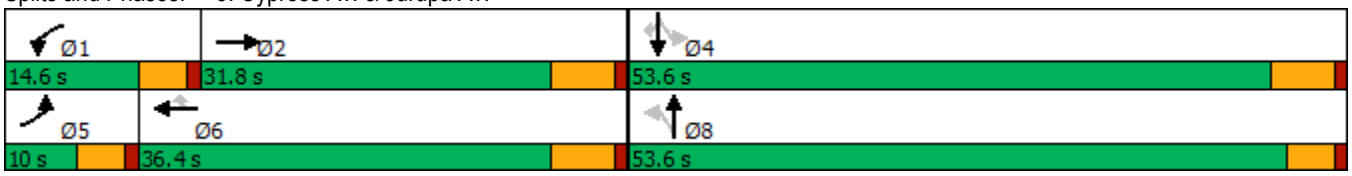
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	535
HCM Lane V/C Ratio	-	-	-	0.065
HCM Control Delay (s)	-	-	-	12.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.2

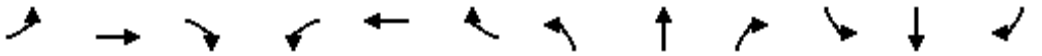
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	122	954	115	620	57	9	49	61	44	69
Future Volume (vph)	122	954	115	620	57	9	49	61	44	69
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	31.8	14.6	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	31.8%	14.6%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 60.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	954	22	115	620	57	9	49	61	61	44	69
Future Volume (veh/h)	122	954	22	115	620	57	9	49	61	61	44	69
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	130	1015	19	122	660	40	10	52	30	65	47	39
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	167	1742	33	158	1699	527	428	250	144	405	421	357
Arrive On Green	0.09	0.33	0.33	0.09	0.33	0.33	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1810	5242	98	1810	5187	1610	1332	1130	652	1337	1900	1610
Grp Volume(v), veh/h	130	669	365	122	660	40	10	0	82	65	47	39
Grp Sat Flow(s),veh/h/ln	1810	1729	1882	1810	1729	1610	1332	0	1783	1337	1900	1610
Q Serve(g_s), s	3.2	7.2	7.2	3.0	4.4	0.8	0.3	0.0	1.7	1.9	0.9	0.9
Cycle Q Clear(g_c), s	3.2	7.2	7.2	3.0	4.4	0.8	1.2	0.0	1.7	3.6	0.9	0.9
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	167	1149	626	158	1699	527	428	0	395	405	421	357
V/C Ratio(X)	0.78	0.58	0.58	0.77	0.39	0.08	0.02	0.00	0.21	0.16	0.11	0.11
Avail Cap(c_a), veh/h	216	1991	1084	401	3515	1091	1579	0	1935	1525	2011	1705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.0	12.5	12.5	20.2	11.7	10.5	14.5	0.0	14.3	15.8	14.0	14.0
Incr Delay (d2), s/veh	9.3	0.5	0.9	3.0	0.1	0.1	0.0	0.0	0.3	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.1	2.3	1.2	1.2	0.2	0.1	0.0	0.6	0.5	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	12.9	13.3	23.2	11.8	10.5	14.5	0.0	14.6	16.0	14.1	14.2
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		1164			822			92			151	
Approach Delay, s/veh		14.9			13.5			14.6			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	20.8		15.8	8.8	20.6		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	10.0	26.0		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	5.0	9.2		5.6	5.2	6.4		3.7				
Green Ext Time (p_c), s	0.1	5.8		0.5	0.0	4.4		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		14.4
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	199	26	50	227	52	38	58	74	62	50	2
Future Vol, veh/h	6	199	26	50	227	52	38	58	74	62	50	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	7	224	29	56	255	58	43	65	83	70	56	2
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	13.6	11.1	10.4	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	40%	0%	3%	31%	0%	55%	0%
Vol Thru, %	60%	0%	86%	69%	69%	45%	0%
Vol Right, %	0%	100%	11%	0%	31%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	96	74	231	164	166	112	2
LT Vol	38	0	6	50	0	62	0
Through Vol	58	0	199	114	114	50	0
RT Vol	0	74	26	0	52	0	2
Lane Flow Rate	108	83	260	184	186	126	2
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.201	0.134	0.432	0.309	0.293	0.24	0.004
Departure Headway (Hd)	6.701	5.786	5.995	6.052	5.674	6.871	5.874
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	535	618	600	593	632	521	607
Service Time	4.454	3.539	4.043	3.798	3.42	4.629	3.632
HCM Lane V/C Ratio	0.202	0.134	0.433	0.31	0.294	0.242	0.003
HCM Control Delay	11.1	9.4	13.6	11.5	10.8	11.8	8.7
HCM Lane LOS	B	A	B	B	B	B	A
HCM 95th-tile Q	0.7	0.5	2.2	1.3	1.2	0.9	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	16	0	11	0	159	8	3	123	0
Future Vol, veh/h	0	0	0	16	0	11	0	159	8	3	123	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	17	0	12	0	173	9	3	134	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	318	318	178	-	0	0	182	0	0
Stage 1	178	178	-	-	-	-	-	-	-
Stage 2	140	140	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	679	602	870	0	-	-	1405	-	0
Stage 1	858	756	-	0	-	-	-	-	0
Stage 2	892	785	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	678	0	870	-	-	-	1405	-	-
Mov Cap-2 Maneuver	678	0	-	-	-	-	-	-	-
Stage 1	858	0	-	-	-	-	-	-	-
Stage 2	890	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	745	1405	-
HCM Lane V/C Ratio	-	-	0.039	0.002	-
HCM Control Delay (s)	-	-	10	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	29	0	13	0	154	12	3	136	0
Future Vol, veh/h	0	0	0	29	0	13	0	154	12	3	136	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	0	32	0	14	0	167	13	3	148	0

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	328	328	174	-	0	0	180	0	0
Stage 1	174	174	-	-	-	-	-	-	-
Stage 2	154	154	-	-	-	-	-	-	-
Critical Hdwy	6.4	6.5	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	671	594	875	0	-	-	1408	-	0
Stage 1	861	759	-	0	-	-	-	-	0
Stage 2	879	774	-	0	-	-	-	-	0
Platoon blocked, %					-	-		-	
Mov Cap-1 Maneuver	670	0	875	-	-	-	1408	-	-
Mov Cap-2 Maneuver	670	0	-	-	-	-	-	-	-
Stage 1	861	0	-	-	-	-	-	-	-
Stage 2	877	0	-	-	-	-	-	-	-

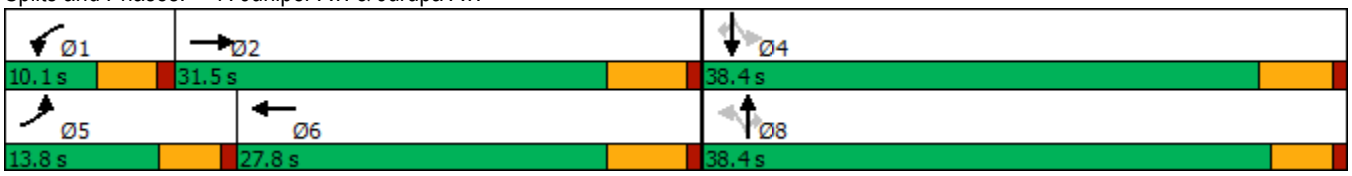
Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.2
HCM LOS	B		

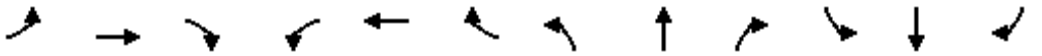
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	722	1408	-
HCM Lane V/C Ratio	-	-	0.063	0.002	-
HCM Control Delay (s)	-	-	10.3	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	92	980	28	687	7	15	5	55	22	88
Future Volume (vph)	92	980	28	687	7	15	5	55	22	88
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	13.8	31.5	10.1	27.8	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	17.3%	39.4%	12.6%	34.8%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 51
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	980	5	28	687	59	7	15	5	55	22	88
Future Volume (veh/h)	92	980	5	28	687	59	7	15	5	55	22	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	100	1065	5	30	747	59	8	16	2	60	24	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	147	1866	9	63	1489	117	203	337	393	391	134	392
Arrive On Green	0.08	0.35	0.35	0.04	0.30	0.30	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1810	5328	25	1810	4902	385	369	1379	1610	1008	549	1604
Grp Volume(v), veh/h	100	691	379	30	526	280	24	0	2	84	0	50
Grp Sat Flow(s),veh/h/ln	1810	1729	1895	1810	1729	1829	1747	0	1610	1556	0	1604
Q Serve(g_s), s	2.3	6.9	6.9	0.7	5.3	5.4	0.0	0.0	0.0	0.9	0.0	1.0
Cycle Q Clear(g_c), s	2.3	6.9	6.9	0.7	5.3	5.4	0.4	0.0	0.0	1.7	0.0	1.0
Prop In Lane	1.00		0.01	1.00		0.21	0.33		1.00	0.71		1.00
Lane Grp Cap(c), veh/h	147	1211	664	63	1051	556	539	0	393	525	0	392
V/C Ratio(X)	0.68	0.57	0.57	0.47	0.50	0.50	0.04	0.00	0.01	0.16	0.00	0.13
Avail Cap(c_a), veh/h	390	2084	1142	233	1784	944	1455	0	1276	1334	0	1242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	11.3	11.3	20.2	12.2	12.2	12.3	0.0	12.2	12.8	0.0	12.6
Incr Delay (d2), s/veh	2.0	0.4	0.8	2.0	0.4	0.7	0.0	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.9	2.1	0.3	1.5	1.7	0.2	0.0	0.0	0.5	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	11.7	12.0	22.2	12.6	12.9	12.4	0.0	12.2	12.9	0.0	12.7
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1170			836			26			134	
Approach Delay, s/veh		12.6			13.0			12.4			12.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	20.7		15.8	8.1	18.8		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.5	25.7		33.0	9.2	22.0		* 34				
Max Q Clear Time (g_c+I1), s	2.7	8.9		3.7	4.3	7.4		2.4				
Green Ext Time (p_c), s	0.0	6.0		0.5	0.0	4.1		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.8
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1040	768	2	0	6
Future Vol, veh/h	0	1040	768	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1130	835	2	0	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	419
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	503
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	503
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	503
HCM Lane V/C Ratio	-	-	-	0.013
HCM Control Delay (s)	-	-	-	12.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1040	760	4	0	11
Future Vol, veh/h	0	1040	760	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1130	826	4	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	415
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	506
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	506
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

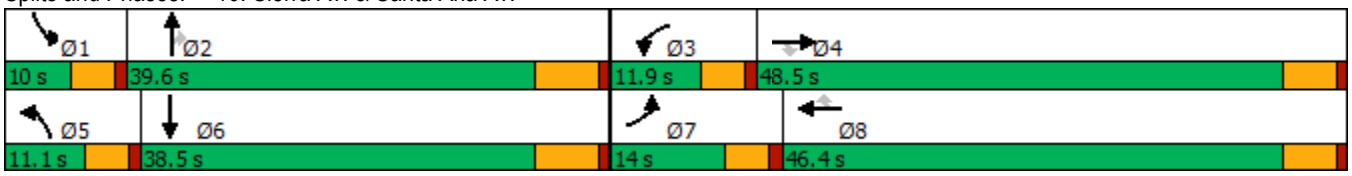
Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

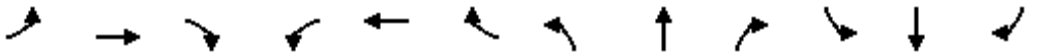
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	506
HCM Lane V/C Ratio	-	-	-	0.024
HCM Control Delay (s)	-	-	-	12.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	125	131	115	77	129	79	172	1352	54	127	1093
Future Volume (vph)	125	131	115	77	129	79	172	1352	54	127	1093
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	14.0	48.5	48.5	11.9	46.4	46.4	11.1	39.6	39.6	10.0	38.5
Total Split (%)	12.7%	44.1%	44.1%	10.8%	42.2%	42.2%	10.1%	36.0%	36.0%	9.1%	35.0%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 80.8
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	131	115	77	129	79	172	1352	54	127	1093	95
Future Volume (veh/h)	125	131	115	77	129	79	172	1352	54	127	1093	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	128	134	19	79	132	43	176	1380	47	130	1115	82
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	164	672	299	104	553	247	267	1966	601	238	1828	134
Arrive On Green	0.09	0.19	0.19	0.06	0.15	0.15	0.08	0.38	0.38	0.07	0.37	0.37
Sat Flow, veh/h	1810	3610	1608	1810	3610	1610	3510	5187	1586	3510	4930	362
Grp Volume(v), veh/h	128	134	19	79	132	43	176	1380	47	130	782	415
Grp Sat Flow(s),veh/h/ln	1810	1805	1608	1810	1805	1610	1755	1729	1586	1755	1729	1835
Q Serve(g_s), s	4.7	2.1	0.7	2.9	2.2	1.6	3.3	15.1	1.3	2.4	12.3	12.4
Cycle Q Clear(g_c), s	4.7	2.1	0.7	2.9	2.2	1.6	3.3	15.1	1.3	2.4	12.3	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	164	672	299	104	553	247	267	1966	601	238	1282	680
V/C Ratio(X)	0.78	0.20	0.06	0.76	0.24	0.17	0.66	0.70	0.08	0.55	0.61	0.61
Avail Cap(c_a), veh/h	253	2315	1031	197	2203	982	340	2578	788	282	1662	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	23.1	22.5	31.2	25.0	24.8	30.2	17.6	13.3	30.3	17.2	17.2
Incr Delay (d2), s/veh	3.5	0.1	0.1	4.3	0.2	0.3	1.5	0.6	0.1	0.7	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.8	0.2	1.3	0.9	0.6	1.3	5.0	0.4	0.9	4.1	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	23.3	22.6	35.5	25.2	25.1	31.7	18.2	13.4	31.0	17.7	18.1
LnGrp LOS	C	C	C	D	C	C	C	B	B	C	B	B
Approach Vol, veh/h		281			254			1603			1327	
Approach Delay, s/veh		27.8			28.4			19.6			19.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	31.7	8.5	17.9	9.7	31.1	10.7	15.7
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.4	33.4	7.3	43.1	6.5	32.3	9.4	41.0
Max Q Clear Time (g_c+I1), s	4.4	17.1	4.9	4.1	5.3	14.4	6.7	4.2
Green Ext Time (p_c), s	0.0	8.2	0.0	0.9	0.0	6.8	0.0	0.9

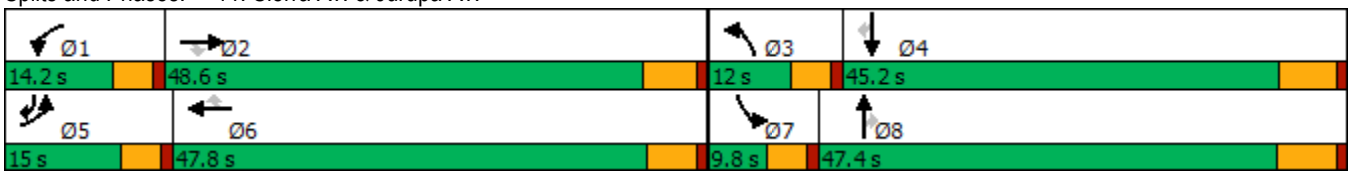
Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

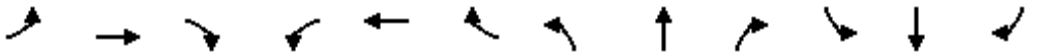
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	417	319	286	140	261	84	263	911	98	88	576	253
Future Volume (vph)	417	319	286	140	261	84	263	911	98	88	576	253
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	15.0	48.6	48.6	14.2	47.8	47.8	12.0	47.4	47.4	9.8	45.2	15.0
Total Split (%)	12.5%	40.5%	40.5%	11.8%	39.8%	39.8%	10.0%	39.5%	39.5%	8.2%	37.7%	12.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 81.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	417	319	286	140	261	84	263	911	98	88	576	253
Future Volume (veh/h)	417	319	286	140	261	84	263	911	98	88	576	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	430	329	152	144	269	27	271	939	58	91	594	194
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	518	804	359	235	513	229	362	1247	549	207	1088	723
Arrive On Green	0.15	0.22	0.22	0.07	0.14	0.14	0.10	0.35	0.35	0.06	0.30	0.30
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	3610	1590	3510	3610	1610
Grp Volume(v), veh/h	430	329	152	144	269	27	271	939	58	91	594	194
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1805	1590	1755	1805	1610
Q Serve(g_s), s	8.4	5.5	5.7	2.8	4.9	1.0	5.3	16.2	1.7	1.8	9.7	5.3
Cycle Q Clear(g_c), s	8.4	5.5	5.7	2.8	4.9	1.0	5.3	16.2	1.7	1.8	9.7	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	518	804	359	235	513	229	362	1247	549	207	1088	723
V/C Ratio(X)	0.83	0.41	0.42	0.61	0.52	0.12	0.75	0.75	0.11	0.44	0.55	0.27
Avail Cap(c_a), veh/h	519	2197	980	479	2177	971	369	2100	925	260	2002	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.1	23.4	23.4	31.9	28.0	26.3	30.7	20.4	15.6	32.0	20.5	12.1
Incr Delay (d2), s/veh	10.3	0.3	0.8	1.0	0.8	0.2	7.1	0.9	0.1	0.5	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	2.1	1.9	1.1	2.0	0.4	2.3	5.7	0.5	0.7	3.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.4	23.7	24.2	32.9	28.8	26.5	37.8	21.3	15.7	32.5	21.0	12.3
LnGrp LOS	D	C	C	C	C	C	D	C	B	C	C	B
Approach Vol, veh/h		911			440			1268			879	
Approach Delay, s/veh		31.2			30.0			24.6			20.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	21.5	11.8	27.7	15.0	15.8	8.8	30.8
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	9.6	42.8	7.4	* 39	10.4	* 42	5.2	40.9
Max Q Clear Time (g_c+I1), s	4.8	7.7	7.3	11.7	10.4	6.9	3.8	18.2
Green Ext Time (p_c), s	0.1	2.5	0.0	4.4	0.0	1.8	0.0	6.1

Intersection Summary	
HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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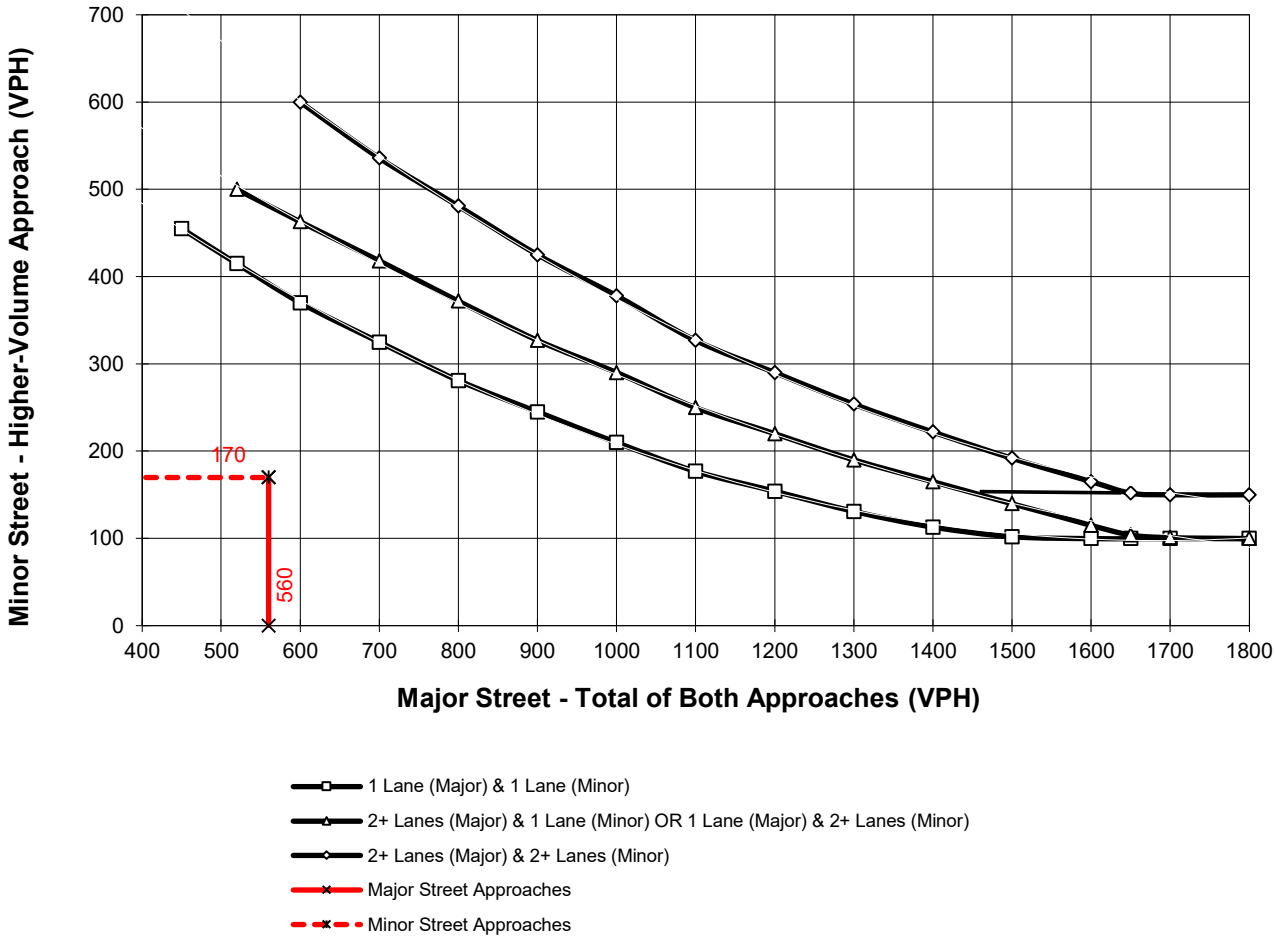
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **Santa Ana Av**
Total of Both Approaches (VPH) = **560**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Juniper Av**
High Volume Approach (VPH) = **170**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC CS	DATE	01/15/20
Jurisdiction: City of Fontana				CHK CS	DATE	01/15/20
Major Street: Juniper Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **2,499** vpd Minor Street Future ADT = **264** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. [ ]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,499**	1 **264**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **2,499**	1 **264**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A 11% B 21%		2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST ___ CO ___ RTE ___ PM ___ TRAFFIC CONDITIONS **E+P**

CALC CS DATE 01/15/20

Jurisdiction: **City of Fontana** CHK CS DATE 01/15/20

Major Street: **Juniper Av.** Critical Approach Speed (Major) 40 mph

Minor Street: **Driveway 2** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **2,774** vpd Minor Street Future ADT = **397** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or **RURAL (R)**

In built up area of isolated community of < 10,000 population ……..

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
XX Satisfied / XX Not Satisfied				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **2,774** / *1* **397**	8,000	5,600	2,400	1,680
2 + / *1*	9,600	6,720	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / XX Not Satisfied				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **2,774** / *1* **397**	12,000	8,400	1,200	850
2 + / *1*	14,400	10,080	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / XX Not Satisfied				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 17% B: 23%	2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

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APPENDIX 6.1:

OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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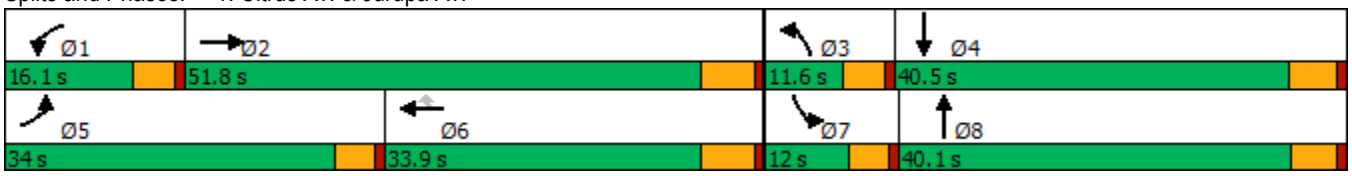
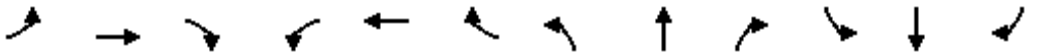
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	504	476	70	634	127	61	303	111	118
Future Volume (vph)	504	476	70	634	127	61	303	111	118
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	34.0	51.8	16.1	33.9	33.9	11.6	40.1	12.0	40.5
Total Split (%)	28.3%	43.2%	13.4%	28.3%	28.3%	9.7%	33.4%	10.0%	33.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 96.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	504	476	14	70	634	127	61	303	116	111	118	191
Future Volume (veh/h)	504	476	14	70	634	127	61	303	116	111	118	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	548	517	13	76	689	99	66	329	101	121	128	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	579	2406	60	99	1023	317	85	462	140	151	371	331
Arrive On Green	0.32	0.46	0.46	0.05	0.20	0.20	0.05	0.17	0.17	0.08	0.21	0.21
Sat Flow, veh/h	1810	5202	130	1810	5187	1605	1810	2730	825	1810	1805	1610
Grp Volume(v), veh/h	548	343	187	76	689	99	66	216	214	121	128	148
Grp Sat Flow(s),veh/h/ln	1810	1729	1874	1810	1729	1605	1810	1805	1750	1810	1805	1610
Q Serve(g_s), s	26.2	5.2	5.3	3.7	10.9	4.7	3.2	10.0	10.3	5.8	5.4	7.1
Cycle Q Clear(g_c), s	26.2	5.2	5.3	3.7	10.9	4.7	3.2	10.0	10.3	5.8	5.4	7.1
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	579	1599	867	99	1023	317	85	306	296	151	371	331
V/C Ratio(X)	0.95	0.21	0.22	0.77	0.67	0.31	0.77	0.71	0.72	0.80	0.34	0.45
Avail Cap(c_a), veh/h	600	1795	973	235	1645	509	143	713	691	151	715	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	14.2	14.2	41.4	32.9	30.4	41.7	34.7	34.8	39.9	30.1	30.8
Incr Delay (d2), s/veh	23.5	0.1	0.1	4.7	0.8	0.6	5.5	3.0	3.3	23.9	0.6	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	1.9	2.0	1.7	4.4	1.8	1.5	4.5	4.5	3.5	2.3	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.9	14.3	14.3	46.1	33.7	31.0	47.2	37.7	38.2	63.8	30.6	31.7
LnGrp LOS	D	B	B	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		1078			864			496			397	
Approach Delay, s/veh		33.9			34.5			39.2			41.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	46.8	8.8	23.6	32.9	23.3	12.0	20.4
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	11.5	46.0	7.0	35.1	29.4	28.1	7.4	* 35
Max Q Clear Time (g_c+I1), s	5.7	7.3	5.2	9.1	28.2	12.9	7.8	12.3
Green Ext Time (p_c), s	0.0	3.2	0.0	1.5	0.2	4.1	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	36.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	712	778	74	0	61
Future Vol, veh/h	0	712	778	74	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	757	828	79	0	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	454
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	477
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	477
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.7
HCM LOS			B

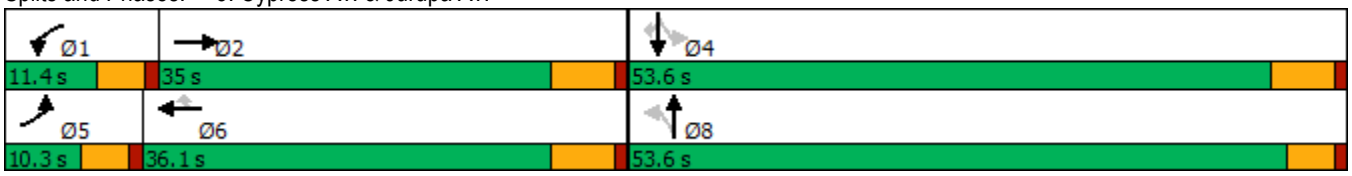
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	477
HCM Lane V/C Ratio	-	-	-	0.136
HCM Control Delay (s)	-	-	-	13.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

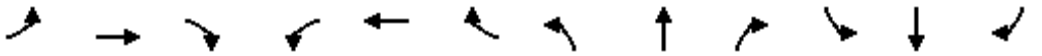
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	159	553	50	731	70	29	80	55	32	87
Future Volume (vph)	159	553	50	731	70	29	80	55	32	87
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.3	35.0	11.4	36.1	36.1	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.3%	35.0%	11.4%	36.1%	36.1%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 55.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	553	15	50	731	70	29	80	130	55	32	87
Future Volume (veh/h)	159	553	15	50	731	70	29	80	130	55	32	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	164	570	15	52	754	59	30	82	83	57	33	55
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	209	1792	47	97	1467	455	456	202	204	353	443	375
Arrive On Green	0.12	0.34	0.34	0.05	0.28	0.28	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	5197	136	1810	5187	1610	1330	865	876	1239	1900	1610
Grp Volume(v), veh/h	164	379	206	52	754	59	30	0	165	57	33	55
Grp Sat Flow(s),veh/h/ln	1810	1729	1875	1810	1729	1610	1330	0	1741	1239	1900	1610
Q Serve(g_s), s	3.9	3.5	3.6	1.2	5.4	1.2	0.8	0.0	3.5	1.8	0.6	1.2
Cycle Q Clear(g_c), s	3.9	3.5	3.6	1.2	5.4	1.2	1.4	0.0	3.5	5.3	0.6	1.2
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	209	1193	647	97	1467	455	456	0	406	353	443	375
V/C Ratio(X)	0.78	0.32	0.32	0.54	0.51	0.13	0.07	0.00	0.41	0.16	0.07	0.15
Avail Cap(c_a), veh/h	235	2298	1246	280	3576	1110	1629	0	1941	1412	2067	1751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.9	10.6	10.6	20.3	13.2	11.7	13.7	0.0	14.3	16.5	13.2	13.4
Incr Delay (d2), s/veh	12.4	0.2	0.3	1.7	0.3	0.1	0.1	0.0	0.7	0.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.0	1.1	0.5	1.6	0.3	0.2	0.0	1.3	0.4	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	10.7	10.9	22.0	13.5	11.9	13.8	0.0	14.9	16.7	13.2	13.6
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		749			865			195			145	
Approach Delay, s/veh		15.3			13.9			14.8			14.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	21.0		16.0	9.7	18.2		16.0				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	6.8	29.2		47.8	5.7	30.3		* 49				
Max Q Clear Time (g_c+I1), s	3.2	5.6		7.3	5.9	7.4		5.5				
Green Ext Time (p_c), s	0.0	3.4		0.5	0.0	5.1		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		14.6
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	17.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	235	24	54	478	15	24	30	29	38	48	15
Future Vol, veh/h	6	235	24	54	478	15	24	30	29	38	48	15
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	8	322	33	74	655	21	33	41	40	52	66	21
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

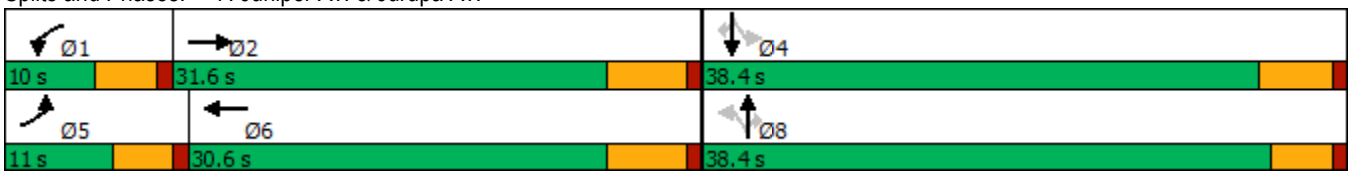
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	19.8	18.7	11.4	12.7
HCM LOS	C	C	B	B

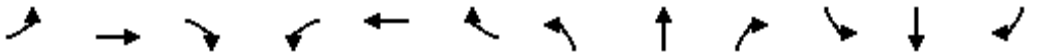
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	44%	0%	2%	18%	0%	44%	0%
Vol Thru, %	56%	0%	89%	82%	94%	56%	0%
Vol Right, %	0%	100%	9%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	29	265	293	254	86	15
LT Vol	24	0	6	54	0	38	0
Through Vol	30	0	235	239	239	48	0
RT Vol	0	29	24	0	15	0	15
Lane Flow Rate	74	40	363	401	348	118	21
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.161	0.076	0.635	0.677	0.574	0.253	0.039
Departure Headway (Hd)	7.837	6.887	6.295	6.069	5.934	7.746	6.798
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	456	517	574	594	605	462	524
Service Time	5.623	4.671	4.355	3.83	3.694	5.528	4.58
HCM Lane V/C Ratio	0.162	0.077	0.632	0.675	0.575	0.255	0.04
HCM Control Delay	12.1	10.2	19.8	20.7	16.5	13.2	9.9
HCM Lane LOS	B	B	C	C	C	B	A
HCM 95th-tile Q	0.6	0.2	4.5	5.2	3.6	1	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	70	653	13	782	5	5	18	51	6	54
Future Volume (vph)	70	653	13	782	5	5	18	51	6	54
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 48.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	653	3	13	782	77	5	5	18	51	6	54
Future Volume (veh/h)	70	653	3	13	782	77	5	5	18	51	6	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	73	680	2	14	815	77	5	5	8	53	6	24
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	124	1924	6	32	1493	140	287	245	388	474	45	388
Arrive On Green	0.07	0.36	0.36	0.02	0.31	0.31	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1810	5339	16	1810	4822	453	650	1018	1610	1282	188	1610
Grp Volume(v), veh/h	73	440	242	14	583	309	10	0	8	59	0	24
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1818	1669	0	1610	1470	0	1610
Q Serve(g_s), s	1.6	3.9	3.9	0.3	5.8	5.9	0.0	0.0	0.2	1.0	0.0	0.5
Cycle Q Clear(g_c), s	1.6	3.9	3.9	0.3	5.8	5.9	0.2	0.0	0.2	1.3	0.0	0.5
Prop In Lane	1.00		0.01	1.00		0.25	0.50		1.00	0.90		1.00
Lane Grp Cap(c), veh/h	124	1246	683	32	1071	563	532	0	388	519	0	388
V/C Ratio(X)	0.59	0.35	0.35	0.43	0.54	0.55	0.02	0.00	0.02	0.11	0.00	0.06
Avail Cap(c_a), veh/h	279	2150	1180	235	2067	1086	1458	0	1312	1329	0	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	9.7	9.7	20.2	11.9	11.9	12.0	0.0	12.0	12.4	0.0	12.1
Incr Delay (d2), s/veh	1.7	0.2	0.3	3.3	0.4	0.8	0.0	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.0	1.1	0.1	1.6	1.8	0.1	0.0	0.1	0.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	9.9	10.0	23.5	12.3	12.7	12.0	0.0	12.0	12.5	0.0	12.2
LnGrp LOS	C	A	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		755			906			18			83	
Approach Delay, s/veh		11.0			12.6			12.0			12.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	20.7		15.4	7.4	18.6		15.4				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.3	5.9		3.3	3.6	7.9		2.2				
Green Ext Time (p_c), s	0.0	3.8		0.3	0.0	4.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		11.9
HCM 6th LOS		B

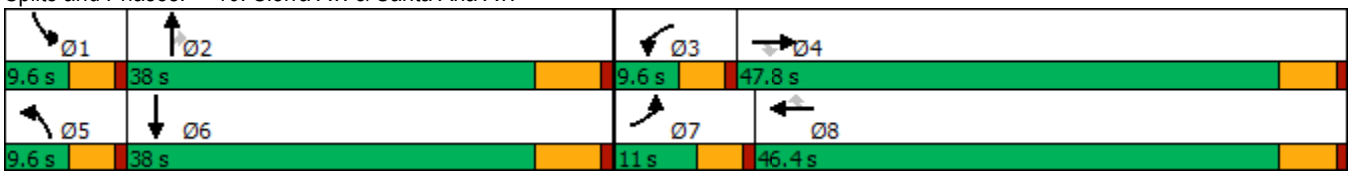
Notes

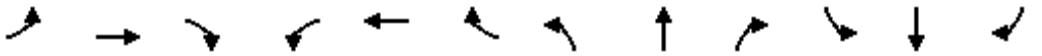
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	140	105	88	52	155	91	107	1285	58	94	803
Future Volume (vph)	140	105	88	52	155	91	107	1285	58	94	803
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	11.0	47.8	47.8	9.6	46.4	46.4	9.6	38.0	38.0	9.6	38.0
Total Split (%)	10.5%	45.5%	45.5%	9.1%	44.2%	44.2%	9.1%	36.2%	36.2%	9.1%	36.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 76.2
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	105	88	52	155	91	107	1285	58	94	803	323
Future Volume (veh/h)	140	105	88	52	155	91	107	1285	58	94	803	323
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	154	115	45	57	170	40	118	1412	61	103	882	336
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	173	709	316	88	540	241	233	1970	603	224	1395	530
Arrive On Green	0.10	0.20	0.20	0.05	0.15	0.15	0.07	0.38	0.38	0.06	0.38	0.38
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1589	3510	3699	1404
Grp Volume(v), veh/h	154	115	45	57	170	40	118	1412	61	103	824	394
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1589	1755	1729	1646
Q Serve(g_s), s	5.6	1.8	1.5	2.1	2.8	1.4	2.2	15.5	1.7	1.9	13.0	13.1
Cycle Q Clear(g_c), s	5.6	1.8	1.5	2.1	2.8	1.4	2.2	15.5	1.7	1.9	13.0	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	173	709	316	88	540	241	233	1970	603	224	1304	621
V/C Ratio(X)	0.89	0.16	0.14	0.64	0.31	0.17	0.51	0.72	0.10	0.46	0.63	0.63
Avail Cap(c_a), veh/h	173	2290	1021	135	2214	988	263	2467	756	263	1645	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	22.3	22.2	31.2	25.4	24.8	30.1	17.7	13.4	30.2	17.0	17.0
Incr Delay (d2), s/veh	37.7	0.1	0.2	2.9	0.3	0.3	0.6	0.8	0.1	0.5	0.5	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.7	0.6	0.9	1.1	0.5	0.8	5.1	0.5	0.7	4.3	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	22.4	22.4	34.1	25.7	25.1	30.8	18.4	13.4	30.7	17.5	18.1
LnGrp LOS	E	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		314			267			1591			1321	
Approach Delay, s/veh		44.6			27.4			19.1			18.7	
Approach LOS		D			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	31.6	7.9	18.5	9.0	31.4	11.0	15.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	31.8	5.0	42.4	5.0	31.8	6.4	41.0
Max Q Clear Time (g_c+I1), s	3.9	17.5	4.1	3.8	4.2	15.1	7.6	4.8
Green Ext Time (p_c), s	0.0	7.8	0.0	0.8	0.0	6.9	0.0	1.1

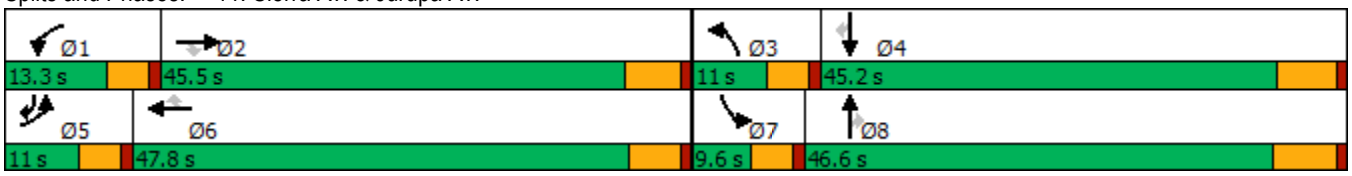
Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

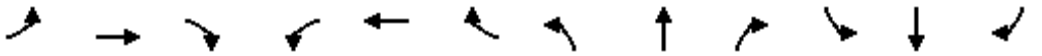
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	269	253	228	135	297	141	303	778	56	54	489	263
Future Volume (vph)	269	253	228	135	297	141	303	778	56	54	489	263
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	11.0	45.5	45.5	13.3	47.8	47.8	11.0	46.6	46.6	9.6	45.2	11.0
Total Split (%)	9.6%	39.6%	39.6%	11.6%	41.6%	41.6%	9.6%	40.5%	40.5%	8.3%	39.3%	9.6%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 72.3
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	253	228	135	297	141	303	778	56	54	489	263
Future Volume (veh/h)	269	253	228	135	297	141	303	778	56	54	489	263
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	277	261	114	139	306	92	312	802	30	56	504	159
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	374	730	326	263	616	274	374	1136	507	177	934	588
Arrive On Green	0.11	0.20	0.20	0.08	0.17	0.17	0.11	0.31	0.31	0.05	0.26	0.26
Sat Flow, veh/h	3510	3610	1610	3510	3610	1607	3510	3610	1610	3510	3610	1610
Grp Volume(v), veh/h	277	261	114	139	306	92	312	802	30	56	504	159
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1607	1755	1805	1610	1755	1805	1610
Q Serve(g_s), s	4.6	3.7	3.7	2.3	4.6	3.0	5.2	11.8	0.8	0.9	7.2	4.2
Cycle Q Clear(g_c), s	4.6	3.7	3.7	2.3	4.6	3.0	5.2	11.8	0.8	0.9	7.2	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	730	326	263	616	274	374	1136	507	177	934	588
V/C Ratio(X)	0.74	0.36	0.35	0.53	0.50	0.34	0.83	0.71	0.06	0.32	0.54	0.27
Avail Cap(c_a), veh/h	374	2384	1063	508	2546	1134	374	2408	1074	292	2342	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	20.6	20.6	26.8	22.6	21.9	26.3	18.1	14.4	27.5	19.2	13.4
Incr Delay (d2), s/veh	6.8	0.3	0.6	0.6	0.6	0.7	14.2	0.8	0.0	0.4	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	1.2	0.9	1.8	1.0	2.6	4.0	0.2	0.4	2.6	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.9	20.9	21.2	27.4	23.2	22.6	40.6	19.0	14.4	27.9	19.7	13.7
LnGrp LOS	C	C	C	C	C	C	D	B	B	C	B	B
Approach Vol, veh/h		652			537			1144			719	
Approach Delay, s/veh		26.1			24.2			24.7			19.0	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	18.0	11.0	22.1	11.0	16.1	7.6	25.4
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	8.7	39.7	6.4	* 39	6.4	* 42	5.0	40.1
Max Q Clear Time (g_c+I1), s	4.3	5.7	7.2	9.2	6.6	6.6	2.9	13.8
Green Ext Time (p_c), s	0.1	1.9	0.0	3.6	0.0	2.2	0.0	5.2

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

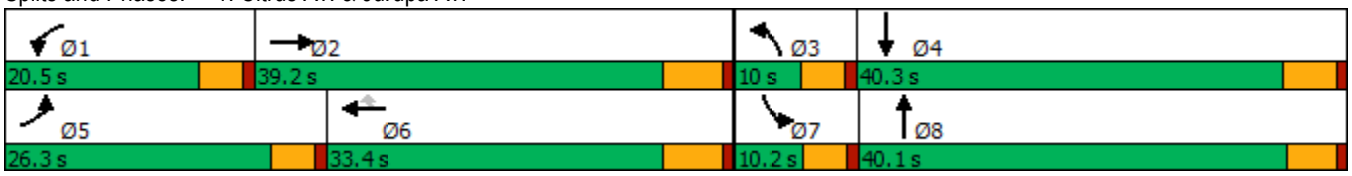
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

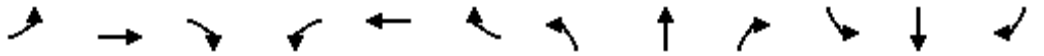
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	447	920	143	665	174	19	153	91	210
Future Volume (vph)	447	920	143	665	174	19	153	91	210
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	26.3	39.2	20.5	33.4	33.4	10.0	40.1	10.2	40.3
Total Split (%)	23.9%	35.6%	18.6%	30.4%	30.4%	9.1%	36.5%	9.3%	36.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 81.8
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	447	920	53	143	665	174	19	153	96	91	210	150
Future Volume (veh/h)	447	920	53	143	665	174	19	153	96	91	210	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	486	1000	43	155	723	115	21	166	81	99	228	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	524	2048	88	195	1141	354	43	336	157	127	417	234
Arrive On Green	0.29	0.40	0.40	0.11	0.22	0.22	0.02	0.14	0.14	0.07	0.19	0.19
Sat Flow, veh/h	1810	5099	219	1810	5187	1610	1810	2389	1113	1810	2229	1251
Grp Volume(v), veh/h	486	678	365	155	723	115	21	124	123	99	183	178
Grp Sat Flow(s),veh/h/ln	1810	1729	1860	1810	1729	1610	1810	1805	1697	1810	1805	1675
Q Serve(g_s), s	19.0	10.6	10.7	6.1	9.2	4.4	0.8	4.6	4.9	3.9	6.7	7.1
Cycle Q Clear(g_c), s	19.0	10.6	10.7	6.1	9.2	4.4	0.8	4.6	4.9	3.9	6.7	7.1
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.66	1.00		0.75
Lane Grp Cap(c), veh/h	524	1389	747	195	1141	354	43	254	239	127	338	314
V/C Ratio(X)	0.93	0.49	0.49	0.80	0.63	0.32	0.49	0.49	0.52	0.78	0.54	0.57
Avail Cap(c_a), veh/h	538	1584	852	395	1963	609	134	866	814	139	864	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	16.2	16.2	31.8	25.8	23.9	35.2	28.9	29.0	33.3	26.8	27.0
Incr Delay (d2), s/veh	21.8	0.3	0.5	2.8	0.6	0.5	3.2	1.4	1.7	19.6	1.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	3.7	4.0	2.6	3.5	1.6	0.4	2.0	2.0	2.3	2.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	16.5	16.7	34.6	26.4	24.4	38.3	30.3	30.8	52.9	28.2	28.6
LnGrp LOS	D	B	B	C	C	C	D	C	C	D	C	C
Approach Vol, veh/h		1529			993			268			460	
Approach Delay, s/veh		26.2			27.4			31.2			33.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	35.1	6.3	19.1	25.7	21.8	9.7	15.7
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	15.9	33.4	5.4	34.9	21.7	27.6	5.6	* 35
Max Q Clear Time (g_c+I1), s	8.1	12.7	2.8	9.1	21.0	11.2	5.9	6.9
Green Ext Time (p_c), s	0.1	6.4	0.0	2.0	0.1	4.5	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1169	866	60	0	117
Future Vol, veh/h	0	1169	866	60	0	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1271	941	65	0	127

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	503
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	444
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	444
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.3
HCM LOS			C

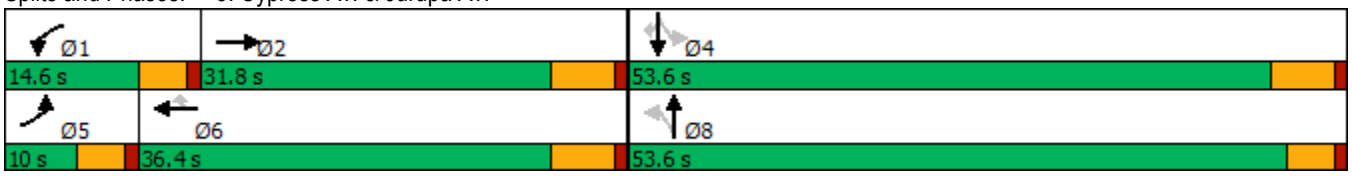
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	444
HCM Lane V/C Ratio	-	-	-	0.286
HCM Control Delay (s)	-	-	-	16.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.2

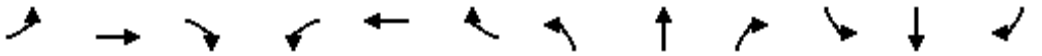
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	153	1059	125	704	71	10	60	117	52	162
Future Volume (vph)	153	1059	125	704	71	10	60	117	52	162
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	31.8	14.6	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	31.8%	14.6%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 64.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	1059	25	125	704	71	10	60	69	117	52	162
Future Volume (veh/h)	153	1059	25	125	704	71	10	60	69	117	52	162
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	163	1127	23	133	749	55	11	64	38	124	55	138
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	206	1843	38	172	1730	537	378	236	140	366	401	340
Arrive On Green	0.11	0.35	0.35	0.10	0.33	0.33	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1810	5232	107	1810	5187	1610	1209	1117	663	1313	1900	1610
Grp Volume(v), veh/h	163	745	405	133	749	55	11	0	102	124	55	138
Grp Sat Flow(s),veh/h/ln	1810	1729	1881	1810	1729	1610	1209	0	1781	1313	1900	1610
Q Serve(g_s), s	4.2	8.4	8.4	3.4	5.3	1.1	0.4	0.0	2.3	4.1	1.1	3.5
Cycle Q Clear(g_c), s	4.2	8.4	8.4	3.4	5.3	1.1	1.5	0.0	2.3	6.4	1.1	3.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	206	1218	662	172	1730	537	378	0	376	366	401	340
V/C Ratio(X)	0.79	0.61	0.61	0.77	0.43	0.10	0.03	0.00	0.27	0.34	0.14	0.41
Avail Cap(c_a), veh/h	206	1896	1031	382	3348	1039	1373	0	1840	1413	1916	1623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	12.7	12.7	20.9	12.3	10.9	15.8	0.0	15.7	18.3	15.2	16.1
Incr Delay (d2), s/veh	17.2	0.5	0.9	2.8	0.2	0.1	0.0	0.0	0.4	0.5	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.4	2.7	1.3	1.5	0.3	0.1	0.0	0.9	1.1	0.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	13.2	13.6	23.7	12.5	11.0	15.8	0.0	16.0	18.9	15.4	16.9
LnGrp LOS	D	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		1313			937			113			317	
Approach Delay, s/veh		16.3			14.0			16.0			17.4	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	22.5		15.8	10.0	21.6		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	10.0	26.0		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	5.4	10.4		8.4	6.2	7.3		4.3				
Green Ext Time (p_c), s	0.1	6.3		1.1	0.0	5.0		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	34.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	440	24	63	348	54	31	70	100	65	56	6
Future Vol, veh/h	8	440	24	63	348	54	31	70	100	65	56	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	494	27	71	391	61	35	79	112	73	63	7
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

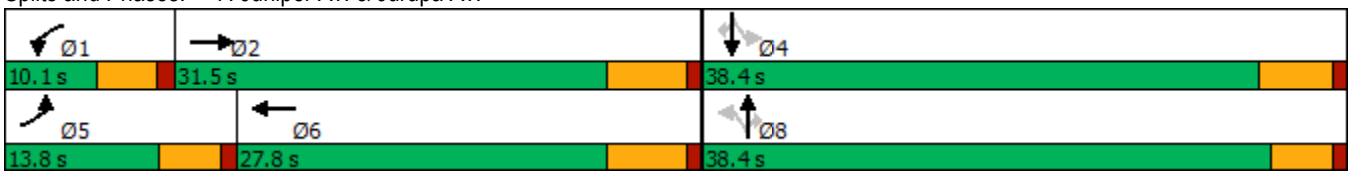
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	65.5	16.7	13	15
HCM LOS	F	C	B	B

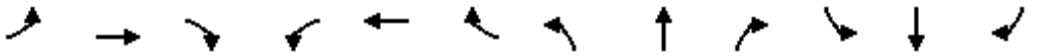
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	31%	0%	2%	27%	0%	54%	0%
Vol Thru, %	69%	0%	93%	73%	76%	46%	0%
Vol Right, %	0%	100%	5%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	100	472	237	228	121	6
LT Vol	31	0	8	63	0	65	0
Through Vol	70	0	440	174	174	56	0
RT Vol	0	100	24	0	54	0	6
Lane Flow Rate	113	112	530	266	256	136	7
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.255	0.226	1.001	0.526	0.484	0.317	0.014
Departure Headway (Hd)	8.282	7.396	6.797	7.107	6.801	8.596	7.589
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	437	489	536	509	530	421	474
Service Time	5.982	5.096	4.819	4.836	4.53	6.296	5.289
HCM Lane V/C Ratio	0.259	0.229	0.989	0.523	0.483	0.323	0.015
HCM Control Delay	13.8	12.2	65.5	17.5	15.8	15.2	10.4
HCM Lane LOS	B	B	F	C	C	C	B
HCM 95th-tile Q	1	0.9	14.1	3	2.6	1.3	0

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	90	1144	29	782	7	16	5	73	23	94
Future Volume (vph)	90	1144	29	782	7	16	5	73	23	94
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	13.8	31.5	10.1	27.8	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	17.3%	39.4%	12.6%	34.8%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 53.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1144	5	29	782	70	7	16	5	73	23	94
Future Volume (veh/h)	90	1144	5	29	782	70	7	16	5	73	23	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	98	1243	5	32	850	71	8	17	2	79	25	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	142	2036	8	66	1659	138	185	325	372	389	105	371
Arrive On Green	0.08	0.38	0.38	0.04	0.34	0.34	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	5333	21	1810	4878	406	346	1407	1610	1076	456	1604
Grp Volume(v), veh/h	98	806	442	32	602	319	25	0	2	104	0	56
Grp Sat Flow(s),veh/h/ln	1810	1729	1896	1810	1729	1826	1753	0	1610	1532	0	1604
Q Serve(g_s), s	2.4	8.5	8.5	0.8	6.3	6.3	0.0	0.0	0.0	1.8	0.0	1.3
Cycle Q Clear(g_c), s	2.4	8.5	8.5	0.8	6.3	6.3	0.5	0.0	0.0	2.4	0.0	1.3
Prop In Lane	1.00		0.01	1.00		0.22	0.32		1.00	0.76		1.00
Lane Grp Cap(c), veh/h	142	1321	724	66	1176	621	511	0	372	495	0	371
V/C Ratio(X)	0.69	0.61	0.61	0.48	0.51	0.51	0.05	0.00	0.01	0.21	0.00	0.15
Avail Cap(c_a), veh/h	369	1970	1080	221	1686	890	1377	0	1206	1249	0	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.3	11.2	11.2	21.3	11.9	11.9	13.5	0.0	13.3	14.2	0.0	13.8
Incr Delay (d2), s/veh	2.2	0.5	0.8	2.0	0.3	0.7	0.0	0.0	0.0	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.3	2.6	0.3	1.8	1.9	0.2	0.0	0.0	0.7	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	11.7	12.1	23.3	12.2	12.6	13.5	0.0	13.4	14.4	0.0	14.0
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1346			953			27			160	
Approach Delay, s/veh		12.6			12.7			13.5			14.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	23.0		15.8	8.1	21.1		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.5	25.7		33.0	9.2	22.0		* 34				
Max Q Clear Time (g_c+I1), s	2.8	10.5		4.4	4.4	8.3		2.5				
Green Ext Time (p_c), s	0.0	6.8		0.7	0.0	4.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.8
HCM 6th LOS		B

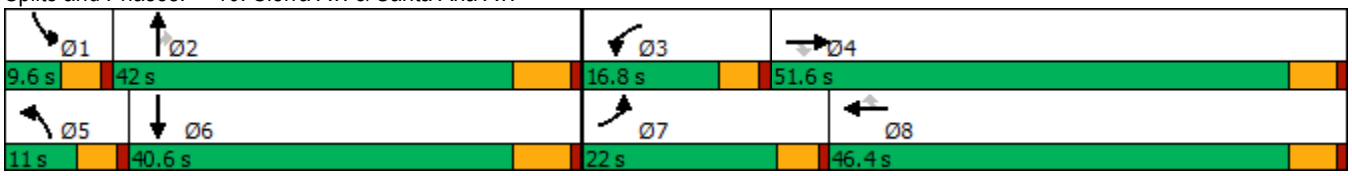
Notes

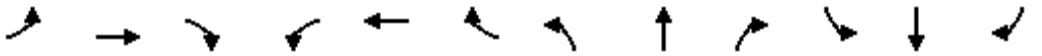
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	283	197	165	84	169	82	191	1632	75	132	1317
Future Volume (vph)	283	197	165	84	169	82	191	1632	75	132	1317
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	22.0	51.6	51.6	16.8	46.4	46.4	11.0	42.0	42.0	9.6	40.6
Total Split (%)	18.3%	43.0%	43.0%	14.0%	38.7%	38.7%	9.2%	35.0%	35.0%	8.0%	33.8%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 95.3
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	197	165	84	169	82	191	1632	75	132	1317	177
Future Volume (veh/h)	283	197	165	84	169	82	191	1632	75	132	1317	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	289	201	70	86	172	46	195	1665	69	135	1344	166
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	327	874	389	111	444	198	266	2028	620	206	1748	216
Arrive On Green	0.18	0.24	0.24	0.06	0.12	0.12	0.08	0.39	0.39	0.06	0.37	0.37
Sat Flow, veh/h	1810	3610	1608	1810	3610	1610	3510	5187	1586	3510	4676	578
Grp Volume(v), veh/h	289	201	70	86	172	46	195	1665	69	135	994	516
Grp Sat Flow(s),veh/h/ln	1810	1805	1608	1810	1805	1610	1755	1729	1586	1755	1729	1796
Q Serve(g_s), s	13.1	3.8	2.9	3.9	3.7	2.2	4.6	24.3	2.3	3.2	21.3	21.3
Cycle Q Clear(g_c), s	13.1	3.8	2.9	3.9	3.7	2.2	4.6	24.3	2.3	3.2	21.3	21.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	327	874	389	111	444	198	266	2028	620	206	1293	672
V/C Ratio(X)	0.88	0.23	0.18	0.77	0.39	0.23	0.73	0.82	0.11	0.65	0.77	0.77
Avail Cap(c_a), veh/h	373	1978	881	262	1755	783	266	2202	674	208	1411	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	25.7	25.3	39.0	34.1	33.4	38.1	23.0	16.3	38.8	23.2	23.2
Incr Delay (d2), s/veh	18.2	0.1	0.2	4.2	0.6	0.6	8.7	2.4	0.1	5.6	2.4	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	1.5	1.1	1.8	1.6	0.8	2.2	9.0	0.8	1.4	8.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	25.8	25.5	43.2	34.6	34.0	46.8	25.5	16.4	44.5	25.6	27.8
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	C	C
Approach Vol, veh/h		560			304			1929			1645	
Approach Delay, s/veh		39.3			36.9			27.3			27.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	39.2	9.8	25.8	11.0	37.7	19.8	15.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	35.8	12.2	46.2	6.4	34.4	17.4	41.0
Max Q Clear Time (g_c+I1), s	5.2	26.3	5.9	5.8	6.6	23.3	15.1	5.7
Green Ext Time (p_c), s	0.0	6.7	0.0	1.5	0.0	6.6	0.1	1.2

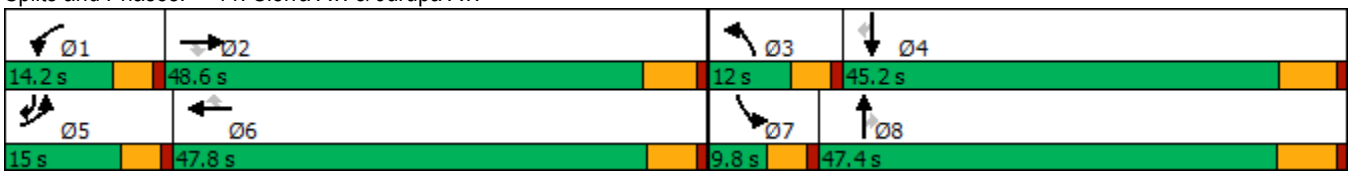
Intersection Summary	
HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	528	354	328	146	293	124	312	1046	102	117	730	307
Future Volume (vph)	528	354	328	146	293	124	312	1046	102	117	730	307
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	15.0	48.6	48.6	14.2	47.8	47.8	12.0	47.4	47.4	9.8	45.2	15.0
Total Split (%)	12.5%	40.5%	40.5%	11.8%	39.8%	39.8%	10.0%	39.5%	39.5%	8.2%	37.7%	12.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 90.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	528	354	328	146	293	124	312	1046	102	117	730	307
Future Volume (veh/h)	528	354	328	146	293	124	312	1046	102	117	730	307
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	544	365	195	151	302	68	322	1078	62	121	753	249
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	486	742	331	234	484	216	346	1373	605	215	1239	775
Arrive On Green	0.14	0.21	0.21	0.07	0.13	0.13	0.10	0.38	0.38	0.06	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	3610	1590	3510	3610	1610
Grp Volume(v), veh/h	544	365	195	151	302	68	322	1078	62	121	753	249
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1805	1590	1755	1805	1610
Q Serve(g_s), s	10.4	6.7	8.2	3.2	5.9	2.9	6.8	19.8	1.9	2.5	13.0	7.1
Cycle Q Clear(g_c), s	10.4	6.7	8.2	3.2	5.9	2.9	6.8	19.8	1.9	2.5	13.0	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	486	742	331	234	484	216	346	1373	605	215	1239	775
V/C Ratio(X)	1.12	0.49	0.59	0.64	0.62	0.32	0.93	0.78	0.10	0.56	0.61	0.32
Avail Cap(c_a), veh/h	486	2055	917	448	2036	908	346	1964	865	243	1873	1058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	26.4	27.0	34.2	30.8	29.4	33.6	20.6	15.0	34.3	20.5	11.9
Incr Delay (d2), s/veh	78.0	0.5	1.7	1.1	1.3	0.8	31.0	1.4	0.1	0.9	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	2.7	2.9	1.3	2.5	1.0	4.1	7.1	0.6	1.0	4.8	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	110.4	26.9	28.7	35.3	32.1	30.3	64.6	21.9	15.1	35.2	21.0	12.2
LnGrp LOS	F	C	C	D	C	C	E	C	B	D	C	B
Approach Vol, veh/h		1104			521			1462			1123	
Approach Delay, s/veh		68.3			32.8			31.1			20.6	
Approach LOS		E			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	21.3	12.0	32.3	15.0	15.9	9.2	35.1
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	9.6	42.8	7.4	* 39	10.4	* 42	5.2	40.9
Max Q Clear Time (g_c+I1), s	5.2	10.2	8.8	15.0	12.4	7.9	4.5	21.8
Green Ext Time (p_c), s	0.1	2.9	0.0	5.7	0.0	2.1	0.0	6.8

Intersection Summary	
HCM 6th Ctrl Delay	38.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.2:

OPENING YEAR CUMULATIVE (2022) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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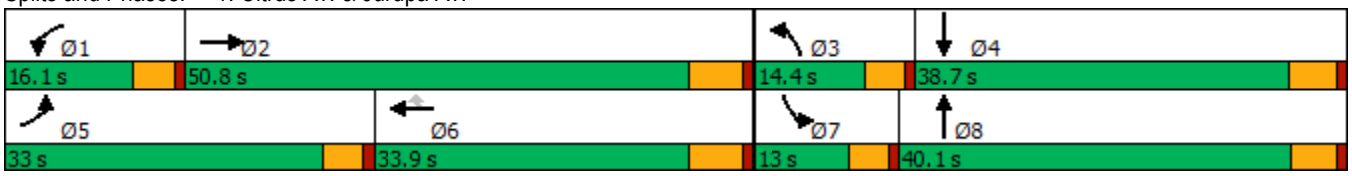
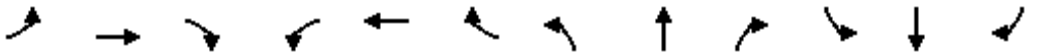
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	504	494	70	639	132	61	303	128	118
Future Volume (vph)	504	494	70	639	132	61	303	128	118
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	33.0	50.8	16.1	33.9	33.9	14.4	40.1	13.0	38.7
Total Split (%)	27.5%	42.3%	13.4%	28.3%	28.3%	12.0%	33.4%	10.8%	32.3%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 96.6
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	504	494	14	70	639	132	61	303	116	128	118	191
Future Volume (veh/h)	504	494	14	70	639	132	61	303	116	128	118	191
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	548	537	13	76	695	104	66	329	101	139	128	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	570	2384	58	98	1023	317	86	460	139	169	387	345
Arrive On Green	0.31	0.46	0.46	0.05	0.20	0.20	0.05	0.17	0.17	0.09	0.21	0.21
Sat Flow, veh/h	1810	5208	126	1810	5187	1605	1810	2730	825	1810	1805	1610
Grp Volume(v), veh/h	548	356	194	76	695	104	66	216	214	139	128	148
Grp Sat Flow(s),veh/h/ln	1810	1729	1875	1810	1729	1605	1810	1805	1750	1810	1805	1610
Q Serve(g_s), s	26.8	5.6	5.6	3.7	11.2	5.0	3.3	10.2	10.5	6.8	5.4	7.2
Cycle Q Clear(g_c), s	26.8	5.6	5.6	3.7	11.2	5.0	3.3	10.2	10.5	6.8	5.4	7.2
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	570	1583	858	98	1023	317	86	304	295	169	387	345
V/C Ratio(X)	0.96	0.22	0.23	0.77	0.68	0.33	0.77	0.71	0.73	0.82	0.33	0.43
Avail Cap(c_a), veh/h	570	1726	936	231	1616	500	197	701	679	169	667	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	14.8	14.8	42.1	33.6	31.1	42.5	35.4	35.5	40.2	30.0	30.6
Incr Delay (d2), s/veh	28.0	0.1	0.1	4.7	0.8	0.6	5.4	3.0	3.4	25.7	0.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	2.0	2.2	1.7	4.5	1.9	1.6	4.6	4.6	4.1	2.3	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	14.9	14.9	46.8	34.4	31.7	47.9	38.5	38.9	65.8	30.5	31.5
LnGrp LOS	E	B	B	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		1098			875			496			415	
Approach Delay, s/veh		36.6			35.1			39.9			42.7	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	47.1	8.9	24.7	33.0	23.6	13.0	20.6
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	11.5	45.0	9.8	33.3	28.4	28.1	8.4	* 35
Max Q Clear Time (g_c+I1), s	5.7	7.6	5.3	9.2	28.8	13.2	8.8	12.5
Green Ext Time (p_c), s	0.0	3.4	0.0	1.5	0.0	4.1	0.0	2.5

Intersection Summary	
HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	747	789	74	0	61
Future Vol, veh/h	0	747	789	74	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	795	839	79	0	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	459
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	474
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	474
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

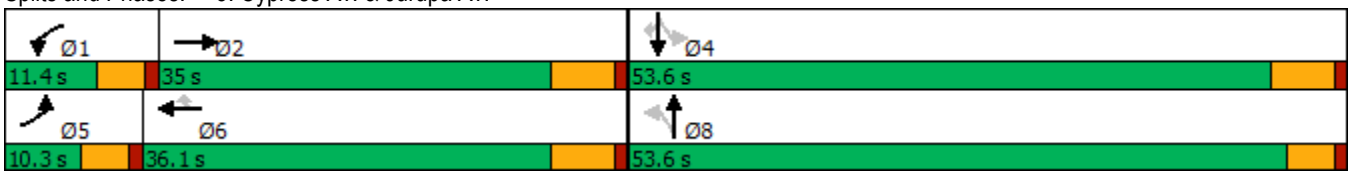
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	474
HCM Lane V/C Ratio	-	-	-	0.137
HCM Control Delay (s)	-	-	-	13.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

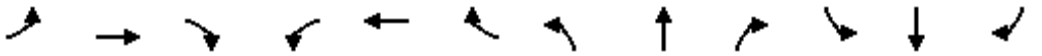
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	159	588	50	742	70	29	80	55	32	87
Future Volume (vph)	159	588	50	742	70	29	80	55	32	87
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.3	35.0	11.4	36.1	36.1	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.3%	35.0%	11.4%	36.1%	36.1%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 55.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	588	15	50	742	70	29	80	130	55	32	87
Future Volume (veh/h)	159	588	15	50	742	70	29	80	130	55	32	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	164	606	15	52	765	59	30	82	83	57	33	55
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	209	1809	45	97	1480	459	454	201	203	351	441	374
Arrive On Green	0.12	0.35	0.35	0.05	0.29	0.29	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	5206	129	1810	5187	1610	1330	865	876	1239	1900	1610
Grp Volume(v), veh/h	164	402	219	52	765	59	30	0	165	57	33	55
Grp Sat Flow(s),veh/h/ln	1810	1729	1877	1810	1729	1610	1330	0	1741	1239	1900	1610
Q Serve(g_s), s	3.9	3.8	3.8	1.2	5.5	1.2	0.8	0.0	3.5	1.8	0.6	1.2
Cycle Q Clear(g_c), s	3.9	3.8	3.8	1.2	5.5	1.2	1.4	0.0	3.5	5.4	0.6	1.2
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	209	1202	652	97	1480	459	454	0	404	351	441	374
V/C Ratio(X)	0.78	0.33	0.34	0.54	0.52	0.13	0.07	0.00	0.41	0.16	0.07	0.15
Avail Cap(c_a), veh/h	234	2287	1242	279	3560	1105	1621	0	1933	1405	2057	1744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.0	10.6	10.6	20.4	13.2	11.7	13.8	0.0	14.4	16.7	13.2	13.5
Incr Delay (d2), s/veh	12.5	0.2	0.3	1.7	0.3	0.1	0.1	0.0	0.7	0.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.0	1.2	0.5	1.6	0.3	0.2	0.0	1.3	0.4	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	10.8	10.9	22.1	13.5	11.8	13.9	0.0	15.0	16.9	13.3	13.7
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		785			876			195			145	
Approach Delay, s/veh		15.2			13.9			14.9			14.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	21.1		16.0	9.7	18.4		16.0				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	6.8	29.2		47.8	5.7	30.3		* 49				
Max Q Clear Time (g_c+I1), s	3.2	5.8		7.4	5.9	7.5		5.5				
Green Ext Time (p_c), s	0.0	3.6		0.5	0.0	5.1		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		14.6	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	18.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	235	31	57	478	15	26	31	32	38	53	15
Future Vol, veh/h	6	235	31	57	478	15	26	31	32	38	53	15
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	8	322	42	78	655	21	36	42	44	52	73	21
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	21	19.6	11.7	13
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	46%	0%	2%	19%	0%	42%	0%
Vol Thru, %	54%	0%	86%	81%	94%	58%	0%
Vol Right, %	0%	100%	11%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	32	272	296	254	91	15
LT Vol	26	0	6	57	0	38	0
Through Vol	31	0	235	239	239	53	0
RT Vol	0	32	31	0	15	0	15
Lane Flow Rate	78	44	373	405	348	125	21
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.172	0.085	0.659	0.694	0.582	0.27	0.039
Departure Headway (Hd)	7.919	6.962	6.364	6.166	6.026	7.81	6.874
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	451	511	566	584	595	457	517
Service Time	5.713	4.755	4.432	3.935	3.795	5.601	4.664
HCM Lane V/C Ratio	0.173	0.086	0.659	0.693	0.585	0.274	0.041
HCM Control Delay	12.4	10.4	21	21.9	16.9	13.5	9.9
HCM Lane LOS	B	B	C	C	C	B	A
HCM 95th-tile Q	0.6	0.3	4.8	5.5	3.7	1.1	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	0	1	4	0	3	2	83	17	6	123	11
Future Vol, veh/h	3	0	1	4	0	3	2	83	17	6	123	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	1	4	0	3	2	90	18	7	134	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	259	266	140	258	263	99	146	0	0	108	0	0
Stage 1	154	154	-	103	103	-	-	-	-	-	-	-
Stage 2	105	112	-	155	160	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	698	643	913	699	646	962	1448	-	-	1495	-	-
Stage 1	853	774	-	908	814	-	-	-	-	-	-	-
Stage 2	906	807	-	852	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	692	639	913	695	642	962	1448	-	-	1495	-	-
Mov Cap-2 Maneuver	692	639	-	695	642	-	-	-	-	-	-	-
Stage 1	852	770	-	907	813	-	-	-	-	-	-	-
Stage 2	902	806	-	847	765	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.6	0.1	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1448	-	-	737	789	1495	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.01	0.004	-	-
HCM Control Delay (s)	7.5	0	-	9.9	9.6	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	8	8	0	3	25	141	28	8	112	7
Future Vol, veh/h	2	0	8	8	0	3	25	141	28	8	112	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	9	9	0	3	27	153	30	9	122	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	368	381	126	371	370	168	130	0	0	183	0	0
Stage 1	144	144	-	222	222	-	-	-	-	-	-	-
Stage 2	224	237	-	149	148	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	592	555	930	589	563	881	1468	-	-	1404	-	-
Stage 1	864	782	-	785	723	-	-	-	-	-	-	-
Stage 2	783	713	-	858	779	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	577	539	930	571	547	881	1468	-	-	1404	-	-
Mov Cap-2 Maneuver	577	539	-	571	547	-	-	-	-	-	-	-
Stage 1	846	777	-	769	708	-	-	-	-	-	-	-
Stage 2	764	698	-	844	774	-	-	-	-	-	-	-

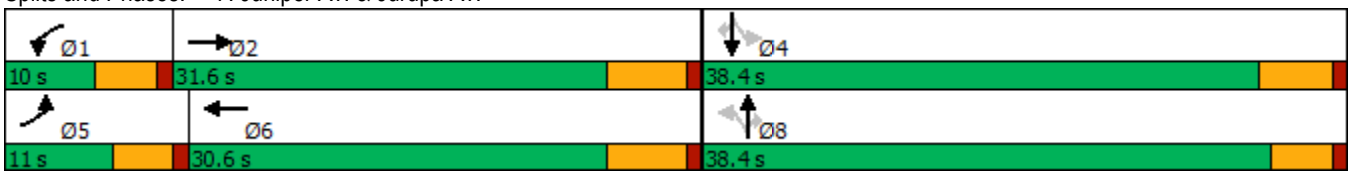
Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	10.8	1	0.5
HCM LOS	A	B		

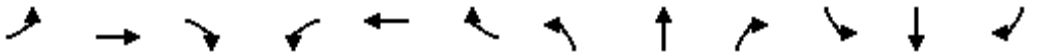
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	829	632	1404	-	-
HCM Lane V/C Ratio	0.019	-	-	0.013	0.019	0.006	-	-
HCM Control Delay (s)	7.5	0	-	9.4	10.8	7.6	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	105	653	13	786	5	5	18	57	6	60
Future Volume (vph)	105	653	13	786	5	5	18	57	6	60
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 50.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	653	3	13	786	88	5	5	18	57	6	60
Future Volume (veh/h)	105	653	3	13	786	88	5	5	18	57	6	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	109	680	2	14	819	89	5	5	8	59	6	30
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	154	2014	6	32	1473	159	279	238	378	465	40	378
Arrive On Green	0.09	0.38	0.38	0.02	0.31	0.31	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	5339	16	1810	4751	514	648	1016	1610	1296	170	1610
Grp Volume(v), veh/h	109	440	242	14	595	313	10	0	8	65	0	30
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1807	1665	0	1610	1466	0	1610
Q Serve(g_s), s	2.5	3.9	3.9	0.3	6.1	6.2	0.0	0.0	0.2	1.3	0.0	0.6
Cycle Q Clear(g_c), s	2.5	3.9	3.9	0.3	6.1	6.2	0.2	0.0	0.2	1.5	0.0	0.6
Prop In Lane	1.00		0.01	1.00		0.28	0.50		1.00	0.91		1.00
Lane Grp Cap(c), veh/h	154	1304	716	32	1072	560	517	0	378	505	0	378
V/C Ratio(X)	0.71	0.34	0.34	0.43	0.55	0.56	0.02	0.00	0.02	0.13	0.00	0.08
Avail Cap(c_a), veh/h	272	2092	1148	229	2011	1050	1414	0	1276	1290	0	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	9.5	9.5	20.7	12.3	12.3	12.6	0.0	12.6	13.0	0.0	12.7
Incr Delay (d2), s/veh	2.2	0.2	0.3	3.3	0.5	0.9	0.0	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	1.1	0.1	1.7	1.9	0.1	0.0	0.1	0.4	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	9.6	9.8	24.1	12.7	13.2	12.6	0.0	12.6	13.1	0.0	12.8
LnGrp LOS	C	A	A	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		791			922			18			95	
Approach Delay, s/veh		11.3			13.0			12.6			13.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	21.9		15.4	8.2	19.0		15.4				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.3	5.9		3.5	4.5	8.2		2.2				
Green Ext Time (p_c), s	0.0	3.8		0.4	0.0	5.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		12.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	728	885	5	0	1
Future Vol, veh/h	0	728	885	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	791	962	5	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	484
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	457
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	457
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	457
HCM Lane V/C Ratio	-	-	-	0.002
HCM Control Delay (s)	-	-	-	12.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	728	887	9	0	3
Future Vol, veh/h	0	728	887	9	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	791	964	10	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	487
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	455
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	455
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

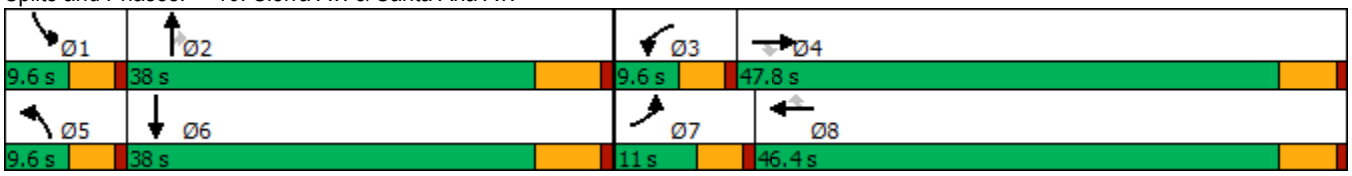
Approach	EB	WB	SB
HCM Control Delay, s	0	0	13
HCM LOS			B

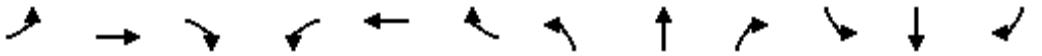
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	455
HCM Lane V/C Ratio	-	-	-	0.007
HCM Control Delay (s)	-	-	-	13
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	141	106	88	60	155	91	107	1287	59	94	813
Future Volume (vph)	141	106	88	60	155	91	107	1287	59	94	813
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	11.0	47.8	47.8	9.6	46.4	46.4	9.6	38.0	38.0	9.6	38.0
Total Split (%)	10.5%	45.5%	45.5%	9.1%	44.2%	44.2%	9.1%	36.2%	36.2%	9.1%	36.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 76.3
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	106	88	60	155	91	107	1287	59	94	813	326
Future Volume (veh/h)	141	106	88	60	155	91	107	1287	59	94	813	326
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	155	116	45	66	170	40	118	1414	62	103	893	339
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	173	694	310	96	540	241	233	1972	604	224	1398	529
Arrive On Green	0.10	0.19	0.19	0.05	0.15	0.15	0.07	0.38	0.38	0.06	0.38	0.38
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1589	3510	3703	1401
Grp Volume(v), veh/h	155	116	45	66	170	40	118	1414	62	103	834	398
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1589	1755	1729	1646
Q Serve(g_s), s	5.7	1.8	1.6	2.4	2.8	1.4	2.2	15.5	1.7	1.9	13.2	13.3
Cycle Q Clear(g_c), s	5.7	1.8	1.6	2.4	2.8	1.4	2.2	15.5	1.7	1.9	13.2	13.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.85
Lane Grp Cap(c), veh/h	173	694	310	96	540	241	233	1972	604	224	1305	621
V/C Ratio(X)	0.90	0.17	0.15	0.69	0.32	0.17	0.51	0.72	0.10	0.46	0.64	0.64
Avail Cap(c_a), veh/h	173	2288	1021	135	2213	987	262	2466	755	262	1644	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	22.5	22.4	31.1	25.4	24.8	30.2	17.7	13.4	30.2	17.1	17.1
Incr Delay (d2), s/veh	39.2	0.1	0.2	3.3	0.3	0.3	0.6	0.8	0.1	0.5	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.7	0.6	1.1	1.1	0.5	0.8	5.2	0.5	0.7	4.4	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.1	22.7	22.7	34.4	25.7	25.1	30.8	18.4	13.4	30.8	17.6	18.3
LnGrp LOS	E	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		316			276			1594			1335	
Approach Delay, s/veh		45.4			27.7			19.1			18.8	
Approach LOS		D			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	31.6	8.1	18.3	9.0	31.4	11.0	15.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	31.8	5.0	42.4	5.0	31.8	6.4	41.0
Max Q Clear Time (g_c+I1), s	3.9	17.5	4.4	3.8	4.2	15.3	7.7	4.8
Green Ext Time (p_c), s	0.0	7.8	0.0	0.8	0.0	7.0	0.0	1.1

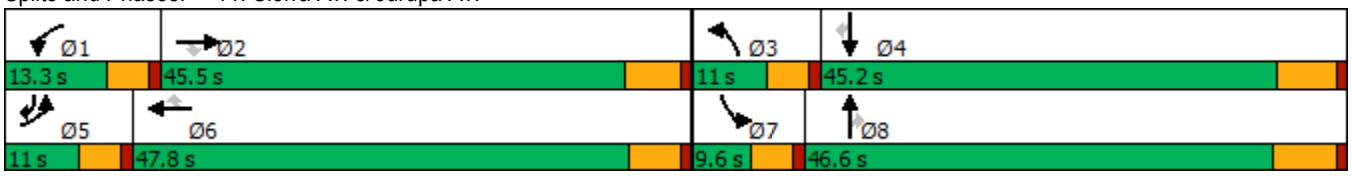
Intersection Summary	
HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

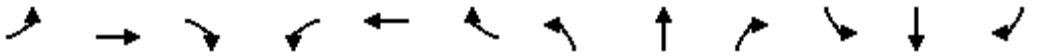
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	253	230	135	298	141	309	778	56	54	489	281
Future Volume (vph)	272	253	230	135	298	141	309	778	56	54	489	281
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	11.0	45.5	45.5	13.3	47.8	47.8	11.0	46.6	46.6	9.6	45.2	11.0
Total Split (%)	9.6%	39.6%	39.6%	11.6%	41.6%	41.6%	9.6%	40.5%	40.5%	8.3%	39.3%	9.6%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 72.3
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	253	230	135	298	141	309	778	56	54	489	281
Future Volume (veh/h)	272	253	230	135	298	141	309	778	56	54	489	281
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	280	261	116	139	307	92	319	802	30	56	504	178
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	374	730	326	263	616	274	374	1136	507	177	934	588
Arrive On Green	0.11	0.20	0.20	0.08	0.17	0.17	0.11	0.31	0.31	0.05	0.26	0.26
Sat Flow, veh/h	3510	3610	1610	3510	3610	1607	3510	3610	1610	3510	3610	1610
Grp Volume(v), veh/h	280	261	116	139	307	92	319	802	30	56	504	178
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1607	1755	1805	1610	1755	1805	1610
Q Serve(g_s), s	4.7	3.7	3.7	2.3	4.6	3.0	5.4	11.8	0.8	0.9	7.2	4.7
Cycle Q Clear(g_c), s	4.7	3.7	3.7	2.3	4.6	3.0	5.4	11.8	0.8	0.9	7.2	4.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	374	730	326	263	616	274	374	1136	507	177	934	588
V/C Ratio(X)	0.75	0.36	0.36	0.53	0.50	0.34	0.85	0.71	0.06	0.32	0.54	0.30
Avail Cap(c_a), veh/h	374	2384	1063	508	2546	1134	374	2408	1074	292	2342	1216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	20.6	20.6	26.8	22.6	21.9	26.4	18.1	14.4	27.5	19.2	13.6
Incr Delay (d2), s/veh	7.3	0.3	0.7	0.6	0.6	0.7	16.4	0.8	0.0	0.4	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	1.2	0.9	1.8	1.0	2.8	4.0	0.2	0.4	2.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	20.9	21.3	27.4	23.2	22.6	42.8	19.0	14.4	27.9	19.7	13.9
LnGrp LOS	C	C	C	C	C	C	D	B	B	C	B	B
Approach Vol, veh/h		657			538			1151			738	
Approach Delay, s/veh		26.3			24.2			25.5			18.9	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	18.0	11.0	22.1	11.0	16.1	7.6	25.4
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	8.7	39.7	6.4	* 39	6.4	* 42	5.0	40.1
Max Q Clear Time (g_c+I1), s	4.3	5.7	7.4	9.2	6.7	6.6	2.9	13.8
Green Ext Time (p_c), s	0.1	1.9	0.0	3.7	0.0	2.3	0.0	5.2

Intersection Summary	
HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

Notes

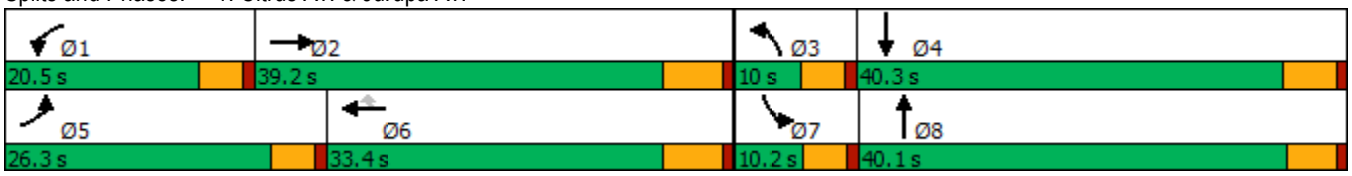
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

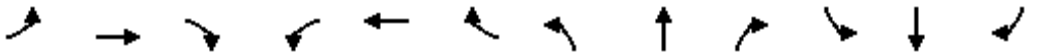
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	447	928	143	686	194	19	153	98	210
Future Volume (vph)	447	928	143	686	194	19	153	98	210
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	26.3	39.2	20.5	33.4	33.4	10.0	40.1	10.2	40.3
Total Split (%)	23.9%	35.6%	18.6%	30.4%	30.4%	9.1%	36.5%	9.3%	36.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 82.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	447	928	53	143	686	194	19	153	96	98	210	150
Future Volume (veh/h)	447	928	53	143	686	194	19	153	96	98	210	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	486	1009	43	155	746	137	21	166	81	107	228	133
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	522	2067	88	194	1162	361	43	330	154	136	423	237
Arrive On Green	0.29	0.41	0.41	0.11	0.22	0.22	0.02	0.14	0.14	0.08	0.19	0.19
Sat Flow, veh/h	1810	5101	217	1810	5187	1610	1810	2389	1113	1810	2229	1251
Grp Volume(v), veh/h	486	684	368	155	746	137	21	124	123	107	183	178
Grp Sat Flow(s),veh/h/ln	1810	1729	1860	1810	1729	1610	1810	1805	1697	1810	1805	1675
Q Serve(g_s), s	19.4	10.9	10.9	6.2	9.7	5.4	0.9	4.7	5.0	4.3	6.8	7.2
Cycle Q Clear(g_c), s	19.4	10.9	10.9	6.2	9.7	5.4	0.9	4.7	5.0	4.3	6.8	7.2
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.66	1.00		0.75
Lane Grp Cap(c), veh/h	522	1401	754	194	1162	361	43	249	234	136	342	317
V/C Ratio(X)	0.93	0.49	0.49	0.80	0.64	0.38	0.49	0.50	0.53	0.79	0.53	0.56
Avail Cap(c_a), veh/h	528	1553	835	387	1924	597	131	849	798	136	847	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	16.4	16.4	32.4	26.2	24.5	35.9	29.7	29.8	33.8	27.2	27.3
Incr Delay (d2), s/veh	22.8	0.3	0.5	2.8	0.6	0.7	3.2	1.5	1.8	23.6	1.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	3.8	4.1	2.7	3.7	2.0	0.4	2.1	2.1	2.7	2.9	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	16.7	16.9	35.3	26.8	25.1	39.1	31.2	31.7	57.4	28.5	28.9
LnGrp LOS	D	B	B	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		1538			1038			268			468	
Approach Delay, s/veh		26.8			27.8			32.0			35.2	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.6	35.9	6.4	19.5	26.1	22.5	10.2	15.7
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	15.9	33.4	5.4	34.9	21.7	27.6	5.6	* 35
Max Q Clear Time (g_c+I1), s	8.2	12.9	2.9	9.2	21.4	11.7	6.3	7.0
Green Ext Time (p_c), s	0.1	6.4	0.0	2.0	0.0	4.6	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1184	906	60	0	117
Future Vol, veh/h	0	1184	906	60	0	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1287	985	65	0	127

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	525
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	430
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	430
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

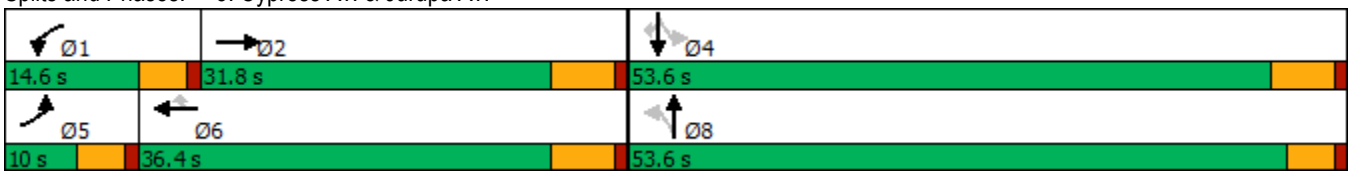
Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.9
HCM LOS			C

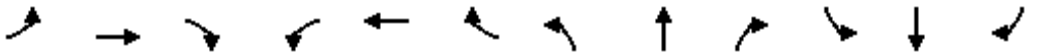
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	430
HCM Lane V/C Ratio	-	-	-	0.296
HCM Control Delay (s)	-	-	-	16.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	153	1074	125	744	71	10	60	117	52	162
Future Volume (vph)	153	1074	125	744	71	10	60	117	52	162
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	31.8	14.6	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	31.8%	14.6%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 64.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	1074	25	125	744	71	10	60	69	117	52	162
Future Volume (veh/h)	153	1074	25	125	744	71	10	60	69	117	52	162
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	163	1143	23	133	791	55	11	64	38	124	55	138
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	205	1858	37	172	1747	542	376	234	139	364	399	338
Arrive On Green	0.11	0.35	0.35	0.10	0.34	0.34	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1810	5234	105	1810	5187	1610	1209	1117	663	1313	1900	1610
Grp Volume(v), veh/h	163	755	411	133	791	55	11	0	102	124	55	138
Grp Sat Flow(s),veh/h/ln	1810	1729	1881	1810	1729	1610	1209	0	1781	1313	1900	1610
Q Serve(g_s), s	4.2	8.6	8.6	3.4	5.7	1.1	0.4	0.0	2.3	4.2	1.1	3.5
Cycle Q Clear(g_c), s	4.2	8.6	8.6	3.4	5.7	1.1	1.5	0.0	2.3	6.5	1.1	3.5
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	205	1228	668	172	1747	542	376	0	374	364	399	338
V/C Ratio(X)	0.79	0.62	0.62	0.77	0.45	0.10	0.03	0.00	0.27	0.34	0.14	0.41
Avail Cap(c_a), veh/h	205	1887	1026	380	3331	1034	1366	0	1831	1405	1906	1615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.6	12.7	12.7	21.1	12.4	10.8	15.9	0.0	15.8	18.5	15.3	16.3
Incr Delay (d2), s/veh	17.8	0.5	0.9	2.8	0.2	0.1	0.0	0.0	0.4	0.6	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.5	2.8	1.3	1.6	0.3	0.1	0.0	0.9	1.1	0.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	13.2	13.6	23.8	12.5	10.9	16.0	0.0	16.2	19.0	15.5	17.1
LnGrp LOS	D	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		1329			979			113			317	
Approach Delay, s/veh		16.4			14.0			16.1			17.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	22.7		15.8	10.0	21.9		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	10.0	26.0		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	5.4	10.6		8.5	6.2	7.7		4.3				
Green Ext Time (p_c), s	0.1	6.3		1.1	0.0	5.3		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		15.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	37
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	440	27	64	348	54	39	76	110	65	58	6
Future Vol, veh/h	8	440	27	64	348	54	39	76	110	65	58	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	494	30	72	391	61	44	85	124	73	65	7
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	73.5	17	13.6	15.4
HCM LOS	F	C	B	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	34%	0%	2%	27%	0%	53%	0%
Vol Thru, %	66%	0%	93%	73%	76%	47%	0%
Vol Right, %	0%	100%	6%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	110	475	238	228	123	6
LT Vol	39	0	8	64	0	65	0
Through Vol	76	0	440	174	174	58	0
RT Vol	0	110	27	0	54	0	6
Lane Flow Rate	129	124	534	267	256	138	7
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.292	0.249	1.029	0.528	0.484	0.326	0.014
Departure Headway (Hd)	8.363	7.46	6.941	7.308	6.999	8.731	7.728
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	433	484	528	497	517	415	466
Service Time	6.063	5.16	4.941	5.008	4.699	6.431	5.428
HCM Lane V/C Ratio	0.298	0.256	1.011	0.537	0.495	0.333	0.015
HCM Control Delay	14.5	12.6	73.5	17.9	16.1	15.6	10.5
HCM Lane LOS	B	B	F	C	C	C	B
HCM 95th-tile Q	1.2	1	15.1	3	2.6	1.4	0

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	13	0	2	16	0	11	1	200	8	3	141	5
Future Vol, veh/h	13	0	2	16	0	11	1	200	8	3	141	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	0	2	17	0	12	1	217	9	3	153	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	392	390	156	387	388	222	158	0	0	226	0	0
Stage 1	162	162	-	224	224	-	-	-	-	-	-	-
Stage 2	230	228	-	163	164	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	571	548	895	575	550	823	1434	-	-	1354	-	-
Stage 1	845	768	-	783	722	-	-	-	-	-	-	-
Stage 2	777	719	-	844	766	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	561	546	895	572	548	823	1434	-	-	1354	-	-
Mov Cap-2 Maneuver	561	546	-	572	548	-	-	-	-	-	-	-
Stage 1	844	766	-	782	721	-	-	-	-	-	-	-
Stage 2	765	718	-	840	764	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	10.8	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1434	-	-	590	653	1354	-	-
HCM Lane V/C Ratio	0.001	-	-	0.028	0.045	0.002	-	-
HCM Control Delay (s)	7.5	0	-	11.3	10.8	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	20	29	0	13	7	183	12	3	185	3
Future Vol, veh/h	8	0	20	29	0	13	7	183	12	3	185	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	0	22	32	0	14	8	199	13	3	201	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	438	437	203	442	432	206	204	0	0	212	0	0
Stage 1	209	209	-	222	222	-	-	-	-	-	-	-
Stage 2	229	228	-	220	210	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	532	516	843	529	519	840	1380	-	-	1370	-	-
Stage 1	798	733	-	785	723	-	-	-	-	-	-	-
Stage 2	778	719	-	787	732	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	519	511	843	512	514	840	1380	-	-	1370	-	-
Mov Cap-2 Maneuver	519	511	-	512	514	-	-	-	-	-	-	-
Stage 1	792	732	-	780	718	-	-	-	-	-	-	-
Stage 2	760	714	-	765	731	-	-	-	-	-	-	-

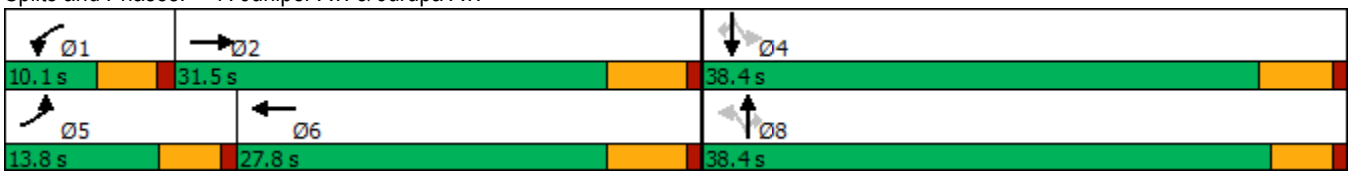
Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	11.7	0.3	0.1
HCM LOS	B	B		

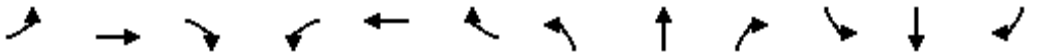
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1380	-	-	715	582	1370	-	-
HCM Lane V/C Ratio	0.006	-	-	0.043	0.078	0.002	-	-
HCM Control Delay (s)	7.6	0	-	10.3	11.7	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	105	1144	29	798	7	16	5	94	23	118
Future Volume (vph)	105	1144	29	798	7	16	5	94	23	118
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	13.8	31.5	10.1	27.8	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	17.3%	39.4%	12.6%	34.8%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 54
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1144	5	29	798	75	7	16	5	94	23	118
Future Volume (veh/h)	105	1144	5	29	798	75	7	16	5	94	23	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	114	1243	5	32	867	77	8	17	2	102	25	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	152	2036	8	66	1621	143	185	324	372	408	85	371
Arrive On Green	0.08	0.38	0.38	0.04	0.33	0.33	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	5333	21	1810	4850	429	343	1400	1610	1141	369	1604
Grp Volume(v), veh/h	114	806	442	32	617	327	25	0	2	127	0	82
Grp Sat Flow(s),veh/h/ln	1810	1729	1896	1810	1729	1821	1743	0	1610	1510	0	1604
Q Serve(g_s), s	2.8	8.5	8.5	0.8	6.5	6.6	0.0	0.0	0.0	2.6	0.0	1.9
Cycle Q Clear(g_c), s	2.8	8.5	8.5	0.8	6.5	6.6	0.5	0.0	0.0	3.1	0.0	1.9
Prop In Lane	1.00		0.01	1.00		0.24	0.32		1.00	0.80		1.00
Lane Grp Cap(c), veh/h	152	1321	724	66	1156	609	508	0	372	493	0	371
V/C Ratio(X)	0.75	0.61	0.61	0.48	0.53	0.54	0.05	0.00	0.01	0.26	0.00	0.22
Avail Cap(c_a), veh/h	369	1970	1080	221	1686	888	1367	0	1206	1238	0	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.2	11.2	11.2	21.3	12.2	12.2	13.5	0.0	13.3	14.5	0.0	14.0
Incr Delay (d2), s/veh	2.7	0.5	0.8	2.0	0.4	0.7	0.0	0.0	0.0	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.3	2.6	0.3	1.9	2.0	0.2	0.0	0.0	0.9	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	11.7	12.1	23.3	12.6	12.9	13.5	0.0	13.4	14.7	0.0	14.3
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1362			976			27			209	
Approach Delay, s/veh		12.8			13.0			13.5			14.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	23.0		15.8	8.4	20.9		15.8				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.5	25.7		33.0	9.2	22.0		* 34				
Max Q Clear Time (g_c+I1), s	2.8	10.5		5.1	4.8	8.6		2.5				
Green Ext Time (p_c), s	0.0	6.8		0.9	0.0	4.7		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		13.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1244	897	2	0	6
Future Vol, veh/h	0	1244	897	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1352	975	2	0	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	489
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	453
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	453
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	453
HCM Lane V/C Ratio	-	-	-	0.014
HCM Control Delay (s)	-	-	-	13.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1244	889	4	0	11
Future Vol, veh/h	0	1244	889	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1352	966	4	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	485
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	456
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	456
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

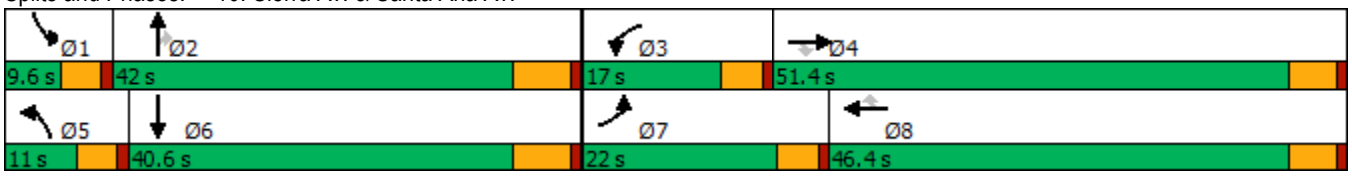
Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.1
HCM LOS			B

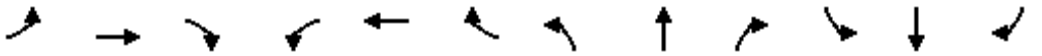
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	456
HCM Lane V/C Ratio	-	-	-	0.026
HCM Control Delay (s)	-	-	-	13.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	288	202	165	87	169	82	191	1641	79	132	1321
Future Volume (vph)	288	202	165	87	169	82	191	1641	79	132	1321
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	22.0	51.4	51.4	17.0	46.4	46.4	11.0	42.0	42.0	9.6	40.6
Total Split (%)	18.3%	42.8%	42.8%	14.2%	38.7%	38.7%	9.2%	35.0%	35.0%	8.0%	33.8%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 95.3
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	288	202	165	87	169	82	191	1641	79	132	1321	178
Future Volume (veh/h)	288	202	165	87	169	82	191	1641	79	132	1321	178
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	294	206	70	89	172	46	195	1674	73	135	1348	167
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	331	872	389	115	441	197	265	2027	620	206	1749	217
Arrive On Green	0.18	0.24	0.24	0.06	0.12	0.12	0.08	0.39	0.39	0.06	0.37	0.37
Sat Flow, veh/h	1810	3610	1608	1810	3610	1610	3510	5187	1586	3510	4675	579
Grp Volume(v), veh/h	294	206	70	89	172	46	195	1674	73	135	997	518
Grp Sat Flow(s),veh/h/ln	1810	1805	1608	1810	1805	1610	1755	1729	1586	1755	1729	1796
Q Serve(g_s), s	13.4	3.9	2.9	4.1	3.7	2.2	4.6	24.6	2.5	3.2	21.5	21.5
Cycle Q Clear(g_c), s	13.4	3.9	2.9	4.1	3.7	2.2	4.6	24.6	2.5	3.2	21.5	21.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	331	872	389	115	441	197	265	2027	620	206	1294	672
V/C Ratio(X)	0.89	0.24	0.18	0.77	0.39	0.23	0.74	0.83	0.12	0.66	0.77	0.77
Avail Cap(c_a), veh/h	371	1958	872	265	1745	778	265	2189	669	207	1402	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	25.9	25.5	39.1	34.3	33.6	38.4	23.2	16.5	39.1	23.4	23.4
Incr Delay (d2), s/veh	19.2	0.1	0.2	4.1	0.6	0.6	9.1	2.6	0.1	5.8	2.5	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	1.6	1.1	1.9	1.6	0.9	2.2	9.2	0.9	1.5	8.1	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	26.0	25.7	43.2	34.9	34.2	47.5	25.8	16.6	44.9	25.9	28.1
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	C	C
Approach Vol, veh/h		570			307			1942			1650	
Approach Delay, s/veh		39.9			37.2			27.6			28.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	39.4	10.0	25.9	11.0	37.9	20.1	15.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	35.8	12.4	46.0	6.4	34.4	17.4	41.0
Max Q Clear Time (g_c+I1), s	5.2	26.6	6.1	5.9	6.6	23.5	15.4	5.7
Green Ext Time (p_c), s	0.0	6.5	0.0	1.5	0.0	6.5	0.1	1.2

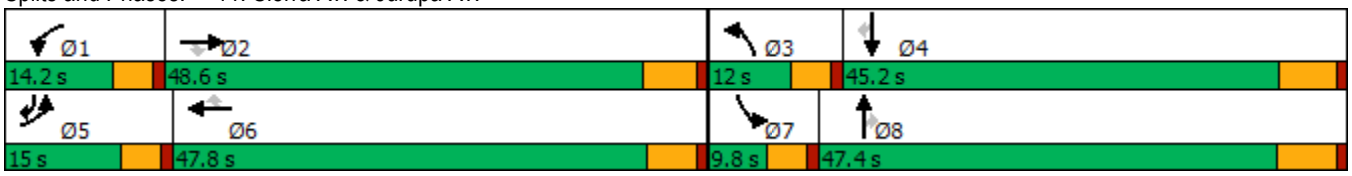
Intersection Summary	
HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	541	355	335	146	293	124	315	1046	102	117	730	315
Future Volume (vph)	541	355	335	146	293	124	315	1046	102	117	730	315
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	15.0	48.6	48.6	14.2	47.8	47.8	12.0	47.4	47.4	9.8	45.2	15.0
Total Split (%)	12.5%	40.5%	40.5%	11.8%	39.8%	39.8%	10.0%	39.5%	39.5%	8.2%	37.7%	12.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 90.8
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	541	355	335	146	293	124	315	1046	102	117	730	315
Future Volume (veh/h)	541	355	335	146	293	124	315	1046	102	117	730	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	558	366	202	151	302	68	325	1078	62	121	753	258
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	486	742	331	234	484	216	346	1373	605	215	1239	775
Arrive On Green	0.14	0.21	0.21	0.07	0.13	0.13	0.10	0.38	0.38	0.06	0.34	0.34
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	3610	1590	3510	3610	1610
Grp Volume(v), veh/h	558	366	202	151	302	68	325	1078	62	121	753	258
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1805	1590	1755	1805	1610
Q Serve(g_s), s	10.4	6.7	8.6	3.2	5.9	2.9	6.9	19.8	1.9	2.5	13.0	7.4
Cycle Q Clear(g_c), s	10.4	6.7	8.6	3.2	5.9	2.9	6.9	19.8	1.9	2.5	13.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	486	742	331	234	484	216	346	1373	605	215	1239	775
V/C Ratio(X)	1.15	0.49	0.61	0.64	0.62	0.32	0.94	0.78	0.10	0.56	0.61	0.33
Avail Cap(c_a), veh/h	486	2055	917	448	2036	908	346	1964	865	243	1873	1058
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	26.4	27.1	34.2	30.8	29.4	33.7	20.6	15.0	34.3	20.5	12.0
Incr Delay (d2), s/veh	88.6	0.5	1.8	1.1	1.3	0.8	32.9	1.4	0.1	0.9	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	2.7	3.1	1.3	2.5	1.0	4.2	7.1	0.6	1.0	4.8	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	121.0	26.9	28.9	35.3	32.1	30.3	66.6	21.9	15.1	35.2	21.0	12.3
LnGrp LOS	F	C	C	D	C	C	E	C	B	D	C	B
Approach Vol, veh/h		1126			521			1465			1132	
Approach Delay, s/veh		73.9			32.8			31.6			20.5	
Approach LOS		E			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	21.3	12.0	32.3	15.0	15.9	9.2	35.1
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	9.6	42.8	7.4	* 39	10.4	* 42	5.2	40.9
Max Q Clear Time (g_c+I1), s	5.2	10.6	8.9	15.0	12.4	7.9	4.5	21.8
Green Ext Time (p_c), s	0.1	2.9	0.0	5.7	0.0	2.1	0.0	6.8

Intersection Summary	
HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.3:

OPENING YEAR CUMULATIVE (2022) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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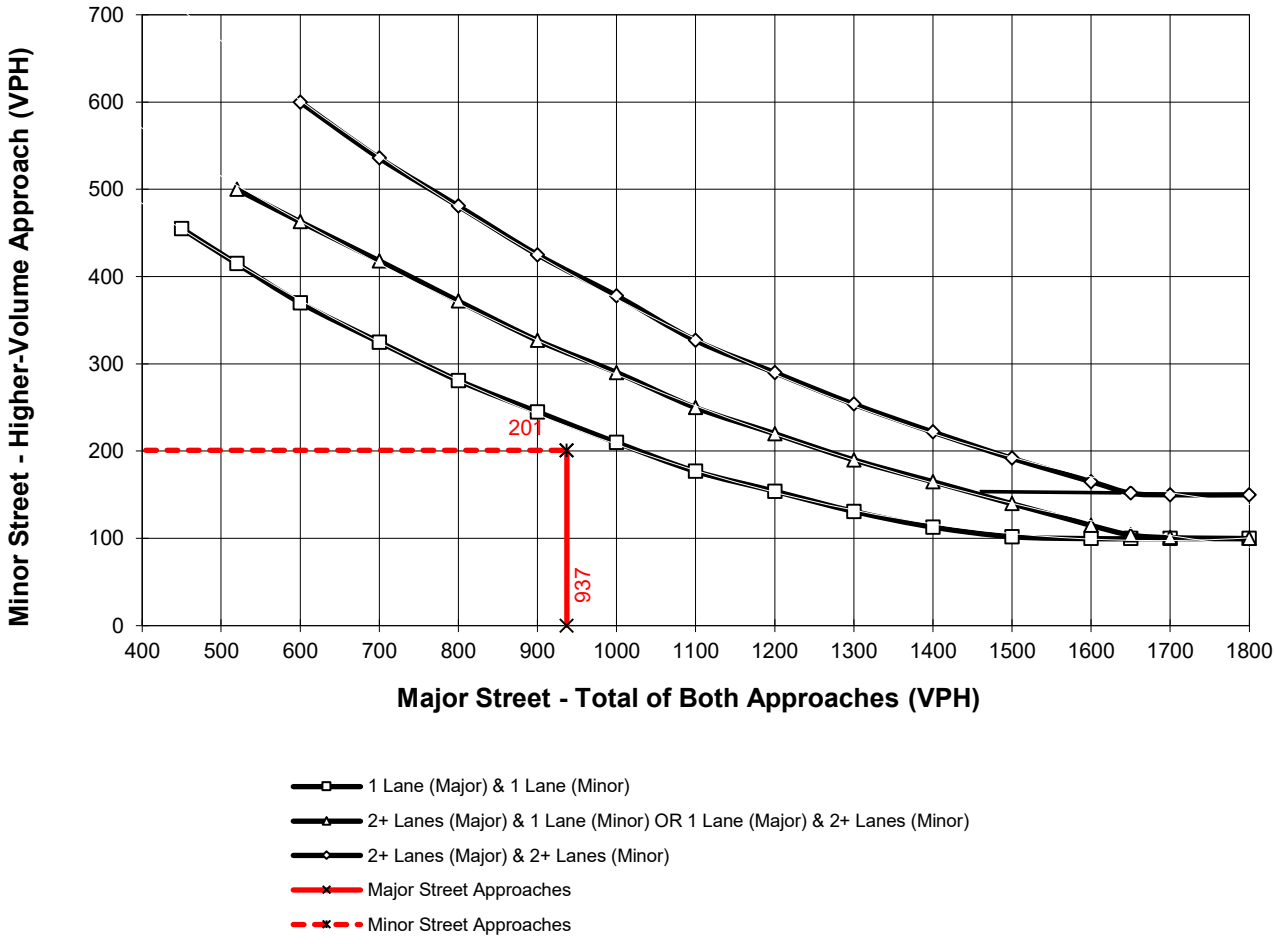
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2022 Without Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Santa Ana Av**
Total of Both Approaches (VPH) = **937**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Juniper Av**
High Volume Approach (VPH) = **201**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.4:

OPENING YEAR CUMULATIVE (2022) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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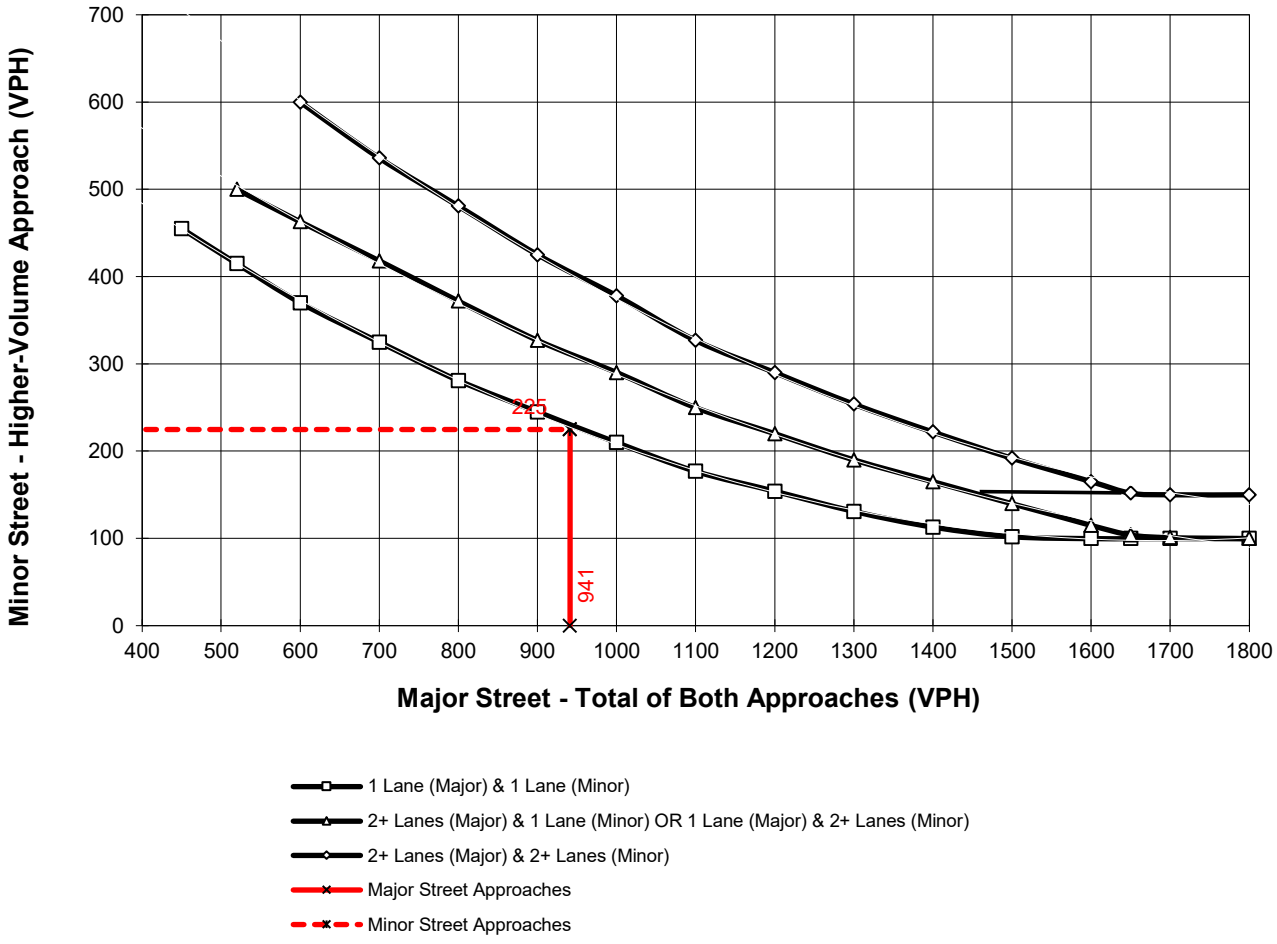
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2022 With Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Santa Ana Av**
Total of Both Approaches (VPH) = **941**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Juniper Av**
High Volume Approach (VPH) = **225**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		2022 WP
				CALC CS	DATE	01/15/20
Jurisdiction: City of Fontana				CHK CS	DATE	01/15/20
Major Street: Juniper Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **3,107** vpd Minor Street Future ADT = **264** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **3,107**	*1* **264**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **3,107**	*1* **264**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A: 11% B: 22%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		2022 WP
				CALC CS	DATE	01/15/20
Jurisdiction: City of Fontana				CHK CS	DATE	01/15/20
Major Street: Juniper Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **3,984** vpd Minor Street Future ADT = **397** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **3,984**	1 **397**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **3,984**	1 **397**	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 17% B 33%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

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APPENDIX 6.5:

OPENING YEAR CUMULATIVE (2022) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	235	31	57	478	15	26	31	32	38	53	15
Future Vol, veh/h	6	235	31	57	478	15	26	31	32	38	53	15
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	8	322	42	78	655	21	36	42	44	52	73	21
Number of Lanes	0	2	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	12.6	19.4	11.5	12.8
HCM LOS	B	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	46%	0%	5%	0%	19%	0%	42%	0%
Vol Thru, %	54%	0%	95%	79%	81%	94%	58%	0%
Vol Right, %	0%	100%	0%	21%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	57	32	124	149	296	254	91	15
LT Vol	26	0	6	0	57	0	38	0
Through Vol	31	0	118	118	239	239	53	0
RT Vol	0	32	0	31	0	15	0	15
Lane Flow Rate	78	44	169	203	405	348	125	21
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.169	0.083	0.308	0.361	0.691	0.58	0.267	0.039
Departure Headway (Hd)	7.797	6.844	6.555	6.382	6.136	5.996	7.698	6.767
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	458	520	545	559	588	598	465	526
Service Time	5.588	4.635	4.334	4.161	3.901	3.761	5.483	4.551
HCM Lane V/C Ratio	0.17	0.085	0.31	0.363	0.689	0.582	0.269	0.04
HCM Control Delay	12.2	10.3	12.3	12.8	21.6	16.8	13.3	9.8
HCM Lane LOS	B	B	B	B	C	C	B	A
HCM 95th-tile Q	0.6	0.3	1.3	1.6	5.4	3.7	1.1	0.1

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	440	27	64	348	54	39	76	110	65	58	6
Future Vol, veh/h	8	440	27	64	348	54	39	76	110	65	58	6
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	494	30	72	391	61	44	85	124	73	65	7
Number of Lanes	0	2	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	16.7	16.5	12.9	14.7
HCM LOS	C	C	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	34%	0%	4%	0%	27%	0%	53%	0%
Vol Thru, %	66%	0%	96%	89%	73%	76%	47%	0%
Vol Right, %	0%	100%	0%	11%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	110	228	247	238	228	123	6
LT Vol	39	0	8	0	64	0	65	0
Through Vol	76	0	220	220	174	174	58	0
RT Vol	0	110	0	27	0	54	0	6
Lane Flow Rate	129	124	256	278	267	256	138	7
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.285	0.242	0.493	0.527	0.524	0.48	0.318	0.014
Departure Headway (Hd)	7.943	7.048	6.928	6.832	7.059	6.752	8.274	7.279
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	452	509	520	527	511	533	434	491
Service Time	5.691	4.796	4.672	4.575	4.805	4.498	6.024	5.029
HCM Lane V/C Ratio	0.285	0.244	0.492	0.528	0.523	0.48	0.318	0.014
HCM Control Delay	13.8	12	16.3	17	17.4	15.6	14.9	10.1
HCM Lane LOS	B	B	C	C	C	C	B	B
HCM 95th-tile Q	1.2	0.9	2.7	3	3	2.6	1.3	0

APPENDIX 7.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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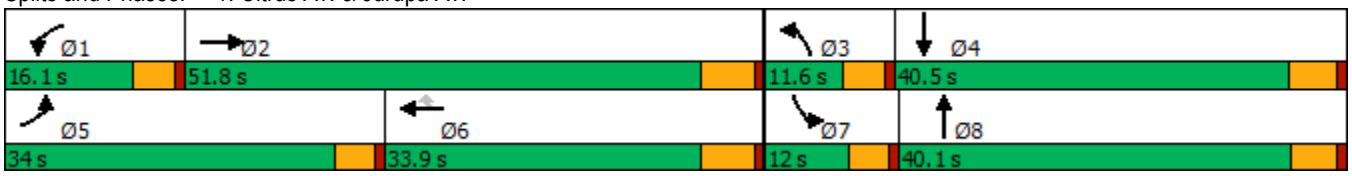
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	554	519	77	696	160	68	334	121	130
Future Volume (vph)	554	519	77	696	160	68	334	121	130
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	34.0	51.8	16.1	33.9	33.9	11.6	40.1	12.0	40.5
Total Split (%)	28.3%	43.2%	13.4%	28.3%	28.3%	9.7%	33.4%	10.0%	33.8%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 99.4
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	554	519	15	77	696	160	68	334	128	121	130	210
Future Volume (veh/h)	554	519	15	77	696	160	68	334	128	121	130	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	602	564	14	84	757	135	74	363	114	132	141	168
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	568	2402	59	108	1076	333	96	492	153	143	375	335
Arrive On Green	0.31	0.46	0.46	0.06	0.21	0.21	0.05	0.18	0.18	0.08	0.21	0.21
Sat Flow, veh/h	1810	5204	129	1810	5187	1606	1810	2712	840	1810	1805	1610
Grp Volume(v), veh/h	602	374	204	84	757	135	74	240	237	132	141	168
Grp Sat Flow(s),veh/h/ln	1810	1729	1875	1810	1729	1606	1810	1805	1747	1810	1805	1610
Q Serve(g_s), s	29.4	6.1	6.1	4.3	12.7	6.8	3.8	11.7	12.0	6.8	6.3	8.6
Cycle Q Clear(g_c), s	29.4	6.1	6.1	4.3	12.7	6.8	3.8	11.7	12.0	6.8	6.3	8.6
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	568	1596	865	108	1076	333	96	328	317	143	375	335
V/C Ratio(X)	1.06	0.23	0.24	0.78	0.70	0.41	0.77	0.73	0.75	0.92	0.38	0.50
Avail Cap(c_a), veh/h	568	1699	921	222	1557	482	135	675	653	143	677	604
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	15.2	15.2	43.4	34.4	32.1	43.8	36.2	36.3	42.8	31.9	32.8
Incr Delay (d2), s/veh	54.5	0.1	0.1	4.4	0.9	0.8	9.8	3.2	3.5	51.9	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.4	2.2	2.4	2.0	5.1	2.6	1.9	5.3	5.3	5.0	2.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.6	15.3	15.4	47.8	35.3	32.9	53.6	39.3	39.8	94.7	32.5	34.0
LnGrp LOS	F	B	B	D	D	C	D	D	D	F	C	C
Approach Vol, veh/h		1180			976			551			441	
Approach Delay, s/veh		51.7			36.0			41.4			51.7	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	49.0	9.5	24.9	34.0	25.2	12.0	22.4
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	11.5	46.0	7.0	35.1	29.4	28.1	7.4	* 35
Max Q Clear Time (g_c+I1), s	6.3	8.1	5.8	10.6	31.4	14.7	8.8	14.0
Green Ext Time (p_c), s	0.0	3.6	0.0	1.7	0.0	4.3	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	45.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	773	853	111	0	244
Future Vol, veh/h	0	773	853	111	0	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	822	907	118	0	260

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	513
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	437
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	437
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

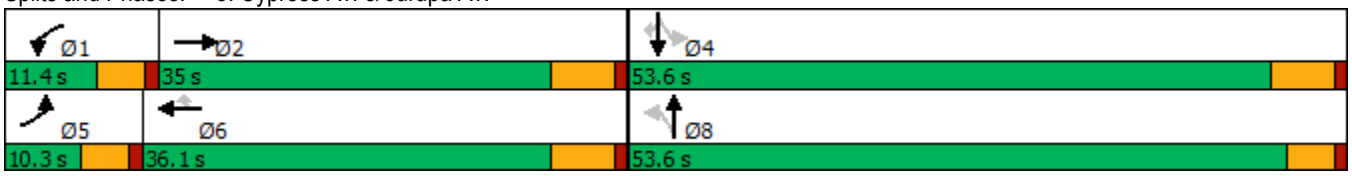
Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.6
HCM LOS			C

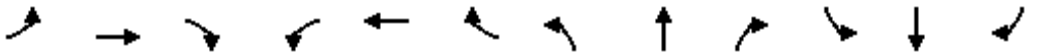
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	437
HCM Lane V/C Ratio	-	-	-	0.594
HCM Control Delay (s)	-	-	-	24.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	3.8

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	169	605	55	803	77	32	88	60	35	94
Future Volume (vph)	169	605	55	803	77	32	88	60	35	94
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.3	35.0	11.4	36.1	36.1	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.3%	35.0%	11.4%	36.1%	36.1%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 56.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	605	16	55	803	77	32	88	143	60	35	94
Future Volume (veh/h)	169	605	16	55	803	77	32	88	143	60	35	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	174	624	16	57	828	66	33	91	96	62	36	62
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	221	1898	49	102	1552	482	433	190	200	316	426	361
Arrive On Green	0.12	0.36	0.36	0.06	0.30	0.30	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1810	5201	133	1810	5187	1610	1318	846	892	1214	1900	1610
Grp Volume(v), veh/h	174	414	226	57	828	66	33	0	187	62	36	62
Grp Sat Flow(s),veh/h/ln	1810	1729	1876	1810	1729	1610	1318	0	1738	1214	1900	1610
Q Serve(g_s), s	4.3	4.0	4.0	1.4	6.1	1.4	0.9	0.0	4.3	2.1	0.7	1.4
Cycle Q Clear(g_c), s	4.3	4.0	4.0	1.4	6.1	1.4	1.6	0.0	4.3	6.4	0.7	1.4
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	221	1262	685	102	1552	482	433	0	390	316	426	361
V/C Ratio(X)	0.79	0.33	0.33	0.56	0.53	0.14	0.08	0.00	0.48	0.20	0.08	0.17
Avail Cap(c_a), veh/h	226	2209	1199	269	3439	1067	1551	0	1863	1314	1987	1684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	10.5	10.5	21.0	13.4	11.7	14.7	0.0	15.4	18.2	14.0	14.3
Incr Delay (d2), s/veh	15.1	0.2	0.3	1.8	0.3	0.1	0.1	0.0	0.9	0.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	1.1	1.2	0.5	1.8	0.4	0.3	0.0	1.6	0.5	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	10.6	10.8	22.8	13.6	11.8	14.7	0.0	16.3	18.5	14.1	14.5
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		814			951			220			160	
Approach Delay, s/veh		15.8			14.1			16.1			16.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	22.5		16.1	10.2	19.5		16.1				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	6.8	29.2		47.8	5.7	30.3		* 49				
Max Q Clear Time (g_c+I1), s	3.4	6.0		8.4	6.3	8.1		6.3				
Green Ext Time (p_c), s	0.0	3.7		0.6	0.0	5.6		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		15.1	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	26.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	258	31	90	525	16	26	33	42	42	52	17
Future Vol, veh/h	7	258	31	90	525	16	26	33	42	42	52	17
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	353	42	123	719	22	36	45	58	58	71	23
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

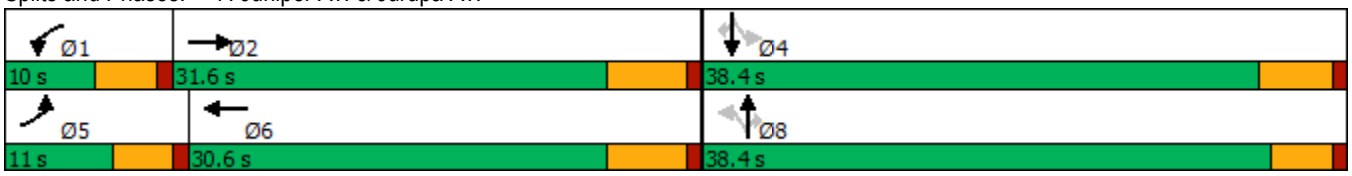
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	26.8	31.1	12.2	13.9
HCM LOS	D	D	B	B

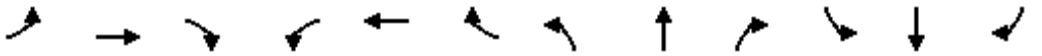
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	44%	0%	2%	26%	0%	45%	0%
Vol Thru, %	56%	0%	87%	74%	94%	55%	0%
Vol Right, %	0%	100%	10%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	59	42	296	353	279	94	17
LT Vol	26	0	7	90	0	42	0
Through Vol	33	0	258	263	263	52	0
RT Vol	0	42	31	0	16	0	17
Lane Flow Rate	81	58	405	483	382	129	23
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.188	0.118	0.745	0.875	0.673	0.296	0.047
Departure Headway (Hd)	8.364	7.411	6.715	6.521	6.35	8.289	7.333
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	486	543	560	572	435	490
Service Time	6.085	5.131	4.715	4.221	4.05	6.011	5.055
HCM Lane V/C Ratio	0.188	0.119	0.746	0.863	0.668	0.297	0.047
HCM Control Delay	13	11.1	26.8	39	21.1	14.5	10.4
HCM Lane LOS	B	B	D	E	C	B	B
HCM 95th-tile Q	0.7	0.4	6.4	9.8	5.1	1.2	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	79	718	14	860	6	6	19	74	7	77
Future Volume (vph)	79	718	14	860	6	6	19	74	7	77
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 51.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	718	3	14	860	85	6	6	19	74	7	77
Future Volume (veh/h)	79	718	3	14	860	85	6	6	19	74	7	77
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	748	2	15	896	86	6	6	9	77	7	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	114	1759	5	32	1366	131	116	86	589	183	11	589
Arrive On Green	0.06	0.33	0.33	0.02	0.28	0.28	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1810	5341	14	1810	4814	460	48	237	1610	156	31	1610
Grp Volume(v), veh/h	82	484	266	15	643	339	12	0	9	84	0	48
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1816	284	0	1610	188	0	1610
Q Serve(g_s), s	2.4	6.0	6.0	0.5	9.0	9.0	0.1	0.0	0.2	2.4	0.0	1.1
Cycle Q Clear(g_c), s	2.4	6.0	6.0	0.5	9.0	9.0	19.0	0.0	0.2	20.1	0.0	1.1
Prop In Lane	1.00		0.01	1.00		0.25	0.50		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	114	1139	625	32	982	516	202	0	589	194	0	589
V/C Ratio(X)	0.72	0.43	0.43	0.47	0.65	0.66	0.06	0.00	0.02	0.43	0.00	0.08
Avail Cap(c_a), veh/h	211	1623	890	178	1560	819	599	0	990	535	0	966
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.3	14.4	14.4	26.7	17.3	17.3	13.8	0.0	11.1	25.1	0.0	11.4
Incr Delay (d2), s/veh	3.1	0.3	0.5	3.9	0.7	1.4	0.1	0.0	0.0	1.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.9	2.1	0.2	3.0	3.3	0.1	0.0	0.1	1.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	14.6	14.8	30.6	18.1	18.8	13.9	0.0	11.1	26.6	0.0	11.5
LnGrp LOS	C	B	B	C	B	B	B	A	B	C	A	B
Approach Vol, veh/h		832			997			21			132	
Approach Delay, s/veh		16.1			18.5			12.7			21.1	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	24.2		26.7	8.1	21.6		26.7				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.5	8.0		22.1	4.4	11.0		21.0				
Green Ext Time (p_c), s	0.0	4.1		0.3	0.0	5.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		17.6	
HCM 6th LOS		B	

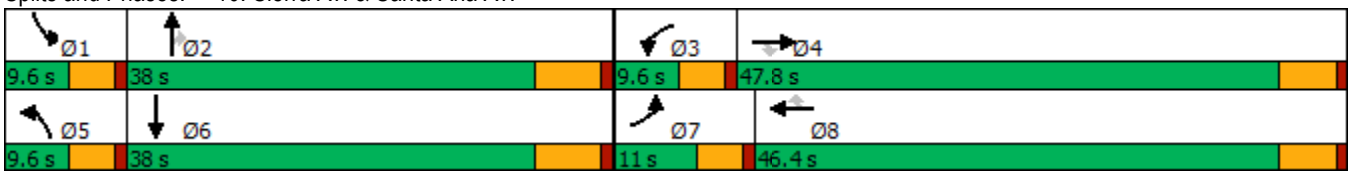
Notes

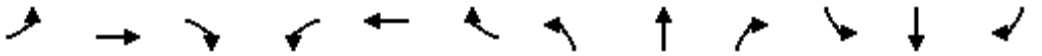
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	153	115	103	57	169	100	122	1413	63	108	913
Future Volume (vph)	153	115	103	57	169	100	122	1413	63	108	913
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	11.0	47.8	47.8	9.6	46.4	46.4	9.6	38.0	38.0	9.6	38.0
Total Split (%)	10.5%	45.5%	45.5%	9.1%	44.2%	44.2%	9.1%	36.2%	36.2%	9.1%	36.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 80
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	115	103	57	169	100	122	1413	63	108	913	354
Future Volume (veh/h)	153	115	103	57	169	100	122	1413	63	108	913	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	168	126	61	63	186	50	134	1553	66	119	1003	370
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	168	673	300	92	522	233	235	2058	630	228	1474	544
Arrive On Green	0.09	0.19	0.19	0.05	0.14	0.14	0.07	0.40	0.40	0.06	0.39	0.39
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1589	3510	3733	1376
Grp Volume(v), veh/h	168	126	61	63	186	50	134	1553	66	119	929	444
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1589	1755	1729	1651
Q Serve(g_s), s	6.4	2.0	2.2	2.4	3.2	1.9	2.6	17.8	1.8	2.3	15.4	15.4
Cycle Q Clear(g_c), s	6.4	2.0	2.2	2.4	3.2	1.9	2.6	17.8	1.8	2.3	15.4	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	168	673	300	92	522	233	235	2058	630	228	1366	652
V/C Ratio(X)	1.00	0.19	0.20	0.69	0.36	0.21	0.57	0.75	0.10	0.52	0.68	0.68
Avail Cap(c_a), veh/h	168	2215	988	131	2141	955	254	2387	731	254	1591	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	23.7	23.8	32.3	26.7	26.1	31.3	17.9	13.1	31.3	17.3	17.3
Incr Delay (d2), s/veh	70.2	0.1	0.3	3.4	0.4	0.5	1.3	1.2	0.1	0.7	1.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.8	0.8	1.1	1.3	0.7	1.0	6.0	0.6	0.9	5.2	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.6	23.8	24.1	35.6	27.1	26.5	32.6	19.1	13.2	32.0	18.3	19.3
LnGrp LOS	F	C	C	D	C	C	C	B	B	C	B	B
Approach Vol, veh/h		355			299			1753			1492	
Approach Delay, s/veh		60.7			28.8			20.0			19.7	
Approach LOS		E			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	33.6	8.1	18.3	9.2	33.5	11.0	15.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	31.8	5.0	42.4	5.0	31.8	6.4	41.0
Max Q Clear Time (g_c+I1), s	4.3	19.8	4.4	4.2	4.6	17.4	8.4	5.2
Green Ext Time (p_c), s	0.0	7.5	0.0	0.9	0.0	7.3	0.0	1.3

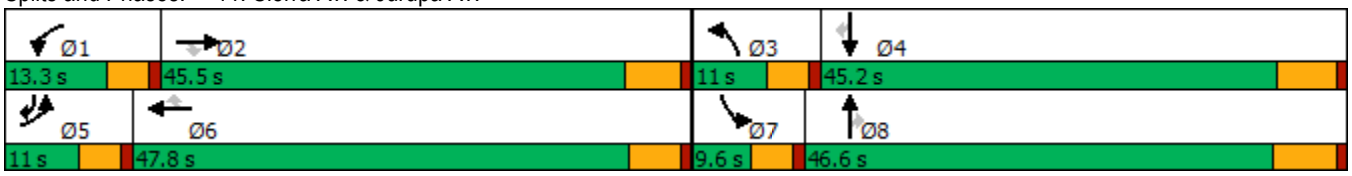
Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

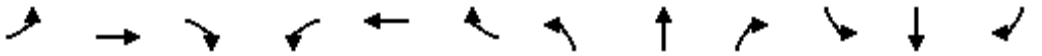
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	295	278	271	153	326	155	332	855	62	59	651	286
Future Volume (vph)	295	278	271	153	326	155	332	855	62	59	651	286
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	11.0	45.5	45.5	13.3	47.8	47.8	11.0	46.6	46.6	9.6	45.2	11.0
Total Split (%)	9.6%	39.6%	39.6%	11.6%	41.6%	41.6%	9.6%	40.5%	40.5%	8.3%	39.3%	9.6%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 76.7
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	295	278	271	153	326	155	332	855	62	59	651	286
Future Volume (veh/h)	295	278	271	153	326	155	332	855	62	59	651	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	304	287	158	158	336	107	342	881	36	61	671	183
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	359	692	309	263	593	264	359	1218	543	183	1037	627
Arrive On Green	0.10	0.19	0.19	0.07	0.16	0.16	0.10	0.34	0.34	0.05	0.29	0.29
Sat Flow, veh/h	3510	3610	1610	3510	3610	1607	3510	3610	1610	3510	3610	1610
Grp Volume(v), veh/h	304	287	158	158	336	107	342	881	36	61	671	183
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1607	1755	1805	1610	1755	1805	1610
Q Serve(g_s), s	5.3	4.4	5.5	2.7	5.4	3.7	6.1	13.4	0.9	1.0	10.2	4.9
Cycle Q Clear(g_c), s	5.3	4.4	5.5	2.7	5.4	3.7	6.1	13.4	0.9	1.0	10.2	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	359	692	309	263	593	264	359	1218	543	183	1037	627
V/C Ratio(X)	0.85	0.41	0.51	0.60	0.57	0.41	0.95	0.72	0.07	0.33	0.65	0.29
Avail Cap(c_a), veh/h	359	2292	1022	488	2448	1090	359	2315	1033	281	2251	1169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	22.2	22.6	28.0	24.1	23.4	27.9	18.2	14.0	28.6	19.5	13.1
Incr Delay (d2), s/veh	16.0	0.4	1.3	0.8	0.9	1.0	34.7	0.8	0.1	0.4	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.7	1.9	1.1	2.1	1.3	3.9	4.5	0.3	0.4	3.6	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	22.6	24.0	28.9	24.9	24.4	62.6	19.0	14.1	29.0	20.2	13.4
LnGrp LOS	D	C	C	C	C	C	E	B	B	C	C	B
Approach Vol, veh/h		749			601			1259			915	
Approach Delay, s/veh		31.4			25.9			30.7			19.4	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	17.8	11.0	24.5	11.0	16.1	7.9	27.6
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	8.7	39.7	6.4	* 39	6.4	* 42	5.0	40.1
Max Q Clear Time (g_c+I1), s	4.7	7.5	8.1	12.2	7.3	7.4	3.0	15.4
Green Ext Time (p_c), s	0.1	2.2	0.0	4.9	0.0	2.5	0.0	5.7

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

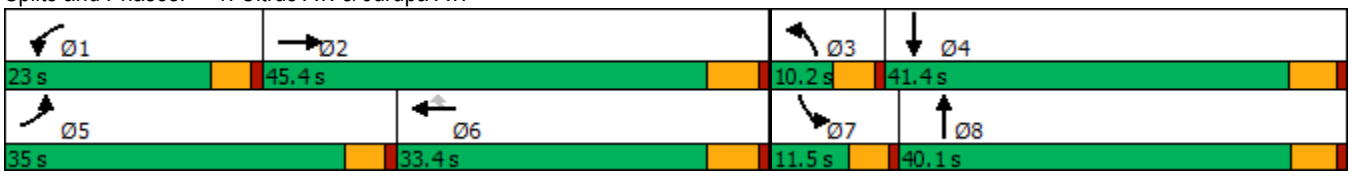
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

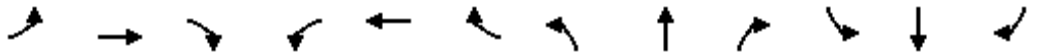
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	492	1010	158	727	188	21	168	137	237
Future Volume (vph)	492	1010	158	727	188	21	168	137	237
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	35.0	45.4	23.0	33.4	33.4	10.2	40.1	11.5	41.4
Total Split (%)	29.2%	37.8%	19.2%	27.8%	27.8%	8.5%	33.4%	9.6%	34.5%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 95
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	492	1010	58	158	727	188	21	168	106	137	237	179
Future Volume (veh/h)	492	1010	58	158	727	188	21	168	106	137	237	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	535	1098	48	172	790	130	23	183	92	149	258	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	573	2162	94	211	1163	361	45	297	143	152	397	245
Arrive On Green	0.32	0.42	0.42	0.12	0.22	0.22	0.02	0.13	0.13	0.08	0.19	0.19
Sat Flow, veh/h	1810	5095	223	1810	5187	1610	1810	2361	1136	1810	2143	1324
Grp Volume(v), veh/h	535	745	401	172	790	130	23	138	137	149	216	207
Grp Sat Flow(s),veh/h/ln	1810	1729	1859	1810	1729	1610	1810	1805	1692	1810	1805	1662
Q Serve(g_s), s	23.5	12.9	13.0	7.6	11.4	5.6	1.0	5.9	6.3	6.7	9.1	9.5
Cycle Q Clear(g_c), s	23.5	12.9	13.0	7.6	11.4	5.6	1.0	5.9	6.3	6.7	9.1	9.5
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.67	1.00		0.80
Lane Grp Cap(c), veh/h	573	1468	789	211	1163	361	45	227	213	152	334	308
V/C Ratio(X)	0.93	0.51	0.51	0.82	0.68	0.36	0.51	0.61	0.64	0.98	0.65	0.67
Avail Cap(c_a), veh/h	672	1672	899	407	1749	543	124	772	723	152	794	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	17.3	17.3	35.3	29.1	26.8	39.4	33.9	34.1	37.4	30.9	31.1
Incr Delay (d2), s/veh	17.4	0.3	0.5	2.9	0.7	0.6	3.3	2.6	3.2	65.5	2.1	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	4.6	5.0	3.3	4.5	2.1	0.5	2.7	2.7	5.6	3.9	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	17.6	17.8	38.2	29.8	27.4	42.7	36.5	37.3	102.9	33.0	33.6
LnGrp LOS	D	B	B	D	C	C	D	D	D	F	C	C
Approach Vol, veh/h		1681			1092			298			572	
Approach Delay, s/veh		26.2			30.8			37.4			51.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	40.5	6.6	20.6	30.5	24.2	11.5	15.7
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	18.4	39.6	5.6	36.0	30.4	27.6	6.9	* 35
Max Q Clear Time (g_c+I1), s	9.6	15.0	3.0	11.5	25.5	13.4	8.7	8.3
Green Ext Time (p_c), s	0.1	7.6	0.0	2.4	0.5	4.6	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	32.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1283	944	280	0	173
Future Vol, veh/h	0	1283	944	280	0	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1395	1026	304	0	188

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	665
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	349
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	349
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

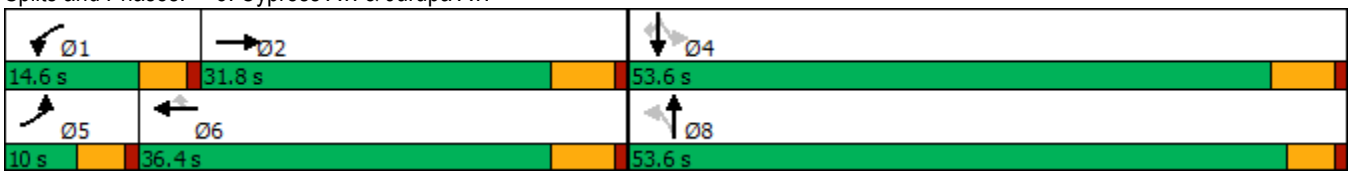
Approach	EB	WB	SB
HCM Control Delay, s	0	0	26.7
HCM LOS			D

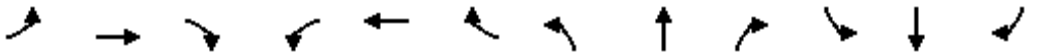
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	349
HCM Lane V/C Ratio	-	-	-	0.539
HCM Control Delay (s)	-	-	-	26.7
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	3

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	166	1164	137	775	78	11	66	128	57	172
Future Volume (vph)	166	1164	137	775	78	11	66	128	57	172
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	31.8	14.6	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	31.8%	14.6%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 68.2
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	1164	27	137	775	78	11	66	75	128	57	172
Future Volume (veh/h)	166	1164	27	137	775	78	11	66	75	128	57	172
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	177	1238	25	146	824	62	12	70	45	136	61	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	191	1904	38	188	1878	583	366	233	150	350	409	347
Arrive On Green	0.11	0.36	0.36	0.10	0.36	0.36	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1810	5233	106	1810	5187	1610	1190	1080	695	1298	1900	1610
Grp Volume(v), veh/h	177	818	445	146	824	62	12	0	115	136	61	149
Grp Sat Flow(s),veh/h/ln	1810	1729	1881	1810	1729	1610	1190	0	1775	1298	1900	1610
Q Serve(g_s), s	5.0	10.1	10.1	4.0	6.2	1.3	0.4	0.0	2.8	5.0	1.3	4.1
Cycle Q Clear(g_c), s	5.0	10.1	10.1	4.0	6.2	1.3	1.8	0.0	2.8	7.8	1.3	4.1
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	191	1258	684	188	1878	583	366	0	382	350	409	347
V/C Ratio(X)	0.93	0.65	0.65	0.78	0.44	0.11	0.03	0.00	0.30	0.39	0.15	0.43
Avail Cap(c_a), veh/h	191	1759	957	354	3106	964	1251	0	1702	1284	1777	1506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	13.5	13.6	22.3	12.4	10.8	17.0	0.0	16.8	20.1	16.3	17.3
Incr Delay (d2), s/veh	43.8	0.6	1.1	2.6	0.2	0.1	0.0	0.0	0.4	0.7	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	3.0	3.4	1.6	1.8	0.4	0.1	0.0	1.1	1.3	0.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	14.1	14.6	24.9	12.5	10.9	17.0	0.0	17.3	20.8	16.4	18.2
LnGrp LOS	E	B	B	C	B	B	B	A	B	C	B	B
Approach Vol, veh/h		1440			1032			127			346	
Approach Delay, s/veh		20.7			14.2			17.2			18.9	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	24.4		16.8	10.0	24.3		16.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	10.0	26.0		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	6.0	12.1		9.8	7.0	8.2		4.8				
Green Ext Time (p_c), s	0.1	6.5		1.2	0.0	5.6		0.8				

Intersection Summary		
HCM 6th Ctrl Delay		18.1
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	57.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	484	39	87	383	60	49	76	112	71	61	7
Future Vol, veh/h	10	484	39	87	383	60	49	76	112	71	61	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	544	44	98	430	67	55	85	126	80	69	8
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

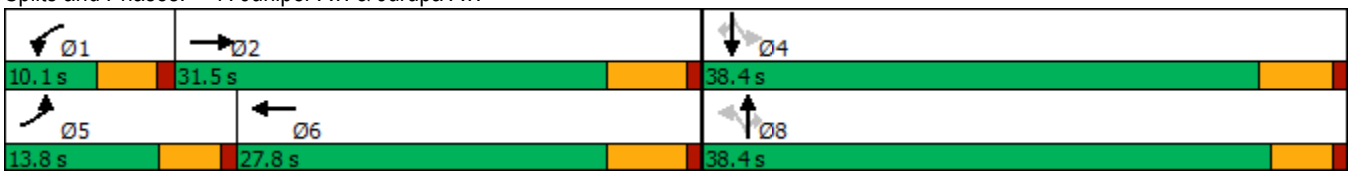
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	124.5	20.7	14.6	16.6
HCM LOS	F	C	B	C

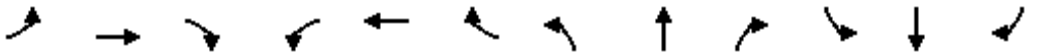
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	39%	0%	2%	31%	0%	54%	0%
Vol Thru, %	61%	0%	91%	69%	76%	46%	0%
Vol Right, %	0%	100%	7%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	112	533	279	252	132	7
LT Vol	49	0	10	87	0	71	0
Through Vol	76	0	484	192	192	61	0
RT Vol	0	112	39	0	60	0	7
Lane Flow Rate	140	126	599	313	283	148	8
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.323	0.258	1.18	0.631	0.545	0.355	0.017
Departure Headway (Hd)	8.822	7.887	7.096	7.662	7.329	9.189	8.175
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	410	458	509	476	495	395	440
Service Time	6.522	5.587	5.177	5.362	5.029	6.889	5.875
HCM Lane V/C Ratio	0.341	0.275	1.177	0.658	0.572	0.375	0.018
HCM Control Delay	15.7	13.3	124.5	22.6	18.5	16.9	11
HCM Lane LOS	C	B	F	C	C	C	B
HCM 95th-tile Q	1.4	1	21.6	4.3	3.2	1.6	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	110	1258	32	860	8	17	6	93	25	117
Future Volume (vph)	110	1258	32	860	8	17	6	93	25	117
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	13.8	31.5	10.1	27.8	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	17.3%	39.4%	12.6%	34.8%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 54.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	1258	6	32	860	84	8	17	6	93	25	117
Future Volume (veh/h)	110	1258	6	32	860	84	8	17	6	93	25	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	120	1367	7	35	935	86	9	18	4	101	27	81
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	155	2137	11	71	1713	157	184	305	359	386	88	357
Arrive On Green	0.09	0.40	0.40	0.04	0.35	0.35	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1810	5326	27	1810	4833	443	364	1368	1610	1118	396	1604
Grp Volume(v), veh/h	120	888	486	35	668	353	27	0	4	128	0	81
Grp Sat Flow(s),veh/h/ln	1810	1729	1895	1810	1729	1819	1733	0	1610	1513	0	1604
Q Serve(g_s), s	3.0	9.7	9.7	0.9	7.3	7.3	0.0	0.0	0.1	2.7	0.0	1.9
Cycle Q Clear(g_c), s	3.0	9.7	9.7	0.9	7.3	7.3	0.5	0.0	0.1	3.3	0.0	1.9
Prop In Lane	1.00		0.01	1.00		0.24	0.33		1.00	0.79		1.00
Lane Grp Cap(c), veh/h	155	1387	760	71	1226	645	489	0	359	475	0	357
V/C Ratio(X)	0.77	0.64	0.64	0.50	0.55	0.55	0.06	0.00	0.01	0.27	0.00	0.23
Avail Cap(c_a), veh/h	355	1895	1038	212	1622	853	1309	0	1160	1192	0	1128
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	11.3	11.3	22.1	12.1	12.1	14.4	0.0	14.2	15.4	0.0	14.9
Incr Delay (d2), s/veh	3.1	0.5	0.9	2.0	0.4	0.7	0.0	0.0	0.0	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.6	2.9	0.4	2.1	2.2	0.2	0.0	0.0	1.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.1	11.8	12.2	24.1	12.5	12.9	14.4	0.0	14.2	15.7	0.0	15.2
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1494			1056			31			209	
Approach Delay, s/veh		12.9			13.0			14.4			15.5	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	24.6		15.9	8.6	22.4		15.9				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.5	25.7		33.0	9.2	22.0		* 34				
Max Q Clear Time (g_c+I1), s	2.9	11.7		5.3	5.0	9.3		2.5				
Green Ext Time (p_c), s	0.0	7.1		0.9	0.0	5.0		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		13.2
HCM 6th LOS		B

Notes

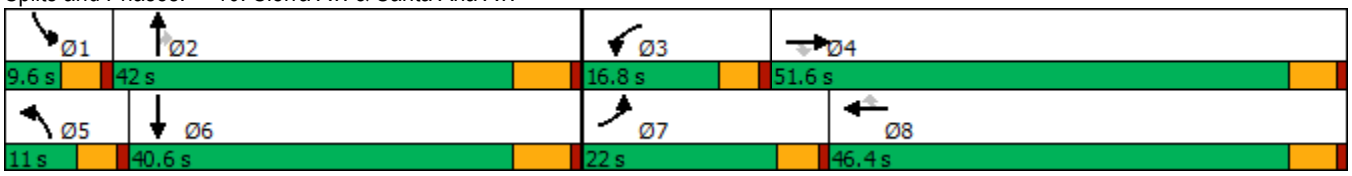
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

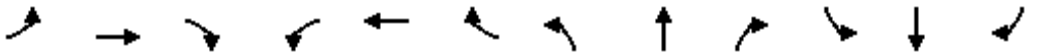
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	310	215	181	92	186	92	210	1794	82	185	1448
Future Volume (vph)	310	215	181	92	186	92	210	1794	82	185	1448
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	22.0	51.6	51.6	16.8	46.4	46.4	11.0	42.0	42.0	9.6	40.6
Total Split (%)	18.3%	43.0%	43.0%	14.0%	38.7%	38.7%	9.2%	35.0%	35.0%	8.0%	33.8%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 95.4
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	215	181	92	186	92	210	1794	82	185	1448	194
Future Volume (veh/h)	310	215	181	92	186	92	210	1794	82	185	1448	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	316	219	87	94	190	56	214	1831	76	189	1478	183
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	350	882	393	121	425	190	255	2055	629	199	1779	220
Arrive On Green	0.19	0.24	0.24	0.07	0.12	0.12	0.07	0.40	0.40	0.06	0.38	0.38
Sat Flow, veh/h	1810	3610	1608	1810	3610	1610	3510	5187	1586	3510	4675	578
Grp Volume(v), veh/h	316	219	87	94	190	56	214	1831	76	189	1093	568
Grp Sat Flow(s),veh/h/ln	1810	1805	1608	1810	1805	1610	1755	1729	1586	1755	1729	1796
Q Serve(g_s), s	15.1	4.3	3.8	4.5	4.3	2.8	5.3	29.1	2.7	4.7	25.3	25.3
Cycle Q Clear(g_c), s	15.1	4.3	3.8	4.5	4.3	2.8	5.3	29.1	2.7	4.7	25.3	25.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	350	882	393	121	425	190	255	2055	629	199	1315	683
V/C Ratio(X)	0.90	0.25	0.22	0.78	0.45	0.30	0.84	0.89	0.12	0.95	0.83	0.83
Avail Cap(c_a), veh/h	357	1891	842	250	1678	748	255	2105	644	199	1349	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	26.8	26.6	40.5	36.2	35.6	40.4	24.8	16.9	41.5	24.8	24.8
Incr Delay (d2), s/veh	24.2	0.1	0.3	4.0	0.7	0.9	20.4	5.1	0.1	49.0	4.5	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	1.8	1.4	2.1	1.9	1.1	2.9	11.4	0.9	3.3	9.9	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	27.0	26.9	44.5	37.0	36.4	60.8	30.0	17.0	90.5	29.2	33.0
LnGrp LOS	E	C	C	D	D	D	E	C	B	F	C	C
Approach Vol, veh/h		622			340			2121			1850	
Approach Delay, s/veh		43.2			39.0			32.6			36.6	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	41.2	10.5	27.0	11.0	39.8	21.7	15.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	35.8	12.2	46.2	6.4	34.4	17.4	41.0
Max Q Clear Time (g_c+I1), s	6.7	31.1	6.5	6.3	7.3	27.3	17.1	6.3
Green Ext Time (p_c), s	0.0	3.9	0.0	1.6	0.0	5.1	0.0	1.3

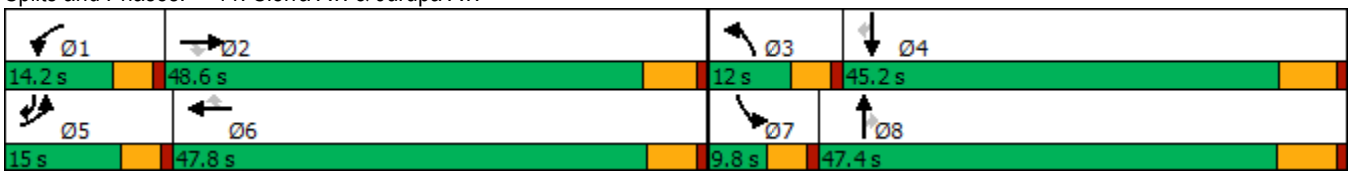
Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

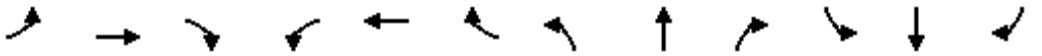
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	578	389	359	160	322	136	343	1151	112	128	803	337
Future Volume (vph)	578	389	359	160	322	136	343	1151	112	128	803	337
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	15.0	48.6	48.6	14.2	47.8	47.8	12.0	47.4	47.4	9.8	45.2	15.0
Total Split (%)	12.5%	40.5%	40.5%	11.8%	39.8%	39.8%	10.0%	39.5%	39.5%	8.2%	37.7%	12.5%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 97.3
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	578	389	359	160	322	136	343	1151	112	128	803	337
Future Volume (veh/h)	578	389	359	160	322	136	343	1151	112	128	803	337
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	596	401	227	165	332	80	354	1187	72	132	828	280
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	454	725	323	246	510	228	323	1453	640	207	1334	803
Arrive On Green	0.13	0.20	0.20	0.07	0.14	0.14	0.09	0.40	0.40	0.06	0.37	0.37
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	3610	1590	3510	3610	1610
Grp Volume(v), veh/h	596	401	227	165	332	80	354	1187	72	132	828	280
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1805	1590	1755	1805	1610
Q Serve(g_s), s	10.4	8.0	10.5	3.7	7.0	3.6	7.4	23.5	2.3	3.0	15.1	8.5
Cycle Q Clear(g_c), s	10.4	8.0	10.5	3.7	7.0	3.6	7.4	23.5	2.3	3.0	15.1	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	454	725	323	246	510	228	323	1453	640	207	1334	803
V/C Ratio(X)	1.31	0.55	0.70	0.67	0.65	0.35	1.09	0.82	0.11	0.64	0.62	0.35
Avail Cap(c_a), veh/h	454	1923	858	419	1905	850	323	1838	809	227	1752	990
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.0	28.9	29.9	36.4	32.6	31.2	36.5	21.4	15.0	37.0	20.7	12.2
Incr Delay (d2), s/veh	155.3	0.7	2.8	1.2	1.4	0.9	77.9	2.4	0.1	3.4	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	3.3	3.9	1.5	3.0	1.3	6.4	8.7	0.7	1.3	5.6	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	190.2	29.5	32.7	37.6	34.0	32.1	114.4	23.7	15.1	40.4	21.2	12.5
LnGrp LOS	F	C	C	D	C	C	F	C	B	D	C	B
Approach Vol, veh/h		1224			577			1613			1240	
Approach Delay, s/veh		108.4			34.8			43.2			21.3	
Approach LOS		F			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	21.9	12.0	36.2	15.0	17.2	9.3	38.8
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	9.6	42.8	7.4	* 39	10.4	* 42	5.2	40.9
Max Q Clear Time (g_c+I1), s	5.7	12.5	9.4	17.1	12.4	9.0	5.0	25.5
Green Ext Time (p_c), s	0.1	3.3	0.0	6.2	0.0	2.4	0.0	6.8

Intersection Summary	
HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 7.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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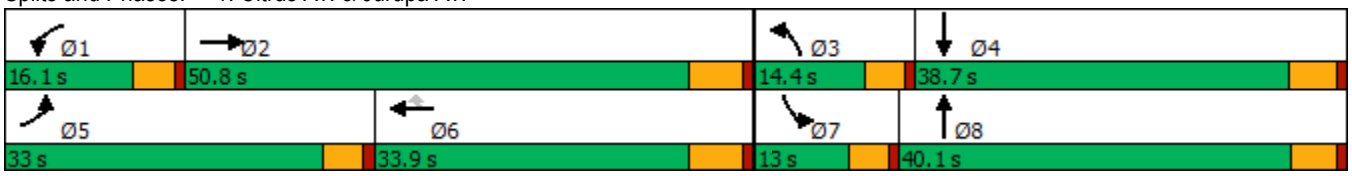
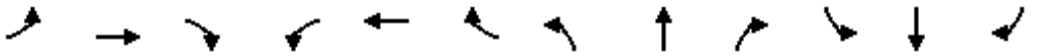
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	554	537	77	701	165	68	334	138	130
Future Volume (vph)	554	537	77	701	165	68	334	138	130
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	33.0	50.8	16.1	33.9	33.9	14.4	40.1	13.0	38.7
Total Split (%)	27.5%	42.3%	13.4%	28.3%	28.3%	12.0%	33.4%	10.8%	32.3%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	5.1	4.6	5.4
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 99.5
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	554	537	15	77	701	165	68	334	128	138	130	210
Future Volume (veh/h)	554	537	15	77	701	165	68	334	128	138	130	210
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	602	584	14	84	762	140	74	363	114	150	141	168
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	548	2352	56	108	1082	335	96	492	152	162	394	351
Arrive On Green	0.30	0.45	0.45	0.06	0.21	0.21	0.05	0.18	0.18	0.09	0.22	0.22
Sat Flow, veh/h	1810	5209	125	1810	5187	1606	1810	2712	840	1810	1805	1610
Grp Volume(v), veh/h	602	387	211	84	762	140	74	240	237	150	141	168
Grp Sat Flow(s),veh/h/ln	1810	1729	1876	1810	1729	1606	1810	1805	1747	1810	1805	1610
Q Serve(g_s), s	28.4	6.5	6.5	4.3	12.8	7.1	3.8	11.8	12.1	7.7	6.2	8.5
Cycle Q Clear(g_c), s	28.4	6.5	6.5	4.3	12.8	7.1	3.8	11.8	12.1	7.7	6.2	8.5
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	548	1561	847	108	1082	335	96	328	317	162	394	351
V/C Ratio(X)	1.10	0.25	0.25	0.78	0.70	0.42	0.77	0.73	0.75	0.93	0.36	0.48
Avail Cap(c_a), veh/h	548	1659	900	222	1554	481	189	674	652	162	641	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	15.9	15.9	43.5	34.4	32.2	43.8	36.2	36.3	42.4	31.1	32.0
Incr Delay (d2), s/veh	68.1	0.1	0.2	4.4	0.9	0.8	4.9	3.2	3.5	48.6	0.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.8	2.4	2.6	2.0	5.2	2.8	1.8	5.3	5.3	5.5	2.7	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.8	16.0	16.0	47.9	35.3	33.0	48.7	39.4	39.9	90.9	31.6	33.0
LnGrp LOS	F	B	B	D	D	C	D	D	D	F	C	C
Approach Vol, veh/h		1200			986			551			459	
Approach Delay, s/veh		58.6			36.0			40.9			51.5	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	48.1	9.6	25.9	33.0	25.4	13.0	22.4
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	11.5	45.0	9.8	33.3	28.4	28.1	8.4	* 35
Max Q Clear Time (g_c+I1), s	6.3	8.5	5.8	10.5	30.4	14.8	9.7	14.1
Green Ext Time (p_c), s	0.0	3.7	0.0	1.7	0.0	4.4	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	808	864	111	0	244
Future Vol, veh/h	0	808	864	111	0	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	860	919	118	0	260

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	519
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	434
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	434
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	24.9
HCM LOS			C

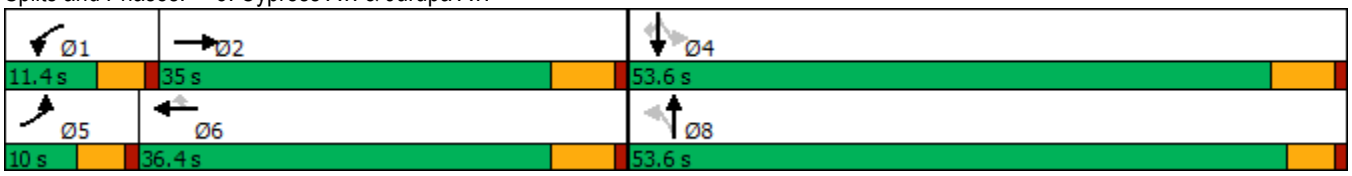
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	434
HCM Lane V/C Ratio	-	-	-	0.598
HCM Control Delay (s)	-	-	-	24.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	3.8

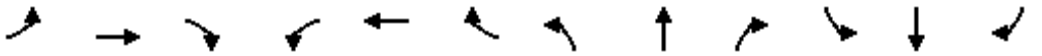
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	169	640	55	814	77	32	88	60	35	94
Future Volume (vph)	169	640	55	814	77	32	88	60	35	94
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	35.0	11.4	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	35.0%	11.4%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 56
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	640	16	55	814	77	32	88	143	60	35	94
Future Volume (veh/h)	169	640	16	55	814	77	32	88	143	60	35	94
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	174	660	16	57	839	66	33	91	96	62	36	62
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	214	1900	46	102	1571	488	434	190	200	317	426	361
Arrive On Green	0.12	0.36	0.36	0.06	0.30	0.30	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1810	5209	126	1810	5187	1610	1318	846	892	1214	1900	1610
Grp Volume(v), veh/h	174	438	238	57	839	66	33	0	187	62	36	62
Grp Sat Flow(s),veh/h/ln	1810	1729	1877	1810	1729	1610	1318	0	1738	1214	1900	1610
Q Serve(g_s), s	4.3	4.2	4.2	1.4	6.1	1.4	0.9	0.0	4.3	2.1	0.7	1.4
Cycle Q Clear(g_c), s	4.3	4.2	4.2	1.4	6.1	1.4	1.6	0.0	4.3	6.4	0.7	1.4
Prop In Lane	1.00		0.07	1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	214	1261	685	102	1571	488	434	0	390	317	426	361
V/C Ratio(X)	0.81	0.35	0.35	0.56	0.53	0.14	0.08	0.00	0.48	0.20	0.08	0.17
Avail Cap(c_a), veh/h	214	2210	1200	269	3474	1078	1551	0	1864	1315	1988	1685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	10.6	10.6	21.0	13.2	11.6	14.6	0.0	15.4	18.2	14.0	14.3
Incr Delay (d2), s/veh	19.6	0.2	0.3	1.8	0.3	0.1	0.1	0.0	0.9	0.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	1.2	1.3	0.5	1.8	0.4	0.3	0.0	1.6	0.5	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	10.7	10.9	22.8	13.5	11.7	14.7	0.0	16.3	18.5	14.1	14.5
LnGrp LOS	D	B	B	C	B	B	B	A	B	B	B	B
Approach Vol, veh/h		850			962			220			160	
Approach Delay, s/veh		16.6			14.0			16.1			16.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	22.5		16.1	10.0	19.6		16.1				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	6.8	29.2		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	3.4	6.2		8.4	6.3	8.1		6.3				
Green Ext Time (p_c), s	0.0	4.0		0.6	0.0	5.7		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		15.3	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	29
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	258	38	93	525	16	28	34	45	42	57	17
Future Vol, veh/h	7	258	38	93	525	16	28	34	45	42	57	17
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	353	52	127	719	22	38	47	62	58	78	23
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	30.2	33.9	12.5	14.3
HCM LOS	D	D	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	45%	0%	2%	26%	0%	42%	0%
Vol Thru, %	55%	0%	85%	74%	94%	58%	0%
Vol Right, %	0%	100%	13%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	45	303	356	279	99	17
LT Vol	28	0	7	93	0	42	0
Through Vol	34	0	258	263	263	57	0
RT Vol	0	45	38	0	16	0	17
Lane Flow Rate	85	62	415	487	382	136	23
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.2	0.128	0.784	0.898	0.685	0.315	0.048
Departure Headway (Hd)	8.457	7.496	6.797	6.639	6.465	8.364	7.419
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	478	535	550	561	430	483
Service Time	6.199	5.239	4.805	4.353	4.178	6.106	5.16
HCM Lane V/C Ratio	0.2	0.13	0.776	0.885	0.681	0.316	0.048
HCM Control Delay	13.3	11.3	30.2	43.1	22.1	14.9	10.5
HCM Lane LOS	B	B	D	E	C	B	B
HCM 95th-tile Q	0.7	0.4	7.2	10.5	5.3	1.3	0.2

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	0	1	4	0	3	2	101	17	6	170	11
Future Vol, veh/h	3	0	1	4	0	3	2	101	17	6	170	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	1	4	0	3	2	110	18	7	185	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	330	337	191	329	334	119	197	0	0	128	0	0
Stage 1	205	205	-	123	123	-	-	-	-	-	-	-
Stage 2	125	132	-	206	211	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	627	587	856	628	589	938	1388	-	-	1470	-	-
Stage 1	802	736	-	886	798	-	-	-	-	-	-	-
Stage 2	884	791	-	801	731	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	621	583	856	624	585	938	1388	-	-	1470	-	-
Mov Cap-2 Maneuver	621	583	-	624	585	-	-	-	-	-	-	-
Stage 1	800	732	-	884	796	-	-	-	-	-	-	-
Stage 2	879	789	-	796	727	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	10	0.1	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1388	-	-	667	729	1470	-	-
HCM Lane V/C Ratio	0.002	-	-	0.007	0.01	0.004	-	-
HCM Control Delay (s)	7.6	0	-	10.4	10	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	8	8	0	3	25	159	28	8	159	7
Future Vol, veh/h	2	0	8	8	0	3	25	159	28	8	159	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	9	9	0	3	27	173	30	9	173	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	439	452	177	442	441	188	181	0	0	203	0	0
Stage 1	195	195	-	242	242	-	-	-	-	-	-	-
Stage 2	244	257	-	200	199	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	532	506	871	529	513	859	1407	-	-	1381	-	-
Stage 1	811	743	-	766	709	-	-	-	-	-	-	-
Stage 2	764	699	-	806	740	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	518	491	871	512	498	859	1407	-	-	1381	-	-
Mov Cap-2 Maneuver	518	491	-	512	498	-	-	-	-	-	-	-
Stage 1	793	738	-	749	693	-	-	-	-	-	-	-
Stage 2	744	684	-	792	735	-	-	-	-	-	-	-

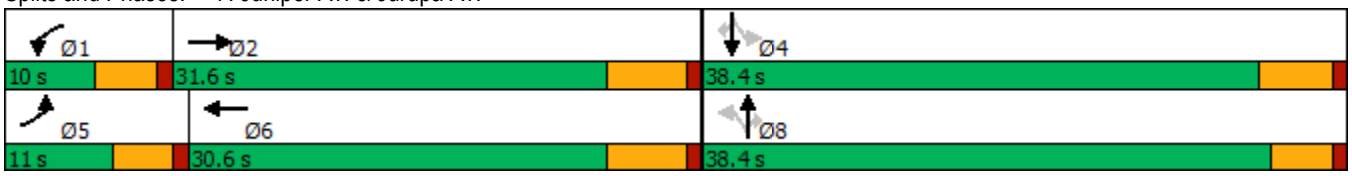
Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	11.4	0.9	0.4
HCM LOS	A	B		

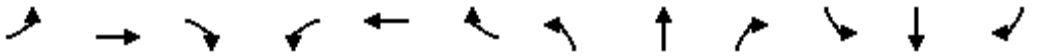
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1407	-	-	767	575	1381	-	-
HCM Lane V/C Ratio	0.019	-	-	0.014	0.021	0.006	-	-
HCM Control Delay (s)	7.6	0	-	9.8	11.4	7.6	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	114	718	14	864	6	6	19	80	7	83
Future Volume (vph)	114	718	14	864	6	6	19	80	7	83
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8		4.6	4.6		5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 54.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	718	3	14	864	96	6	6	19	80	7	83
Future Volume (veh/h)	114	718	3	14	864	96	6	6	19	80	7	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	119	748	2	15	900	97	6	6	9	83	7	54
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	146	1760	5	32	1266	136	96	72	663	149	9	663
Arrive On Green	0.08	0.33	0.33	0.02	0.27	0.27	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1810	5341	14	1810	4754	511	33	174	1610	105	21	1610
Grp Volume(v), veh/h	119	484	266	15	654	343	12	0	9	90	0	54
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1807	207	0	1610	126	0	1610
Q Serve(g_s), s	4.2	7.2	7.2	0.5	11.2	11.3	0.2	0.0	0.2	2.1	0.0	1.3
Cycle Q Clear(g_c), s	4.2	7.2	7.2	0.5	11.2	11.3	26.0	0.0	0.2	27.0	0.0	1.3
Prop In Lane	1.00		0.01	1.00		0.28	0.50		1.00	0.92		1.00
Lane Grp Cap(c), veh/h	146	1139	625	32	921	481	168	0	663	157	0	663
V/C Ratio(X)	0.81	0.42	0.43	0.47	0.71	0.71	0.07	0.00	0.01	0.57	0.00	0.08
Avail Cap(c_a), veh/h	177	1362	747	149	1309	684	333	0	831	291	0	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	17.1	17.1	31.9	21.7	21.8	15.8	0.0	11.4	30.7	0.0	11.7
Incr Delay (d2), s/veh	17.8	0.3	0.5	4.0	1.0	2.0	0.2	0.0	0.0	3.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.5	2.8	0.3	4.1	4.4	0.1	0.0	0.1	1.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	17.4	17.6	35.9	22.8	23.8	16.0	0.0	11.4	34.0	0.0	11.8
LnGrp LOS	D	B	B	D	C	C	B	A	B	C	A	B
Approach Vol, veh/h		869			1012			21			144	
Approach Delay, s/veh		21.6			23.3			14.0			25.7	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	27.7		33.5	10.0	23.5		33.5				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.5	9.2		29.0	6.2	13.3		28.0				
Green Ext Time (p_c), s	0.0	4.0		0.2	0.0	4.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		22.6	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	817	972	5	0	1
Future Vol, veh/h	0	817	972	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	888	1057	5	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	531
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	426
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	426
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	426
HCM Lane V/C Ratio	-	-	-	0.003
HCM Control Delay (s)	-	-	-	13.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	817	974	9	0	3
Future Vol, veh/h	0	817	974	9	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	888	1059	10	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	535
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	423
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	423
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

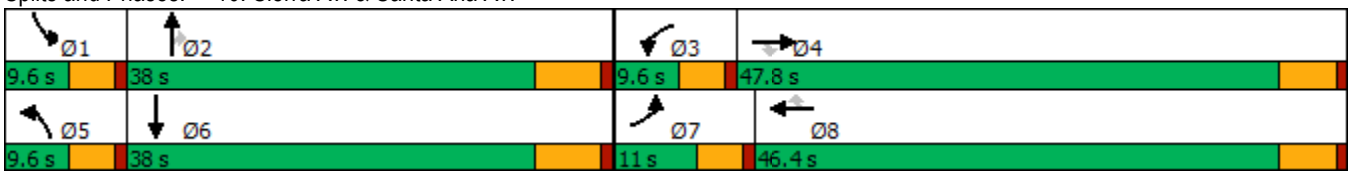
Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.6
HCM LOS			B

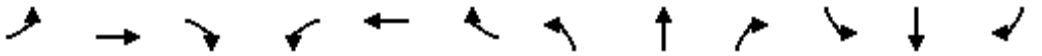
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	423
HCM Lane V/C Ratio	-	-	-	0.008
HCM Control Delay (s)	-	-	-	13.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	154	116	103	65	169	100	122	1415	64	108	923
Future Volume (vph)	154	116	103	65	169	100	122	1415	64	108	923
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	11.0	47.8	47.8	9.6	46.4	46.4	9.6	38.0	38.0	9.6	38.0
Total Split (%)	10.5%	45.5%	45.5%	9.1%	44.2%	44.2%	9.1%	36.2%	36.2%	9.1%	36.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 80.1
Natural Cycle: 105
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	154	116	103	65	169	100	122	1415	64	108	923	357
Future Volume (veh/h)	154	116	103	65	169	100	122	1415	64	108	923	357
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	169	127	61	71	186	50	134	1555	67	119	1014	373
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	167	662	295	97	522	233	234	2059	631	228	1476	543
Arrive On Green	0.09	0.18	0.18	0.05	0.14	0.14	0.07	0.40	0.40	0.06	0.40	0.40
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1589	3510	3736	1374
Grp Volume(v), veh/h	169	127	61	71	186	50	134	1555	67	119	939	448
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1589	1755	1729	1651
Q Serve(g_s), s	6.4	2.1	2.2	2.7	3.2	1.9	2.6	17.8	1.8	2.3	15.6	15.6
Cycle Q Clear(g_c), s	6.4	2.1	2.2	2.7	3.2	1.9	2.6	17.8	1.8	2.3	15.6	15.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.83
Lane Grp Cap(c), veh/h	167	662	295	97	522	233	234	2059	631	228	1367	653
V/C Ratio(X)	1.01	0.19	0.21	0.73	0.36	0.21	0.57	0.76	0.11	0.52	0.69	0.69
Avail Cap(c_a), veh/h	167	2214	987	131	2141	955	254	2386	731	254	1590	760
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	23.9	24.0	32.2	26.7	26.1	31.3	17.9	13.1	31.3	17.4	17.4
Incr Delay (d2), s/veh	71.9	0.1	0.3	7.4	0.4	0.5	1.3	1.2	0.1	0.7	1.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.8	0.8	1.3	1.3	0.7	1.0	6.0	0.6	0.9	5.2	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.3	24.0	24.3	39.6	27.1	26.6	32.6	19.2	13.2	32.0	18.4	19.5
LnGrp LOS	F	C	C	D	C	C	C	B	B	C	B	B
Approach Vol, veh/h		357			307			1756			1506	
Approach Delay, s/veh		61.6			29.9			20.0			19.8	
Approach LOS		E			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	33.7	8.3	18.1	9.2	33.5	11.0	15.4
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	31.8	5.0	42.4	5.0	31.8	6.4	41.0
Max Q Clear Time (g_c+I1), s	4.3	19.8	4.7	4.2	4.6	17.6	8.4	5.2
Green Ext Time (p_c), s	0.0	7.5	0.0	0.9	0.0	7.3	0.0	1.3

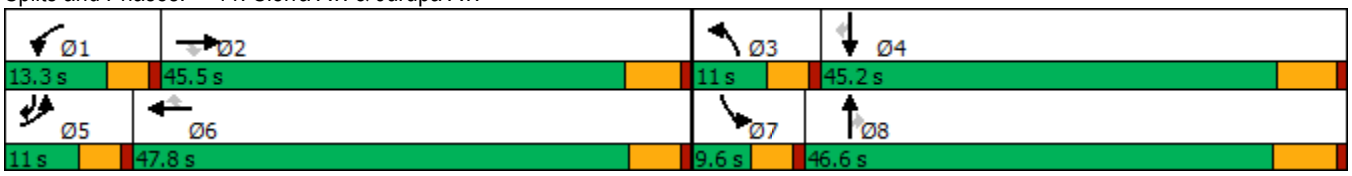
Intersection Summary	
HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

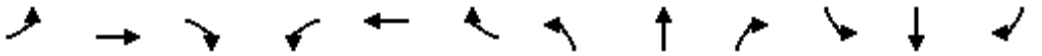
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	298	278	273	153	327	155	338	855	62	59	651	304
Future Volume (vph)	298	278	273	153	327	155	338	855	62	59	651	304
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	11.0	45.5	45.5	13.3	47.8	47.8	11.0	46.6	46.6	9.6	45.2	11.0
Total Split (%)	9.6%	39.6%	39.6%	11.6%	41.6%	41.6%	9.6%	40.5%	40.5%	8.3%	39.3%	9.6%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (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
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.4	5.4	4.6	6.5	6.5	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 76.8
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	278	273	153	327	155	338	855	62	59	651	304
Future Volume (veh/h)	298	278	273	153	327	155	338	855	62	59	651	304
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	307	287	160	158	337	107	348	881	36	61	671	201
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	359	692	309	263	593	264	359	1218	543	183	1037	627
Arrive On Green	0.10	0.19	0.19	0.07	0.16	0.16	0.10	0.34	0.34	0.05	0.29	0.29
Sat Flow, veh/h	3510	3610	1610	3510	3610	1607	3510	3610	1610	3510	3610	1610
Grp Volume(v), veh/h	307	287	160	158	337	107	348	881	36	61	671	201
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1607	1755	1805	1610	1755	1805	1610
Q Serve(g_s), s	5.4	4.4	5.6	2.7	5.4	3.7	6.2	13.4	0.9	1.0	10.2	5.4
Cycle Q Clear(g_c), s	5.4	4.4	5.6	2.7	5.4	3.7	6.2	13.4	0.9	1.0	10.2	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	359	692	309	263	593	264	359	1218	543	183	1037	627
V/C Ratio(X)	0.85	0.41	0.52	0.60	0.57	0.41	0.97	0.72	0.07	0.33	0.65	0.32
Avail Cap(c_a), veh/h	359	2292	1022	488	2448	1090	359	2315	1033	281	2251	1169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	22.2	22.7	28.0	24.1	23.4	28.0	18.2	14.0	28.6	19.5	13.3
Incr Delay (d2), s/veh	17.1	0.4	1.3	0.8	0.9	1.0	38.8	0.8	0.1	0.4	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	1.7	1.9	1.1	2.1	1.3	4.2	4.5	0.3	0.4	3.6	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	22.6	24.0	28.9	24.9	24.4	66.8	19.0	14.1	29.0	20.2	13.6
LnGrp LOS	D	C	C	C	C	C	E	B	B	C	C	B
Approach Vol, veh/h		754			602			1265			933	
Approach Delay, s/veh		31.9			25.9			32.0			19.4	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	17.8	11.0	24.5	11.0	16.1	7.9	27.6
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	8.7	39.7	6.4	* 39	6.4	* 42	5.0	40.1
Max Q Clear Time (g_c+I1), s	4.7	7.6	8.2	12.2	7.4	7.4	3.0	15.4
Green Ext Time (p_c), s	0.1	2.2	0.0	5.0	0.0	2.5	0.0	5.7

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

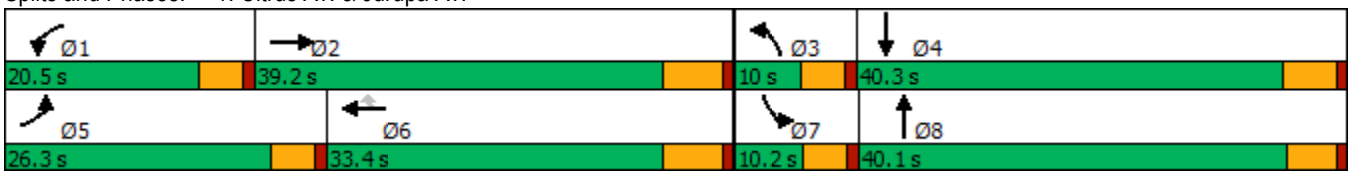
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

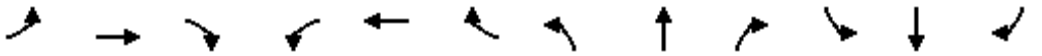
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	492	1018	158	748	208	21	168	144	237
Future Volume (vph)	492	1018	158	748	208	21	168	144	237
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Prot	NA
Protected Phases	5	2	1	6		3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.6	29.8	9.6	32.8	32.8	9.6	40.1	9.6	38.4
Total Split (s)	26.3	39.2	20.5	33.4	33.4	10.0	40.1	10.2	40.3
Total Split (%)	23.9%	35.6%	18.6%	30.4%	30.4%	9.1%	36.5%	9.3%	36.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	4.1	3.6	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.8	-0.6	-1.8	-1.8	-0.6	-1.1	-0.6	-1.4
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 83.6
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Citrus Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	492	1018	58	158	748	208	21	168	106	144	237	179
Future Volume (veh/h)	492	1018	58	158	748	208	21	168	106	144	237	179
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	535	1107	48	172	813	152	23	183	92	157	258	165
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	533	2181	95	226	1338	415	60	355	171	148	434	268
Arrive On Green	0.29	0.43	0.40	0.12	0.26	0.26	0.03	0.15	0.14	0.08	0.20	0.18
Sat Flow, veh/h	1810	5097	221	1810	5187	1610	1810	2361	1136	1810	2143	1324
Grp Volume(v), veh/h	535	751	404	172	813	152	23	138	137	157	216	207
Grp Sat Flow(s),veh/h/ln	1810	1729	1860	1810	1729	1610	1810	1805	1693	1810	1805	1662
Q Serve(g_s), s	22.3	12.0	12.1	7.0	10.4	5.9	0.9	5.3	5.7	6.2	8.2	8.7
Cycle Q Clear(g_c), s	22.3	12.0	12.1	7.0	10.4	5.9	0.9	5.3	5.7	6.2	8.2	8.7
Prop In Lane	1.00		0.12	1.00		1.00	1.00		0.67	1.00		0.80
Lane Grp Cap(c), veh/h	533	1480	796	226	1338	415	60	271	254	148	366	337
V/C Ratio(X)	1.00	0.51	0.51	0.76	0.61	0.37	0.38	0.51	0.54	1.06	0.59	0.61
Avail Cap(c_a), veh/h	533	1608	865	394	2015	625	143	861	807	148	866	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	15.8	15.9	32.0	24.7	23.0	35.8	29.6	30.1	34.7	27.3	28.0
Incr Delay (d2), s/veh	39.9	0.3	0.5	2.0	0.4	0.5	1.5	1.5	1.8	90.6	1.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	4.1	4.5	3.0	3.9	2.2	0.4	2.3	2.4	6.3	3.4	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.6	16.1	16.4	34.1	25.2	23.5	37.3	31.1	31.9	125.3	28.8	29.8
LnGrp LOS	F	B	B	C	C	C	D	C	C	F	C	C
Approach Vol, veh/h		1690			1137			298			580	
Approach Delay, s/veh		32.1			26.3			31.9			55.3	
Approach LOS		C			C			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	36.4	6.5	19.3	26.3	23.5	10.2	15.7
Change Period (Y+Rc), s	4.6	5.8	4.6	5.4	4.6	5.8	4.6	* 5.4
Max Green Setting (Gmax), s	15.9	33.4	5.4	34.9	21.7	27.6	5.6	* 35
Max Q Clear Time (g_c+I1), s	9.0	14.1	2.9	10.7	24.3	12.4	8.2	7.7
Green Ext Time (p_c), s	0.1	7.0	0.0	2.4	0.0	5.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	34.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1298	984	280	0	173
Future Vol, veh/h	0	1298	984	280	0	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1411	1070	304	0	188

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	687
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	338
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	338
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

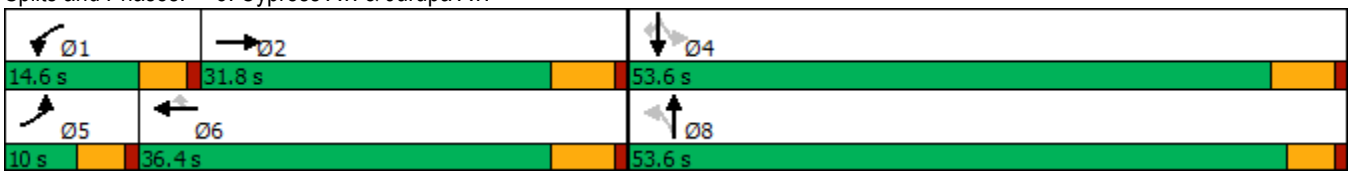
Approach	EB	WB	SB
HCM Control Delay, s	0	0	28.2
HCM LOS			D

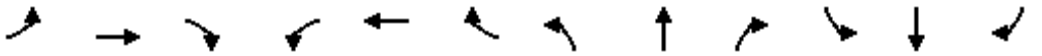
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	338
HCM Lane V/C Ratio	-	-	-	0.556
HCM Control Delay (s)	-	-	-	28.2
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	3.2

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	166	1179	137	815	78	11	66	128	57	172
Future Volume (vph)	166	1179	137	815	78	11	66	128	57	172
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			8		4	
Permitted Phases					6	8		4		4
Detector Phase	5	2	1	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	35.8	35.8	53.6	53.6	36.8	36.8	36.8
Total Split (s)	10.0	31.8	14.6	36.4	36.4	53.6	53.6	53.6	53.6	53.6
Total Split (%)	10.0%	31.8%	14.6%	36.4%	36.4%	53.6%	53.6%	53.6%	53.6%	53.6%
Yellow Time (s)	3.6	4.8	3.6	4.8	4.8	3.6	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	5.8	4.6	4.6	5.8	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	None	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 68.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: Cypress Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	1179	27	137	815	78	11	66	75	128	57	172
Future Volume (veh/h)	166	1179	27	137	815	78	11	66	75	128	57	172
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	177	1254	25	146	867	62	12	70	45	136	61	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	190	1916	38	188	1893	588	365	232	149	348	408	346
Arrive On Green	0.11	0.37	0.37	0.10	0.36	0.36	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1810	5235	104	1810	5187	1610	1190	1080	695	1298	1900	1610
Grp Volume(v), veh/h	177	828	451	146	867	62	12	0	115	136	61	149
Grp Sat Flow(s),veh/h/ln	1810	1729	1881	1810	1729	1610	1190	0	1775	1298	1900	1610
Q Serve(g_s), s	5.0	10.3	10.3	4.0	6.6	1.3	0.4	0.0	2.8	5.1	1.3	4.1
Cycle Q Clear(g_c), s	5.0	10.3	10.3	4.0	6.6	1.3	1.8	0.0	2.8	7.8	1.3	4.1
Prop In Lane	1.00		0.06	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	190	1265	688	188	1893	588	365	0	382	348	408	346
V/C Ratio(X)	0.93	0.65	0.65	0.78	0.46	0.11	0.03	0.00	0.30	0.39	0.15	0.43
Avail Cap(c_a), veh/h	190	1749	951	352	3087	958	1243	0	1692	1276	1767	1497
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	13.6	13.6	22.4	12.4	10.8	17.1	0.0	16.9	20.2	16.4	17.5
Incr Delay (d2), s/veh	45.4	0.6	1.1	2.6	0.2	0.1	0.0	0.0	0.4	0.7	0.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	3.1	3.4	1.6	1.9	0.4	0.1	0.0	1.1	1.3	0.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	14.2	14.7	25.0	12.6	10.9	17.1	0.0	17.4	20.9	16.5	18.3
LnGrp LOS	E	B	B	C	B	B	B	A	B	C	B	B
Approach Vol, veh/h		1456			1075			127			346	
Approach Delay, s/veh		20.9			14.2			17.4			19.0	
Approach LOS		C			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	24.6		16.9	10.0	24.6		16.9				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	10.0	26.0		47.8	5.4	30.6		* 49				
Max Q Clear Time (g_c+I1), s	6.0	12.3		9.8	7.0	8.6		4.8				
Green Ext Time (p_c), s	0.1	6.5		1.2	0.0	5.9		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		18.1	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	61.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	484	42	88	383	60	57	82	122	71	63	7
Future Vol, veh/h	10	484	42	88	383	60	57	82	122	71	63	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	544	47	99	430	67	64	92	137	80	71	8
Number of Lanes	0	1	0	0	2	0	0	1	1	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	1
HCM Control Delay	136.4	21.6	15.3	17
HCM LOS	F	C	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	41%	0%	2%	31%	0%	53%	0%
Vol Thru, %	59%	0%	90%	69%	76%	47%	0%
Vol Right, %	0%	100%	8%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	122	536	280	252	134	7
LT Vol	57	0	10	88	0	71	0
Through Vol	82	0	484	192	192	63	0
RT Vol	0	122	42	0	60	0	7
Lane Flow Rate	156	137	602	314	283	151	8
Geometry Grp	7	7	6	7	7	7	7
Degree of Util (X)	0.361	0.283	1.21	0.645	0.555	0.364	0.017
Departure Headway (Hd)	8.914	7.969	7.234	7.842	7.507	9.35	8.339
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	406	454	500	465	483	387	432
Service Time	6.614	5.669	5.314	5.542	5.207	7.05	6.039
HCM Lane V/C Ratio	0.384	0.302	1.204	0.675	0.586	0.39	0.019
HCM Control Delay	16.6	13.8	136.4	23.7	19.2	17.3	11.2
HCM Lane LOS	C	B	F	C	C	C	B
HCM 95th-tile Q	1.6	1.2	22.7	4.5	3.3	1.6	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	0	2	16	0	11	1	215	8	3	153	5
Future Vol, veh/h	13	0	2	16	0	11	1	215	8	3	153	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	0	2	17	0	12	1	234	9	3	166	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	422	420	169	417	418	239	171	0	0	243	0	0
Stage 1	175	175	-	241	241	-	-	-	-	-	-	-
Stage 2	247	245	-	176	177	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	546	528	880	550	529	805	1418	-	-	1335	-	-
Stage 1	832	758	-	767	710	-	-	-	-	-	-	-
Stage 2	761	707	-	831	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	537	526	880	547	527	805	1418	-	-	1335	-	-
Mov Cap-2 Maneuver	537	526	-	547	527	-	-	-	-	-	-	-
Stage 1	831	756	-	766	709	-	-	-	-	-	-	-
Stage 2	749	706	-	827	754	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	11	0	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1418	-	-	566	629	1335	-	-
HCM Lane V/C Ratio	0.001	-	-	0.029	0.047	0.002	-	-
HCM Control Delay (s)	7.5	0	-	11.5	11	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	20	29	0	13	7	218	12	3	229	3
Future Vol, veh/h	8	0	20	29	0	13	7	218	12	3	229	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	0	22	32	0	14	8	237	13	3	249	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	524	523	251	528	518	244	252	0	0	250	0	0
Stage 1	257	257	-	260	260	-	-	-	-	-	-	-
Stage 2	267	266	-	268	258	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	467	462	793	464	465	800	1325	-	-	1327	-	-
Stage 1	752	699	-	749	697	-	-	-	-	-	-	-
Stage 2	743	692	-	742	698	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	455	457	793	448	460	800	1325	-	-	1327	-	-
Mov Cap-2 Maneuver	455	457	-	448	460	-	-	-	-	-	-	-
Stage 1	747	697	-	744	692	-	-	-	-	-	-	-
Stage 2	725	687	-	719	696	-	-	-	-	-	-	-

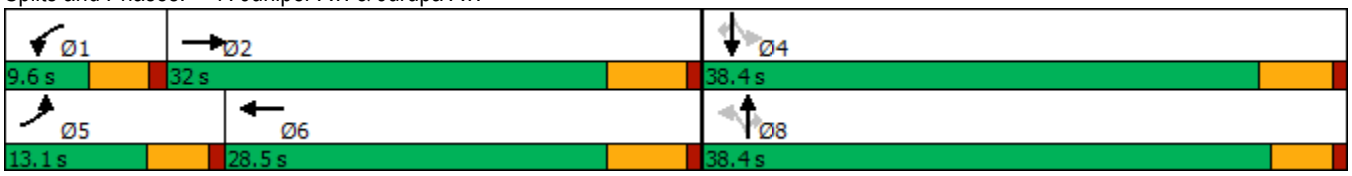
Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	12.6	0.2	0.1
HCM LOS	B	B		

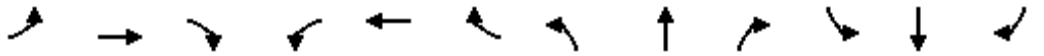
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1325	-	-	654	519	1327	-	-
HCM Lane V/C Ratio	0.006	-	-	0.047	0.088	0.002	-	-
HCM Control Delay (s)	7.7	0	-	10.8	12.6	7.7	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	125	1258	32	876	8	17	6	114	25	141
Future Volume (vph)	125	1258	32	876	8	17	6	114	25	141
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	37.6	38.4	38.4	38.4
Total Split (s)	13.1	32.0	9.6	28.5	38.4	38.4	38.4	38.4	38.4	38.4
Total Split (%)	16.4%	40.0%	12.0%	35.6%	48.0%	48.0%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.8	-0.6	-1.8		-0.6	-0.6		-1.4	-1.4
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 55.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1258	6	32	876	89	8	17	6	114	25	141
Future Volume (veh/h)	125	1258	6	32	876	89	8	17	6	114	25	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1976	1976	1900	1976	1976	1900	1976	1976	1976	1976	1976	1976
Adj Flow Rate, veh/h	136	1367	7	35	952	92	9	18	4	124	27	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	186	1834	9	79	1374	132	64	106	764	105	15	781
Arrive On Green	0.10	0.33	0.31	0.04	0.27	0.25	0.46	0.46	0.46	0.47	0.47	0.47
Sat Flow, veh/h	1882	5539	28	1882	5001	482	1	231	1675	38	33	1671
Grp Volume(v), veh/h	136	888	486	35	684	360	27	0	4	151	0	107
Grp Sat Flow(s),veh/h/ln	1882	1798	1971	1882	1798	1887	232	0	1675	71	0	1671
Q Serve(g_s), s	5.3	16.5	16.5	1.4	12.8	12.9	0.0	0.0	0.1	1.1	0.0	2.7
Cycle Q Clear(g_c), s	5.3	16.5	16.5	1.4	12.8	12.9	34.3	0.0	0.1	35.1	0.0	2.7
Prop In Lane	1.00		0.01	1.00		0.26	0.33		1.00	0.82		1.00
Lane Grp Cap(c), veh/h	186	1191	652	79	988	518	170	0	764	120	0	781
V/C Ratio(X)	0.73	0.75	0.75	0.44	0.69	0.69	0.16	0.00	0.01	1.25	0.00	0.14
Avail Cap(c_a), veh/h	228	1339	734	140	1172	615	171	0	766	120	0	781
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.9	22.3	22.4	35.1	24.4	24.7	17.4	0.0	11.1	34.2	0.0	11.4
Incr Delay (d2), s/veh	6.5	2.1	3.7	1.4	1.4	2.7	0.4	0.0	0.0	165.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	6.5	7.4	0.6	5.1	5.6	0.3	0.0	0.0	7.6	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	24.4	26.0	36.6	25.8	27.4	17.8	0.0	11.1	199.2	0.0	11.5
LnGrp LOS	D	C	C	D	C	C	B	A	B	F	A	B
Approach Vol, veh/h		1510			1079			31			258	
Approach Delay, s/veh		26.3			26.7			17.0			121.4	
Approach LOS		C			C			B			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	28.9		39.2	11.4	24.7		39.2				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.0	26.2		33.0	8.5	22.7		* 34				
Max Q Clear Time (g_c+I1), s	3.4	18.5		37.1	7.3	14.9		36.3				
Green Ext Time (p_c), s	0.0	4.7		0.0	0.0	3.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		34.9	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1378	991	2	0	6
Future Vol, veh/h	0	1378	991	2	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1498	1077	2	0	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	540
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	420
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	420
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	420
HCM Lane V/C Ratio	-	-	-	0.016
HCM Control Delay (s)	-	-	-	13.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1378	983	4	0	11
Future Vol, veh/h	0	1378	983	4	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1498	1068	4	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	536
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	0	423
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	423
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

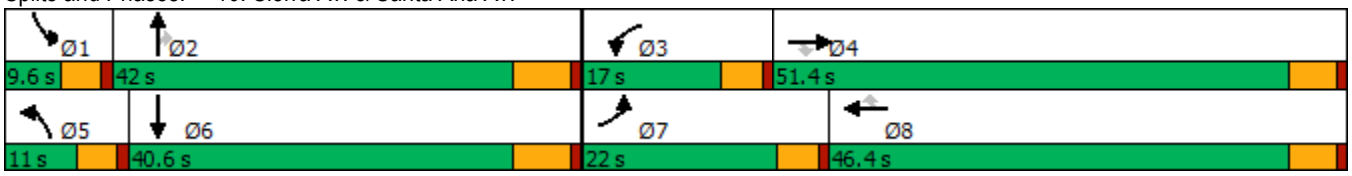
Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

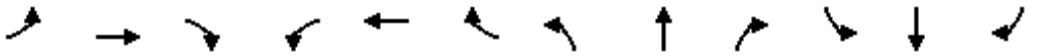
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	423
HCM Lane V/C Ratio	-	-	-	0.028
HCM Control Delay (s)	-	-	-	13.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	315	220	181	95	186	92	210	1803	86	185	1452
Future Volume (vph)	315	220	181	95	186	92	210	1803	86	185	1452
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	47.4	47.4	9.6	46.4	46.4	9.6	37.2	37.2	9.6	37.2
Total Split (s)	22.0	51.4	51.4	17.0	46.4	46.4	11.0	42.0	42.0	9.6	40.6
Total Split (%)	18.3%	42.8%	42.8%	14.2%	38.7%	38.7%	9.2%	35.0%	35.0%	8.0%	33.8%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 95.4
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Sierra Av. & Santa Ana Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	220	181	95	186	92	210	1803	86	185	1452	195
Future Volume (veh/h)	315	220	181	95	186	92	210	1803	86	185	1452	195
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	321	224	87	97	190	56	214	1840	80	189	1482	184
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	355	882	393	125	423	189	254	2052	628	198	1775	220
Arrive On Green	0.20	0.24	0.24	0.07	0.12	0.12	0.07	0.40	0.40	0.06	0.38	0.38
Sat Flow, veh/h	1810	3610	1608	1810	3610	1610	3510	5187	1586	3510	4674	580
Grp Volume(v), veh/h	321	224	87	97	190	56	214	1840	80	189	1096	570
Grp Sat Flow(s),veh/h/ln	1810	1805	1608	1810	1805	1610	1755	1729	1586	1755	1729	1796
Q Serve(g_s), s	15.4	4.4	3.8	4.7	4.3	2.8	5.3	29.4	2.8	4.8	25.5	25.5
Cycle Q Clear(g_c), s	15.4	4.4	3.8	4.7	4.3	2.8	5.3	29.4	2.8	4.8	25.5	25.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	355	882	393	125	423	189	254	2052	628	198	1314	682
V/C Ratio(X)	0.91	0.25	0.22	0.78	0.45	0.30	0.84	0.90	0.13	0.95	0.83	0.84
Avail Cap(c_a), veh/h	355	1874	835	253	1670	745	254	2096	641	198	1343	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	27.0	26.7	40.6	36.4	35.8	40.6	25.1	17.0	41.7	24.9	25.0
Incr Delay (d2), s/veh	25.1	0.2	0.3	3.9	0.7	0.9	21.1	5.5	0.1	50.3	4.6	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	1.8	1.4	2.1	1.9	1.1	2.9	11.6	1.0	3.3	10.1	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	27.1	27.0	44.5	37.2	36.6	61.7	30.6	17.1	92.0	29.6	33.5
LnGrp LOS	E	C	C	D	D	D	E	C	B	F	C	C
Approach Vol, veh/h		632			343			2134			1855	
Approach Delay, s/veh		43.8			39.2			33.2			37.2	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.6	41.3	10.7	27.0	11.0	39.9	22.0	15.8
Change Period (Y+Rc), s	4.6	6.2	4.6	5.4	4.6	6.2	4.6	5.4
Max Green Setting (Gmax), s	5.0	35.8	12.4	46.0	6.4	34.4	17.4	41.0
Max Q Clear Time (g_c+I1), s	6.8	31.4	6.7	6.4	7.3	27.5	17.4	6.3
Green Ext Time (p_c), s	0.0	3.6	0.0	1.7	0.0	4.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	591	390	366	160	322	136	346	1151	112	128	803	345
Future Volume (vph)	591	390	366	160	322	136	346	1151	112	128	803	345
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	41.8	41.8	9.6	46.4	46.4	9.6	42.5	42.5	9.6	45.2	9.6
Total Split (s)	14.0	48.8	48.8	14.2	49.0	49.0	11.0	45.0	45.0	12.0	46.0	14.0
Total Split (%)	11.7%	40.7%	40.7%	11.8%	40.8%	40.8%	9.2%	37.5%	37.5%	10.0%	38.3%	11.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.4	4.4	3.6	5.5	5.5	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.8	-1.8	-0.6	-1.4	-1.4	-0.6	-2.5	-2.5	-0.6	-2.2	-0.6
Total 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
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	None

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 96.3
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: Sierra Av. & Jurupa Av.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	591	390	366	160	322	136	346	1151	112	128	803	345
Future Volume (veh/h)	591	390	366	160	322	136	346	1151	112	128	803	345
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	609	402	234	165	332	80	357	1187	72	132	828	289
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	451	806	360	274	606	270	316	1534	675	240	1441	817
Arrive On Green	0.13	0.22	0.22	0.08	0.17	0.17	0.09	0.42	0.42	0.07	0.40	0.38
Sat Flow, veh/h	3510	3610	1610	3510	3610	1610	3510	3610	1590	3510	3610	1610
Grp Volume(v), veh/h	609	402	234	165	332	80	357	1187	72	132	828	289
Grp Sat Flow(s),veh/h/ln	1755	1805	1610	1755	1805	1610	1755	1805	1590	1755	1805	1610
Q Serve(g_s), s	10.0	7.6	10.3	3.5	6.6	3.4	7.0	21.9	2.1	2.8	13.9	8.4
Cycle Q Clear(g_c), s	10.0	7.6	10.3	3.5	6.6	3.4	7.0	21.9	2.1	2.8	13.9	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	451	806	360	274	606	270	316	1534	675	240	1441	817
V/C Ratio(X)	1.35	0.50	0.65	0.60	0.55	0.30	1.13	0.77	0.11	0.55	0.57	0.35
Avail Cap(c_a), veh/h	451	2078	927	460	2087	931	316	1902	838	361	1948	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	26.4	27.5	34.7	29.7	28.4	35.4	19.2	13.5	35.1	18.2	11.5
Incr Delay (d2), s/veh	171.7	0.5	2.0	0.8	0.8	0.6	90.8	1.6	0.1	0.7	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	3.0	3.7	1.5	2.7	1.2	6.7	7.8	0.6	1.1	5.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	205.6	26.9	29.5	35.5	30.5	29.0	126.2	20.8	13.6	35.8	18.6	11.8
LnGrp LOS	F	C	C	D	C	C	F	C	B	D	B	B
Approach Vol, veh/h		1245			577			1616			1249	
Approach Delay, s/veh		114.8			31.7			43.8			18.8	
Approach LOS		F			C			D			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	21.4	11.0	35.4	14.0	17.5	9.3	37.1
Change Period (Y+Rc), s	4.6	5.8	4.6	* 6.5	4.6	* 5.8	4.6	6.5
Max Green Setting (Gmax), s	9.6	43.0	6.4	* 40	9.4	* 44	7.4	38.5
Max Q Clear Time (g_c+I1), s	5.5	12.3	9.0	15.9	12.0	8.6	4.8	23.9
Green Ext Time (p_c), s	0.1	3.3	0.0	6.4	0.0	2.4	0.0	6.6

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 7.3:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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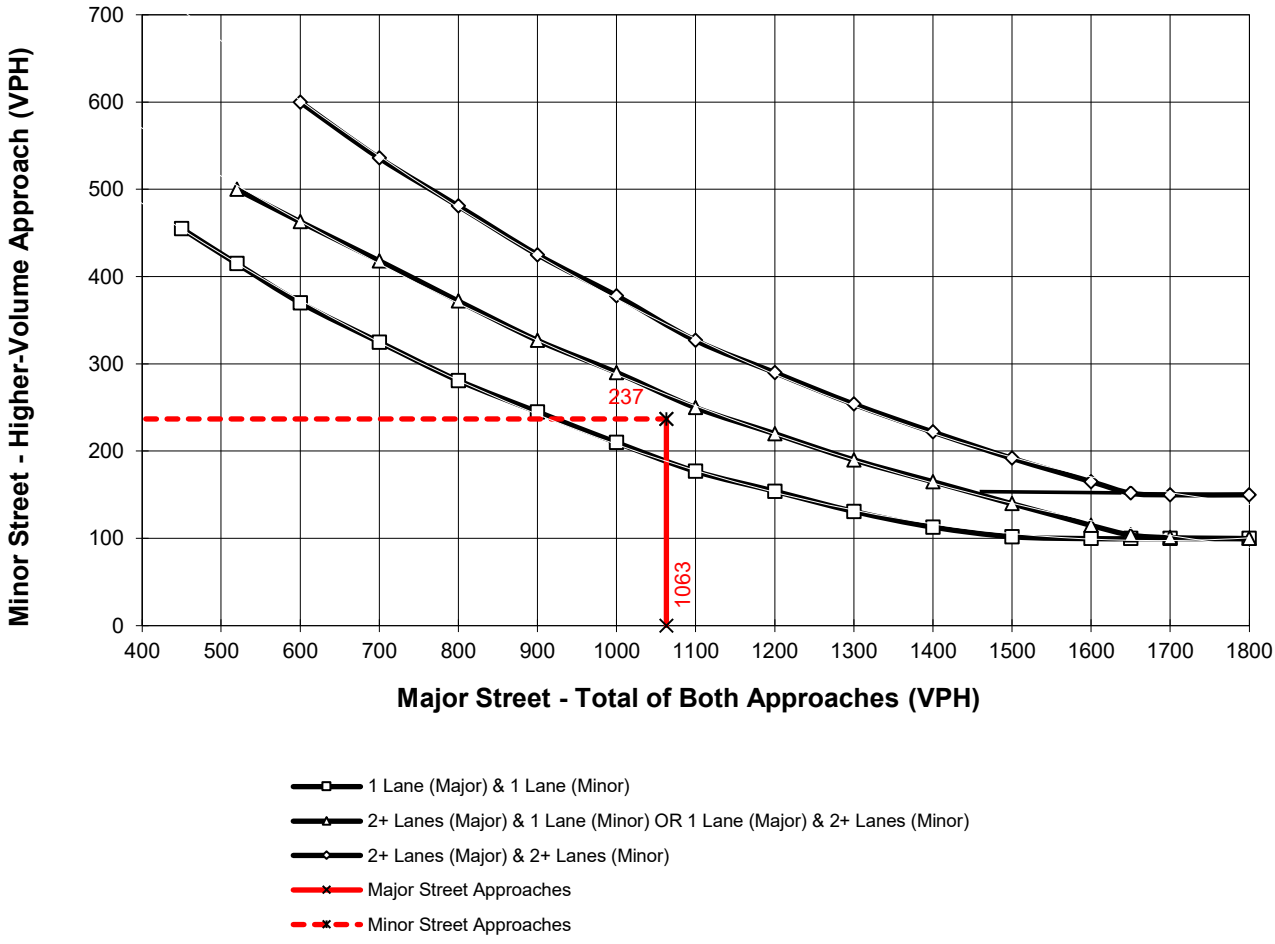
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 Without Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Santa Ana Av**
Total of Both Approaches (VPH) = **1063**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Juniper Av**
High Volume Approach (VPH) = **237**
Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.4:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		2040 WP
				CALC CS	DATE	01/15/20
Jurisdiction: City of Fontana				CHK CS	DATE	01/15/20
Major Street: Juniper Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 1				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **3,318** vpd Minor Street Future ADT = **264** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied: XX / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street: 1 **3,318** / Minor Street: 1 **264**	8,000	5,600	2,400	1,680
Major Street: 2 + / Minor Street: 1	9,600	6,720	2,400	1,680
Major Street: 2 + / Minor Street: 2 +	9,600	6,720	3,200	2,240
Major Street: 1 / Minor Street: 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street: 1 **3,318** / Minor Street: 1 **264**	12,000	8,400	1,200	850
Major Street: 2 + / Minor Street: 1	14,400	10,080	1,200	850
Major Street: 2 + / Minor Street: 2 +	14,400	10,080	1,600	1,120
Major Street: 1 / Minor Street: 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 11% B: 22%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		2040 WP
				CALC CS	DATE	01/15/20
Jurisdiction: City of Fontana				CHK CS	DATE	01/15/20
Major Street: Juniper Av.				Critical Approach Speed (Major)		40 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **4,195** vpd Minor Street Future ADT = **397** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……..

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
XX					
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **4,195**	*1* **397**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **4,195**	*1* **397**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 17% B 33%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

APPENDIX 7.5:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Intersection	
Intersection Delay, s/veh	24.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	258	38	93	525	16	28	34	45	42	57	17
Future Vol, veh/h	7	258	38	93	525	16	28	34	45	42	57	17
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	10	353	52	127	719	22	38	47	62	58	78	23
Number of Lanes	0	2	0	0	2	0	0	1	1	0	1	1

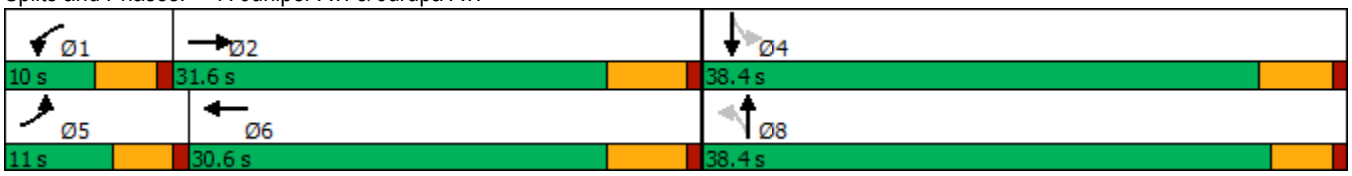
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	14.5	32.9	12.3	14.1
HCM LOS	B	D	B	B

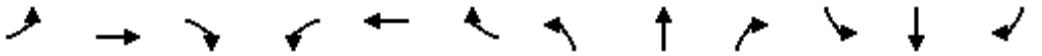
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	45%	0%	5%	0%	26%	0%	42%	0%
Vol Thru, %	55%	0%	95%	77%	74%	94%	58%	0%
Vol Right, %	0%	100%	0%	23%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	45	136	167	356	279	99	17
LT Vol	28	0	7	0	93	0	42	0
Through Vol	34	0	129	129	263	263	57	0
RT Vol	0	45	0	38	0	16	0	17
Lane Flow Rate	85	62	186	229	487	382	136	23
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.196	0.126	0.366	0.437	0.891	0.68	0.311	0.047
Departure Headway (Hd)	8.322	7.367	7.068	6.879	6.587	6.413	8.244	7.304
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	487	509	524	555	568	437	490
Service Time	6.064	5.109	4.807	4.618	4.287	4.113	5.984	5.044
HCM Lane V/C Ratio	0.197	0.127	0.365	0.437	0.877	0.673	0.311	0.047
HCM Control Delay	13.1	11.2	13.9	14.9	41.7	21.6	14.7	10.4
HCM Lane LOS	B	B	B	B	E	C	B	B
HCM 95th-tile Q	0.7	0.4	1.7	2.2	10.3	5.2	1.3	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	114	718	14	864	6	6	80	7
Future Volume (vph)	114	718	14	864	6	6	80	7
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	38.4	38.4
Total Split (s)	11.0	31.6	10.0	30.6	38.4	38.4	38.4	38.4
Total Split (%)	13.8%	39.5%	12.5%	38.3%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	5.8	4.6	4.6	5.4	5.4
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 54.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	718	3	14	864	96	6	6	19	80	7	83
Future Volume (veh/h)	114	718	3	14	864	96	6	6	19	80	7	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	119	748	2	15	900	97	6	6	9	83	7	54
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	157	2113	6	34	1557	167	432	156	233	476	43	329
Arrive On Green	0.09	0.40	0.40	0.02	0.33	0.33	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	5341	14	1810	4755	511	1363	686	1029	1421	188	1451
Grp Volume(v), veh/h	119	484	266	15	654	343	6	0	15	83	0	61
Grp Sat Flow(s),veh/h/ln	1810	1729	1897	1810	1729	1807	1363	0	1715	1421	0	1639
Q Serve(g_s), s	2.8	4.3	4.3	0.4	6.9	7.0	0.2	0.0	0.3	2.1	0.0	1.3
Cycle Q Clear(g_c), s	2.8	4.3	4.3	0.4	6.9	7.0	1.5	0.0	0.3	2.4	0.0	1.3
Prop In Lane	1.00		0.01	1.00		0.28	1.00		0.60	1.00		0.89
Lane Grp Cap(c), veh/h	157	1368	750	34	1133	592	432	0	389	476	0	372
V/C Ratio(X)	0.76	0.35	0.35	0.44	0.58	0.58	0.01	0.00	0.04	0.17	0.00	0.16
Avail Cap(c_a), veh/h	263	2024	1111	222	1946	1017	1168	0	1315	1217	0	1227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.7	9.4	9.4	21.4	12.3	12.3	14.3	0.0	13.3	14.2	0.0	13.7
Incr Delay (d2), s/veh	2.8	0.2	0.3	3.2	0.5	0.9	0.0	0.0	0.0	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.1	1.2	0.2	2.0	2.1	0.0	0.0	0.1	0.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	9.5	9.6	24.6	12.8	13.2	14.3	0.0	13.3	14.4	0.0	13.9
LnGrp LOS	C	A	A	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		869			1012			21			144	
Approach Delay, s/veh		11.3			13.1			13.6			14.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	23.2		15.4	8.4	20.2		15.4				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.4	25.8		33.0	6.4	24.8		* 34				
Max Q Clear Time (g_c+I1), s	2.4	6.3		4.4	4.8	9.0		3.5				
Green Ext Time (p_c), s	0.0	4.2		0.5	0.0	5.4		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		12.4
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	484	42	88	383	60	57	82	122	71	63	7
Future Vol, veh/h	10	484	42	88	383	60	57	82	122	71	63	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	544	47	99	430	67	64	92	137	80	71	8
Number of Lanes	0	2	0	0	2	0	0	1	1	0	1	1

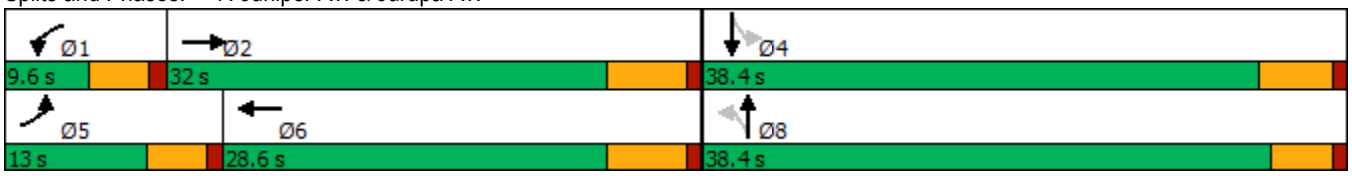
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	21.4	21.6	14.8	16.5
HCM LOS	C	C	B	C

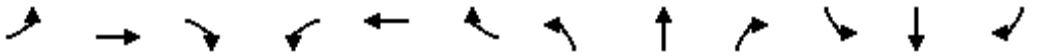
Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	41%	0%	4%	0%	31%	0%	53%	0%
Vol Thru, %	59%	0%	96%	85%	69%	76%	47%	0%
Vol Right, %	0%	100%	0%	15%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	122	252	284	280	252	134	7
LT Vol	57	0	10	0	88	0	71	0
Through Vol	82	0	242	242	192	192	63	0
RT Vol	0	122	0	42	0	60	0	7
Lane Flow Rate	156	137	283	319	314	283	151	8
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.367	0.287	0.584	0.646	0.66	0.568	0.37	0.017
Departure Headway (Hd)	8.469	7.533	7.42	7.293	7.563	7.23	8.853	7.852
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	476	484	495	477	497	405	455
Service Time	6.233	5.297	5.181	5.055	5.323	4.99	6.625	5.623
HCM Lane V/C Ratio	0.367	0.288	0.585	0.644	0.658	0.569	0.373	0.018
HCM Control Delay	16.1	13.3	20.2	22.5	23.9	19.1	16.8	10.8
HCM Lane LOS	C	B	C	C	C	C	C	B
HCM 95th-tile Q	1.7	1.2	3.7	4.5	4.7	3.5	1.7	0.1

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	125	1258	32	876	8	17	114	25
Future Volume (vph)	125	1258	32	876	8	17	114	25
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	27.8	9.6	27.8	37.6	37.6	38.4	38.4
Total Split (s)	13.0	32.0	9.6	28.6	38.4	38.4	38.4	38.4
Total Split (%)	16.3%	40.0%	12.0%	35.8%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	4.8	3.6	4.8	3.6	3.6	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-0.6	-1.8	-0.6	-1.8	-0.6	-0.6	-1.4	-1.4
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 55.3
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 7: Juniper Av. & Jurupa Av.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1258	6	32	876	89	8	17	6	114	25	141
Future Volume (veh/h)	125	1258	6	32	876	89	8	17	6	114	25	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	136	1367	7	35	952	92	9	18	4	124	27	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	197	2324	12	94	1823	176	373	357	79	500	85	336
Arrive On Green	0.11	0.44	0.40	0.05	0.38	0.34	0.24	0.24	0.24	0.25	0.25	0.25
Sat Flow, veh/h	1810	5326	27	1810	4809	464	1272	1505	335	1412	334	1323
Grp Volume(v), veh/h	136	888	486	35	684	360	9	0	22	124	0	134
Grp Sat Flow(s),veh/h/ln	1810	1729	1895	1810	1729	1815	1272	0	1840	1412	0	1656
Q Serve(g_s), s	3.4	9.1	9.1	0.9	7.1	7.2	0.3	0.0	0.4	3.4	0.0	3.1
Cycle Q Clear(g_c), s	3.4	9.1	9.1	0.9	7.1	7.2	3.3	0.0	0.4	3.8	0.0	3.1
Prop In Lane	1.00		0.01	1.00		0.26	1.00		0.18	1.00		0.80
Lane Grp Cap(c), veh/h	197	1509	827	94	1311	688	373	0	436	500	0	421
V/C Ratio(X)	0.69	0.59	0.59	0.37	0.52	0.52	0.02	0.00	0.05	0.25	0.00	0.32
Avail Cap(c_a), veh/h	349	2077	1138	217	1825	958	1010	0	1358	1183	0	1223
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.0	10.0	10.0	21.4	11.2	11.4	16.1	0.0	13.7	14.6	0.0	14.1
Incr Delay (d2), s/veh	1.6	0.4	0.7	0.9	0.3	0.6	0.0	0.0	0.0	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.3	2.6	0.3	2.0	2.2	0.1	0.0	0.2	0.9	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	10.3	10.6	22.3	11.5	12.0	16.1	0.0	13.8	14.8	0.0	14.5
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1510			1079			31			258	
Approach Delay, s/veh		11.4			12.0			14.5			14.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	24.3		15.9	9.1	21.7		15.9				
Change Period (Y+Rc), s	4.6	5.8		5.4	4.6	5.8		* 5.4				
Max Green Setting (Gmax), s	5.0	26.2		33.0	8.4	22.8		* 34				
Max Q Clear Time (g_c+I1), s	2.9	11.1		5.8	5.4	9.2		5.3				
Green Ext Time (p_c), s	0.0	7.5		1.1	0.0	5.3		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		12.0	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

VMT Memorandum – Development Site

URBAN CROSSROADS

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May 4, 2020

Mr. Jeremy Krout
EPD Solutions, Inc.
2 Park Plaza, Suite 1120
Irvine, CA 92614

SUBJECT: FONTANA FOOTHILLS COMMERCE CENTER VEHICLE MILES TRAVELED (VMT) ANALYSIS

Dear Mr. Jeremy Krout:

The following VMT Analysis has been prepared for the proposed Fontana Foothills Commerce Center (Project), which is located north of Jurupa Avenue, between Cypress Avenue and Juniper Avenue, in the City of Fontana. Interstate 10 (I-10) is located approximately 0.9 miles north of the Project site via Sierra Avenue.

PROJECT OVERVIEW

The proposed Project consist of the development of up to 754,408 sf of high-cube transload short-term warehouse use (no cold storage) within two buildings. The site is currently designated as a Residential Planned Community in the City of Fontana General Plan.

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate takes effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**). (1) The San Bernardino County Transportation Authority (SBCTA) is currently conducting a multi-jurisdictional study to develop a set of procedures and provide local jurisdictions with sufficient information to adopt VMT baselines and thresholds of significance at or around the July 2020 required implementation date. In February 2020, the San Bernardino County Transportation Authority released the SBCTA Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (**SBCTA Guidelines**) that address both traditional automobile delay-based level of service (LOS) and new VMT analysis requirements. (2)

VMT ANALYSIS METHODOLOGY

Through consultation with City of Fontana staff, it is our understanding that the City of Fontana has yet to adopt its own VMT analysis guidelines and thresholds. For the purposes of this analysis the recommended VMT analysis methodology and thresholds identified within the Technical Advisory have been used.

The Technical Advisory provides for the following recommended threshold for office (and industrial) projects:

> "A proposed project exceeding a level of 15 percent below existing regional VMT per employee may indicate a significant transportation impact." [1]

Consistent with OPR's Technical Advisory, projects that meet certain screening thresholds based on their location and project type may be presumed to result in a less-than-significant transportation impact. For example, projects located within a Transit Priority Area (TPA) or a low VMT generating traffic analysis zone (TAZ) (subject to some secondary screening criteria) and absent substantial evidence to the contrary are anticipated to result in a less-than-significant impact. Based on available data the Project is not located within a TPA or low VMT-generating TAZ and would therefore require a project-level VMT analysis.

PROJECT VMT

The calculation of VMT for land use projects is based on the total number of trips generated and the average trip length of each vehicle. The San Bernardino Transportation Analysis Model (SBTAM) is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households and employment. The SBCTA Guidelines identifies SBTAM as the appropriate tool for conducting VMT analysis for land use projects in San Bernardino County.

Project VMT has been calculated using the most current version of SBTAM. Adjustments in socio-economic data (SED) (i.e., employment) have been made to the appropriate traffic analysis zone (TAZ) within the SBTAM model to reflect the Project's proposed land uses (i.e., warehouse). Table 1 summarizes the employment estimates for the Project. It should be noted that the employment estimates are consistent with the employment density factors identified in the Southern California Association of Governments (SCAG) Employment Density Study (October 2001). (3)

[1] Page 16 of the OPR's Technical Advisory.

TABLE 1: EMPLOYMENT ESTIMATES

Land Use	Quantity (in square feet)	Employment Density Factor[2]	Estimated Employees
Warehouse	754,408	1 employee per 1,195 SF	631

Adjustments to employment for the Project's TAZ were made to both the SBTAM base year model (2012) and the cumulative year model (2040). Project-generated total and home-based work (HBW) VMT was then calculated for both the base year model (2012) and cumulative year model (2040) and linear interpolation was used to determine the Project's baseline (2019) Total and HBW VMT. The Total and HBW VMT is then normalized by dividing by the number of Project employees. As shown in Table 2, the Project baseline (2019) Total VMT per service population (SP) is 37.96 and HBW VMT per employee is 19.66.

TABLE 2: PROJECT HBW VMT PER EMPLOYEE

	Project
Employment	631
Total VMT	23,953
Total VMT / SP[3]	37.96
HBW VMT	12,406
HBW VMT / Employee	19.66

REGIONAL VMT

SBCTA provides VMT calculations for each of its member agencies and for the County of San Bernardino region. Urban Crossroads has obtained this data from SBCTA and has used linear interpolation to calculate the San Bernardino County regionwide Total and HBW VMT per employee for baseline (2019) conditions, which is 32.93 and 16.73, respectively.

PROJECT LEVEL VMT ASSESSMENT

Table 3 illustrates the comparison between Project-generated Total and HBW VMT per employee to the existing (2019) regional (San Bernardino County) Total VMT per SP and HBW VMT per employee. As shown, the Project would exceed the 15% below the current regional (San Bernardino County) Total VMT per SP by 35.6 percent and HBW VMT per employee by 38.3 percent. As such, the Project's impact based on VMT is potentially significant.

[2] Table II-B of the SCAG Employment Density Study.
[3] Since the Project does not have a residential component, the service population consists entirely of employment.

TABLE 3: HBW VMT PER EMPLOYEE COMPARISON

	Total VMT/SP	HBW VMT/Employee
Project	37.96	19.66
San Bernardino County Regional Threshold[4]	27.99	14.22
Difference	+9.97	+5.17
Percent Change	+35.62%	+38.26%

PROJECT'S CUMULATIVE EFFECT ON VMT

The Project as proposed requires a general plan amendment due to proposed changes in land use; which results in the Project being inconsistent with assumptions in the current Southern California Association of Governments (SCAG) Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). The Technical Advisory recommends, projects not consistent with the regional RTP/SCS should be evaluated to determine if that inconsistency results in a significant impact on transportation.[5]

Regional (San Bernardino County) total VMT was calculated for the cumulative 2040 model year for both without and with the Project and total VMT is then divided by SP. Table 4 indicates that the Project increases VMT per SP for the San Bernardino County region by less than 0.01 VMT per SP. As the Project does result in a net increase in VMT per SP, the cumulative effect on VMT is considered potentially significant.

TABLE 4: CUMULATIVE SAN BERNARDINO COUNTY VMT

	Cumulative Year (2040) No Project	Cumulative Year (2040) With Project
VMT	82,167,731	82,182,849
VMT per SP	21.91	21.91

MITIGATION

As previously discussed, the City of Fontana has yet to formally adopt VMT thresholds of significance for purposes of determining transportation impacts under CEQA. As such, this VMT analysis has been provided for informational purposes. The following discussion on TDM measures have been provided to disclose possible mitigation measures if the VMT potential VMT impacts are found to be significant.

Transportation demand management (TDM) strategies have been evaluated for reducing VMT impacts determined to be potentially significant. The effectiveness of TDM strategies to reduce VMT has been determined based on the SB 743 Implementation TDM Strategy Assessment (February 26, 2019, Fehr & Peers) prepared for the WRCOG. The memo evaluated 50 transportation measures presented in the CAPCOA 2010 report *Quantifying Greenhouse Gas Mitigation Measures* and indicated 41 are applicable

[4] 15% below the VMT threshold.
[5] Page 18 of the OPR's Technical Advisory.

at building and site level. The remaining measures are functions of, or depend on, site location and/or actions by local and regional agencies or funders.

Based on available research, for projects located within a suburban context, a maximum 10% reduction in VMT is achievable when combining multiple mitigation strategies. Furthermore, to even achieve a 10% reduction in VMT, a project would need to contain a diverse land use mix, workforce housing and project-specific transit options.

Review of the 41 transportation measures identified by CAPCOA, indicates that only 7 of those measures may be effective at the project level, which is consistent with WRCOGs findings. Evaluation of potentially applicable TDM strategies in the context of the Project is summarized below. As indicated, of the seven TDMs with potential application to the Project, only two would provide for any potentially meaningful reduction in VMT.

- *Measure 1: Increase Diversity of Land Uses.* Having different types of land uses near one another can decrease VMT since trips between land use types are shorter and may be accommodated by non-auto modes of transport. For example, when residential areas are in the same neighborhood as retail and office buildings, a resident does not need to travel outside of the neighborhood to meet his/her trip needs.

  Remarks: The Project consists of the development of up to 754,408 sf of high-cube transload short-term warehouse use (no cold storage) within two buildings. In order for the above measure to apply, at least three of the following will be located on or off-site within ¼ mile of the Project: Residential Development, Retail Development, Park, Open Space, or Office. There are existing and proposed open space, retail, residential developments proposed within a ¼ mile of the Project. This measure is may be evaluated further as means of providing a reduction in Project VMT.

  It is recognized that the Project would introduce additional employment opportunities, acting to generally improve the City and region jobs/housing balance. The resulting improved jobs/housing balance could reduce area commute VMT.

- *Measure 2: Provide Pedestrian Network Improvements.* Providing a pedestrian access network to link areas of the Project site encourages people to walk instead of drive. This mode shift results in people driving less and thus a reduction in VMT.

  Remarks: Although there are existing sidewalks off-site along portions of Santa Ana Avenue, Sierra Avenue, and Jurupa Avenue as illustrated at Exhibit 3-7 of the Traffic Impact Analysis, field observations conducted at the time the Traffic Impact Analysis was prepared indicate there is nominal pedestrian activity in the study area likely due to the lack of diversity of land uses. Furthermore, given the industrial nature of the Project and surrounding uses, it is unlikely that there would be substantive pedestrian activity even if a pedestrian network were to be expanded. This measure is therefore not evaluated further as means of providing a reduction in Project VMT.

- *Measure 3: Provide Traffic Calming Measure.* Providing traffic calming measures encourages people to walk or bike instead of using a vehicle. This mode shift will result in a decrease in VMT. Traffic calming features may include: marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks,

raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others.

Remarks: Given the industrial nature of the Project and similar characteristics of surrounding uses, there is limited opportunity for pedestrian and bicycle activity. This measure is therefore not evaluated further as means of providing a reduction in Project VMT.

- *Measure 4: Implement Car-Sharing Program.* Implementing a car-sharing program would allow individuals to have on-demand access to a shared fleet of vehicles on an as-needed basis. User costs are typically determined through mileage or hourly rates, with deposits and/or annual membership fees.

  Remarks: It is possible that employers within the Project site could implement car-sharing programs. This may provide car access for employees on an as-needed basis, and thereby alleviate some of the costs and responsibilities of individual car ownership. However, this would not necessarily result in a reduction of VMT, but would rather transfer the VMT source from individually-owned autos to employee-subsidized autos. Moreover, CAPCOA indicates that this measure would at most result in 0.4 to 0.7 percent reduction in VMT (CAPCOA, Quantifying Greenhouse Gas Mitigation Measures, p. 245). This measure is therefore not evaluated further as means of providing a reduction in Project VMT.

- *Measure 5: Increase Transit Service Frequency and Speed.* This measure serves to reduce transit-passenger travel time through more reduced headways and increased speed and reliability. This makes transit service more attractive and may result in a mode shift from auto to transit which reduces VMT.

  Remarks: The study area is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County. Omnitrans Route 82 currently provides proximate service (within one-quarter mile) of the Project site. Transit service is reviewed and updated by RTA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. It is recommended that the Applicant work in conjunction with the Lead Agency and Omnitrans to coordinate potential bus service directly to the Project site. Since implementation of this strategy would require agency implementation it is not applicable for individual development projects. This measure is therefore not evaluated further as means of providing a reduction in Project VMT.

- *Measure 6: Encourage Telecommuting and Alternative Work Schedule.* Encouraging telecommuting and alternative work schedules reduces the number of commute trips and therefore VMT traveled by employees. Alternative work schedules could take the form of staggered starting times, flexible schedules, or compressed work weeks.

  Remarks: The effectiveness of this measure is dependent on the ultimate building tenant(s) which are unknown at this time. This measure could provide for a potential reduction in Project VMT. CAPCOA notes that implementation of this measure could reduce commute VMT by 0.07 – 5.50 percent (Quantifying Greenhouse Gas Mitigation Measures, p. 236).

- *Measure 7: Provide Ride-Sharing Programs.* This strategy focuses on encouraging carpooling and vanpooling but its ultimate implementation is limited as Measure 6 above.

  Remarks: The effectiveness of this measure is dependent on the ultimate building tenant(s) which are unknown at this time. This measure could provide for a potential reduction in Project VMT. CAPCOA notes that implementation of this measure could reduce commute VMT by 1.0 – 15.0 percent (Quantifying Greenhouse Gas Mitigation Measures, p. 227).

Implementation of applicable TDM strategies (*Measure 1: Increase Diversity of Land Uses*, *Measure 6: Encourage Telecommuting and Alternative Work Schedule,* and *Measure 7: Provide Ride-Sharing Programs*) have the potential to reduce the Project Total VMT/SP.

The effectiveness of the above-noted TDM measures would be dependent in part on final Project designs and occupancies, which are unknown at this time. Beyond Project design and tenancy considerations, land use context is a major factor relevant to the potential application and effectiveness of TDM measures. More specifically, the land use context of the Project is characteristically suburban. Of itself, the Project's suburban context acts to reduce the range of feasible TDM measures and moderates their potential effectiveness.

As indicated in the preceding discussion, even under the most favorable circumstances, projects located within a suburban context, such as the proposed Project evaluated here, could realize a maximum 10 percent reduction in VMT through implementation of feasible TDM measures. For the Project considered here, this could result in reduction from 37.96 to 34.16 Total VMT per SP and 19.66 to 17.69 HBW VMT per employee which would still exceed the regional threshold of 27.99 Total VMT per SP by 22.04% and 14.22 HBW VMT per employee by 24.40%.

It is also recognized that as the Project area and surrounding communities develop as envisioned under the City of Fontana and San Bernardino County General Plans, new residential, office, retail, and industrial development would be implemented. These actions could collectively alter transportation patterns, improve the City's jobs/housing ratio, diminish VMT, and support implementation of new or alternative TDM measures. There is no means, however, to quantify any VMT reductions that could result. Additionally, the effectiveness of the TDM strategies that have potential to reduce the Project VMT are dependent on as yet unknown Project building tenant(s); and as noted above, "VMT reductions from TDM strategies cannot be guaranteed in most cases."

In summary, the Project's Total VMT per SP and HBW VMT per employee exceeds the regional (San Bernardino County) threshold of 15% below existing Total VMT per SP and HBW VMT per employee. Even with implementation of feasible TDM measures Project VMT can not be reduced to levels that would be less-than-significant. However, the efficacy of TDM measures and reduction of VMT impacts below thresholds cannot be assured. The Project VMT impact is therefore considered ***significant and unavoidable.***

If you have any questions, please contact me directly at (949) 336-5978.

Respectfully submitted,

URBAN CROSSROADS, INC.

Aric Evatt, PTP
President

Robert Vu, PE
Transportation Engineer

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2. **San Bernardino County Transportation Authority (SBCTA).** *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment.* February 2020.
3. **Southern California Association of Governments.** *Employment Density Study.* October 2001.

Traffic Impact Analysis – Upzone Site

Catawba & Merrill Residential Zone Change (MC No. 19-0109)

FOCUSED TRAFFIC IMPACT ANALYSIS

CITY OF FONTANA

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APRIL 23, 2020

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**
APPENDICES ..... **III**
LIST OF EXHIBITS ..... **V**
LIST OF TABLES ..... **V**
LIST OF ABBREVIATED TERMS ..... **VII**
1 INTRODUCTION **1**
1.1 Summary of Findings 1
1.2 Project Overview 1
1.3 Analysis Scenarios 3
1.4 Study Area 4
1.5 Analysis Findings 5
2 METHODOLOGIES **7**
2.1 Level of Service 7
2.2 Intersection Capacity Analysis 7
2.3 Roadway Segment Capacity Analysis Methodology 9
2.4 Minimum Level of Service (LOS) 9
2.5 Thresholds of Significance 10
3 AREA CONDITIONS **11**
3.1 Existing Circulation Network 11
3.2 City of Fontana General Plan Circulation Elements 11
3.3 Bicycle & Pedestrian Facilities 11
3.4 Transit Service 18
3.5 Existing Traffic Counts 18
3.6 Existing Conditions Intersection Operations Analysis 18
3.7 Roadway Segment Analysis 24
4 PROJECTED FUTURE TRAFFIC **27**
4.1 Project Trip Generation 27
4.2 Project Trip Distribution 30
4.3 Modal Split 30
4.4 Project Trip Assignment 30
4.5 Background Traffic 30
4.6 Horizon Year (2040) Volume Development 33
5 HORIZON YEAR (2040) TRAFFIC CONDITIONS **35**
5.1 Roadway Improvements 35
5.2 Horizon Year (2040) Without Project Traffic Volume Forecasts 35
5.3 Horizon Year (2040) With Project Traffic Volume Forecasts 35
5.4 Intersection Operations Analysis 35
5.5 Roadway Segment Analysis 41
6 REFERENCES **43**

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APPENDICES

APPENDIX 1.1: APPROVED SCOPING AGREEMENT
APPENDIX 3.1: EXISTING TRAFFIC COUNTS – FEBRUARY 2020
APPENDIX 3.2: EXISTING (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 3.3: EXISTING (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS
APPENDIX 4.1: POST PROCESSING WORKSHEETS
APPENDIX 5.1: HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 5.2: HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
APPENDIX 5.3: HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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LIST OF EXHIBITS

EXHIBIT 1-1: LOCATION MAP 2
EXHIBIT 1-2: SUMMARY OF DEFICIENCIES BY ANALYSIS SCENARIO 6
EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS 12
EXHIBIT 3-2: CITY OF FONTANA CIRCULATION MASTER PLAN 13
EXHIBIT 3-3: CITY OF FONTANA GENERAL PLAN ROADWAY CROSS-SECTIONS 14
EXHIBIT 3-4: CITY OF FONTANA GENERAL PLAN BIKEWAYS 16
EXHIBIT 3-5: CITY OF FONTANA GENERAL PLAN TRAILS 17
EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES 19
EXHIBIT 3-7: EXISTING TRANSIT ROUTES 20
EXHIBIT 3-8: EXISTING (2020) TRAFFIC VOLUMES 21
EXHIBIT 3-9: EXISTING (2020) SUMMARY OF LOS 22
EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION 31
EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES 32
EXHIBIT 5-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES 36
EXHIBIT 5-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES 37
EXHIBIT 5-3: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS 38
EXHIBIT 5-4: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS 39

LIST OF TABLES

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS 4
TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS 4
TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS 7
TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS 9
TABLE 2-3: THRESHOLDS OF SIGNIFICANT IMPACT 10
TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2020) CONDITIONS 23
TABLE 3-2: ROADWAY SEGMENT ANALYSIS FOR EXISTING (2020) CONDITIONS 25
TABLE 4-1: PROJECT TRIP GENERATION SUMMARY 28
TABLE 4-2: TRIP GENERATION COMPARISON 29
TABLE 5-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS 40
TABLE 5-2: ROADWAY SEGMENT ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS 42

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
DU	Dwelling Unit
E+P	Existing plus Project
HCM	Highway Capacity Manual
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
PHF	Peak Hour Factor
Project	Catawba & Merrill Residential Zone Change
RTP	Regional Transportation Plan
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
TIA	Traffic Impact Analysis
vphg	Vehicles Per Hour of Green

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1 INTRODUCTION

This report presents the results of the focused traffic impact analysis (TIA) for the proposed Catawba & Merrill Residential Zone Change area ("Project") in the City of Fontana, as shown on Exhibit 1-1. The site is located on the southwest corner of Catawba Avenue and Merrill Avenue.

The purpose of this focused TIA is to evaluate the potential long-range impacts to traffic and circulation associated with the proposed change of zone for the site, which will increase the residential density from their currently adopted zoning. The scope of this TIA has been vetted with City staff and follows the City of Fontana's Draft Traffic Study Guidelines and the San Bernardino County Congestion Management Program (CMP). (1) (2)

1.1 SUMMARY OF FINDINGS

Based on the City of Fontana's significance criteria as discussed in Section 2.5 *Thresholds of Significance* and the 50 peak hour trip criteria, the potential addition of future Project traffic is not anticipated to result in additional deficient peak hour operations at any study area intersection for Horizon Year (2040) With Project traffic conditions. As such, the traffic impacts associated with the proposed zone change for the proposed Project are less than significant.

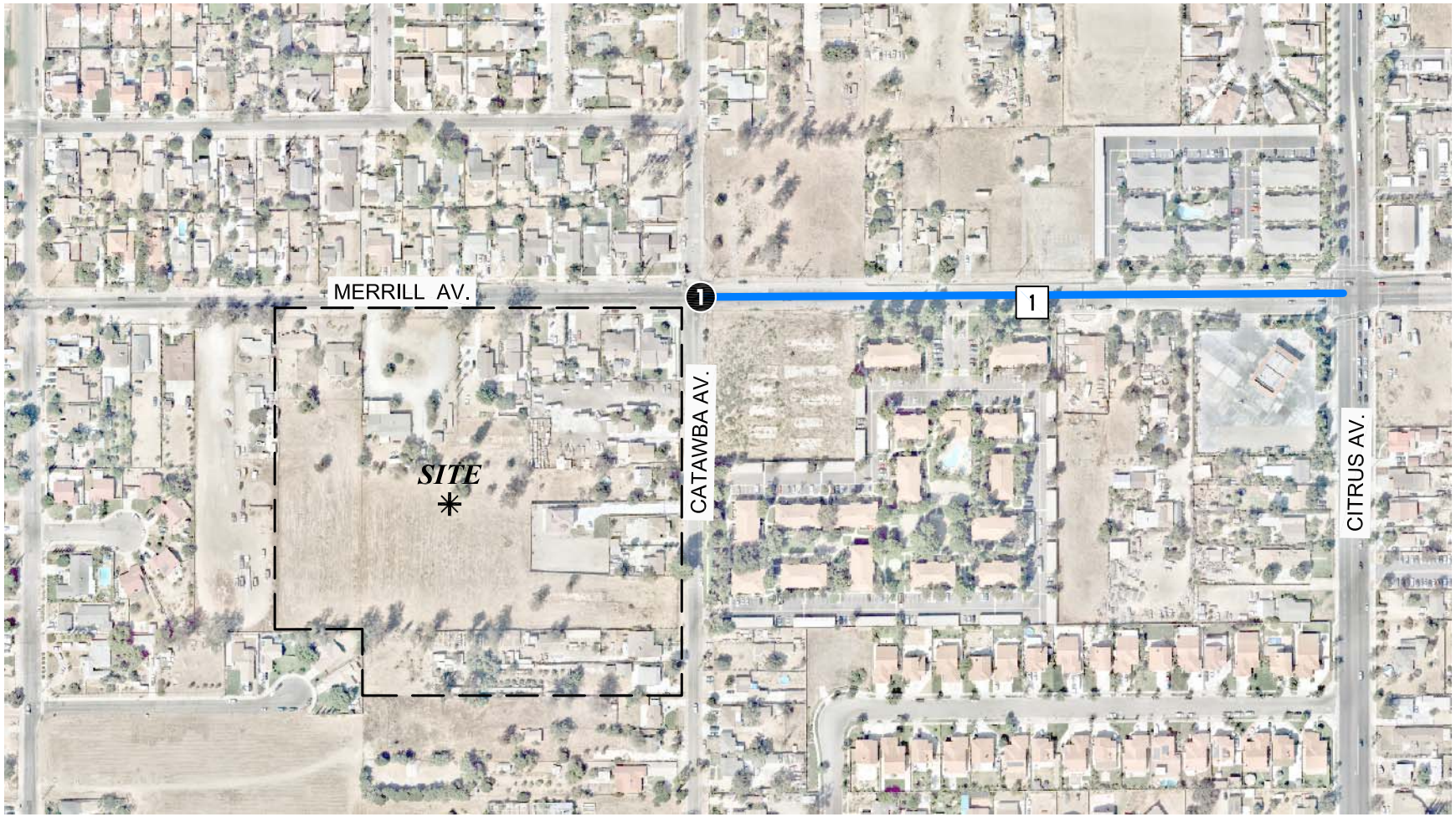
1.2 PROJECT OVERVIEW

The Project site is located on the southwest corner of Catawba Avenue and Merrill Avenue on 13.75 acres. The site is currently designated as Single Family Residential (R-1, 2.1-5 dwelling units/acre) with a maximum of 68 dwelling units (DUs). The proposed zone change would change the zoning designation for the site to Medium Density Residential (R-2) which would allow for a density range of 5.1-12 DU/acre and a maximum of 165 DUs on the site (an increase of up to 97 DUs relative to existing zoning).

The proposed zone change at the Project Site is being considered by the City of Fontana as a legislative action only; no development would occur until and unless the owners of the site submits subsequent discretionary site development applications to the City of Fontana and said applications are approved by the appropriate City of Fontana hearing body. Exhibit 1-1 illustrates the location of the proposed Project.

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, (10th Edition, 2017). (3) The Project is estimated to generate a net total of 566 new trip-ends per day on a typical weekday with approximately 24 net new AM peak hour trips and 25 net new PM peak hour trips from the currently adopted zoning. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

EXHIBIT 1-1: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

00 = ROADWAY SEGMENT ANALYSIS LOCATION

N

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2020) (1 scenario)
- Horizon Year (2040) Without and With Project (2 scenarios)

1.3.1 EXISTING (2020) CONDITIONS

Information for Existing (2020) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

Existing plus Project (E+P) traffic conditions is not warranted for analysis as the Project is not proposing any new development on the site.

1.3.2 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) Without Project conditions were derived from the San Bernardino County Transportation Analysis Model (SBTAM), the sub-regional model for San Bernardino County for the study area intersection located within the County of San Bernardino. The Horizon Year (2040) traffic conditions are utilized to determine long-term cumulative traffic impacts. The initial estimates of the future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Horizon Year (2040) Without Project peak hour forecasts include the currently adopted land use assumptions. As such, Project traffic (net new traffic over the currently adopted uses) was then added to determine Horizon Year (2040) With Project traffic forecasts.

The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program, or other approved funding mechanisms can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Fontana (lead agency). It should be noted that the City of Fontana has updated their DIF program to also include appropriate contributions towards regionally significant improvements that have been identified via the San Bernardino County CMP regional fee program study. If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative mitigation. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.4 STUDY AREA

1.4.1 INTERSECTIONS

The following study area intersection location shown on Exhibit 1-1 and listed on Table 1-1 was selected for this TIA based on consultation with the City of Fontana staff. Pursuant to the Traffic Study Guidelines, the City requires analysis of intersections where the Project would contribute 50 or more peak-hour trips.[1] However, the Project is anticipated to contribute fewer than 50 peak hour trips to this study area intersection.

The intent of a CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. The County of San Bernardino CMP became effective with the passage of Proposition 111 in 1990 and updated most recently in 2016. The San Bernardino County Transportation Authority (SBCTA) adopted the 2016 CMP for the County of San Bernardino in June 2016. (2) The study area intersection is not a CMP facility.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Catawba Avenue & Merrill Avenue	City of Fontana	No

1.4.2 ROADWAY SEGMENT ANALYSIS

Pursuant to the request of City staff, a roadway segment analysis has been evaluated for the following study area roadway segment:

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segment	Jurisdiction
1	Merrill Avenue, east of Catawba Avenue	City of Fontana

As stated in the City of Fontana's Traffic Impact Analysis Guidelines, roadway link analysis could be required where the ultimate street cross sections are not constructed. The roadway segment analysis has been conducted for each analysis scenario using the roadway capacities obtained from the City of Fontana General Plan Circulation Element. (4)

[1] The "50 or more peak hour trips" intersection analytic protocol stipulated in the City's Traffic Study Guidelines is consistent with standard industry practice. It is noted further that the 50 peak hour trip threshold is employed by other agencies throughout southern California including Caltrans, County of Riverside, County of San Bernardino, and the County of Orange.

1.5 ANALYSIS FINDINGS

This section provides a summary of the analysis results for Existing and Horizon Year (2040) traffic conditions.

1.5.1 EXISTING (2020) CONDITIONS

A summary of LOS results for Existing traffic conditions is presented on Exhibit 1-2. For Existing (2020) traffic conditions, the study area intersection and roadway segment currently operate at an acceptable level of service (LOS) (i.e., LOS C or better) during the peak hours.

E+P traffic conditions is not warranted for analysis as the Project is not proposing any new development on the Project site.

1.5.2 HORIZON YEAR (2040) CONDITIONS

The study area intersection is anticipated to operate at an unacceptable LOS (i.e. LOS D or below) for Horizon Year (2040) Without and With Project traffic conditions for the PM peak hour. However, the addition of Project traffic does not result in a significant impact at the deficient intersection of Catawba Avenue and Merrill Avenue. The study area roadway segment is anticipated to continue to operate at an acceptable LOS for Horizon Year (2040) Without and With Project traffic conditions (see Exhibit 1-2).

EXHIBIT 1-2: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2020)	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Catawba Av. & Merrill Av.			

LEGEND:
- AM PEAK HOUR
- PM PEAK HOUR
- LOS A-C
- LOS D-E
- LOS F

#	Roadway Segment	Existing (2020)	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Merrill Av., Catawba Av. to Citrus Av.			

LEGEND:
- ACCEPTABLE LOS A-C
- DEFICIENT LOS D-E
- DEFICIENT LOS F

N

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Fontana's Traffic Study Guidelines. (1)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Fontana requires signalized intersection operations analysis based on the methodology described in the HCM. (5) The study area intersection is not currently signalized.

Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: HCM, 6th Edition

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to analyze signalized intersections within the study area. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM (6th Edition). (5) Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The LOS and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network. Appropriate time for pedestrian crossings has also been considered in the signalized intersection analysis.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM (6th Edition), PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

Saturation flow rates of 1,900 vehicles per hour of green (vphg) have been utilized, consistent with the recommended values in the City's traffic study guidelines. (1)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Fontana requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM, 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 ROADWAY SEGMENT CAPACITY ANALYSIS METHODOLOGY

Roadway segment operations have been evaluated using the applicable average daily traffic (ADT) roadway capacity values provided in the City of Fontana General Plan. The roadway capacities utilized for the purposes of this analysis are considered "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic.

While using ADT for planning purposes is suitable with regards to evaluating potential volume to capacity with future forecasts, it is not suitable for operational analysis because it does not account for the factors listed previously. As such, where the ADT based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

2.4 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from each of the applicable jurisdictions.

2.4.1 CITY OF FONTANA

The City of Fontana has set the goal for acceptable LOS as LOS C or better, wherever feasible (see City's Traffic Study Guidelines). However, in some instances maintaining the LOS C threshold within a built environment may require extensive roadway widening that could affect existing

uses, property rights and substantial costs associated with implementing these improvements. In the event that the improvements required to maintain LOS C is determined to be infeasible, the City of Fontana recognizes that LOS D may be considered the worst acceptable level of service in urbanized areas of the City. Where feasible, LOS C has been utilized as the minimum LOS criteria for intersections located within the City of Fontana. (1)

2.4.2 SAN BERNARDINO COUNTY CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. (2) However, for the purposes of this TIA, LOS C has been utilized consistent with the City of Fontana LOS criteria.

2.5 THRESHOLDS OF SIGNIFICANCE

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies. For purposes of analyzing California Environmental Quality Act (CEQA) impacts, the following criteria will be used to establish potential traffic impacts. Determination of significant impacts will be based on a comparison of without and with project levels of service for each analysis year. A Significant Impact occurs if project traffic increases the average delay at an intersection by more than the thresholds identified on Table 2-3.

TABLE 2-3: THRESHOLDS OF SIGNIFICANT IMPACT

Pre-Project LOS	Significant Impact Threshold[1]
A/B	10.0 Seconds
C	8.0 Seconds
D	5.0 Seconds
E	3.0 Seconds
F	1.0 Second

Thresholds for A, B, and C do not apply to projects consistent with the General Plan.

Source: Fontana Traffic Study Guidelines, October 2019

[1] Increase in delay

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Fontana General Plan Circulation Network, and a review of existing peak hour intersection operations and roadway segment operations analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to discussion with City of Fontana staff, the study area includes a one existing intersection as shown previously on Exhibit 1-1. Exhibit 3-1 illustrates the study area intersection located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF FONTANA GENERAL PLAN CIRCULATION ELEMENTS

As previously noted, the Project site is located within the City of Fontana. Exhibit 3-2 shows the City of Fontana Circulation Master Plan and Exhibit 3-3 illustrates the City of Fontana General Plan roadway cross-sections. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the study area, as identified on the City of Fontana Circulation Master Plan, are described subsequently.

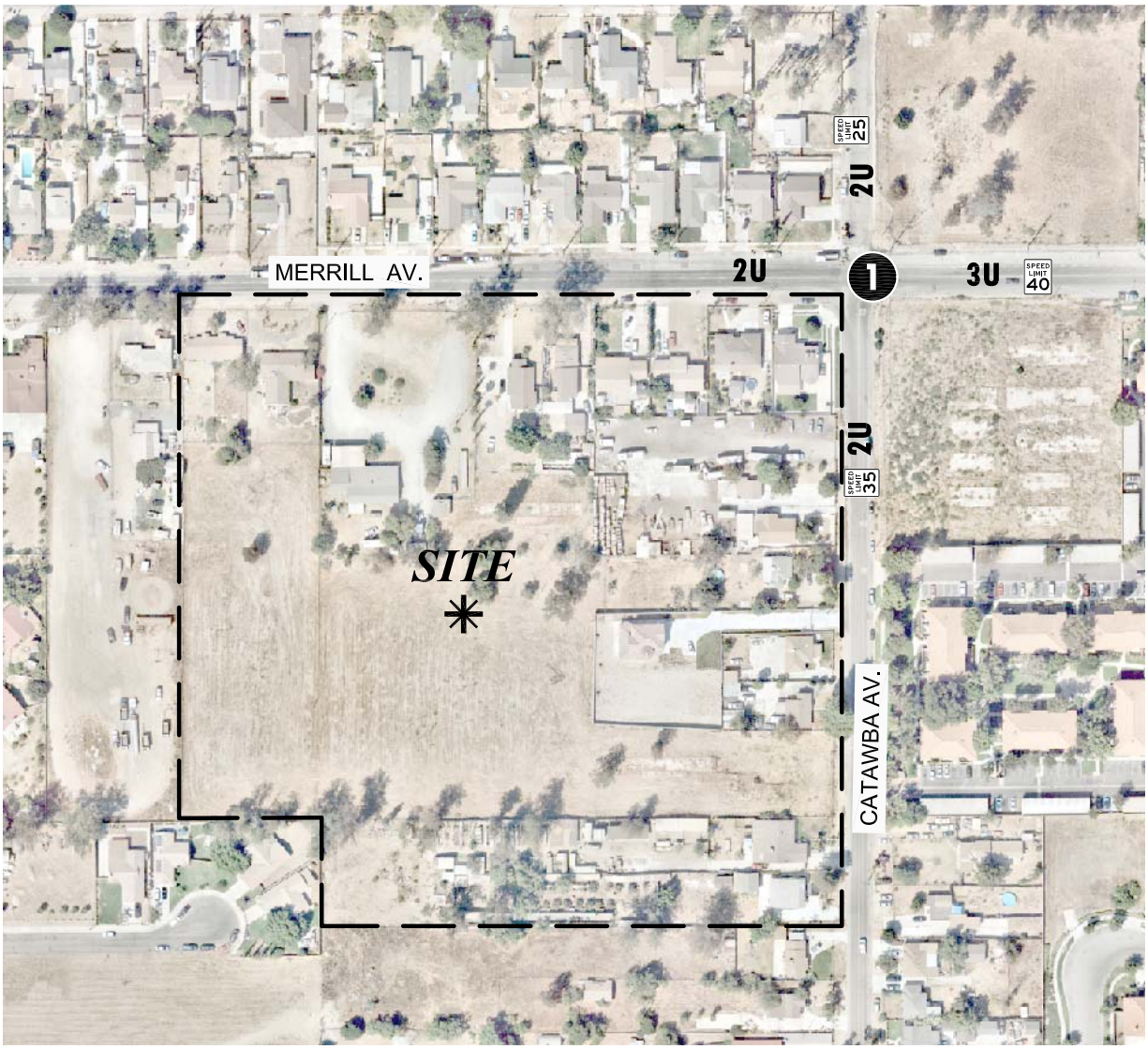
Secondary Highways/Modified Secondary Highways are typically four-lane streets, providing two lanes in each direction. These highways carry traffic along the perimeters of major developments, provide support to the major and primary highways, and are also through streets enabling traffic to travel uninterrupted for longer distances through the City. Secondary highways have a 92-foot wide right of way, which includes sidewalks. The following study area roadways within the City of Fontana are classified as Secondary Highways or Modified Secondary Highways:

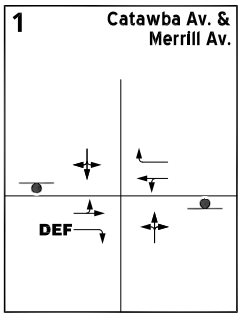
- Catawba Avenue
- Citrus Avenue

3.3 BICYCLE & PEDESTRIAN FACILITIES

The City of Fontana General Plan Bikeways and Trails are shown on Exhibit 3-4 and 3-5, respectively. As shown on Exhibit 3-4 and 3-5, there are Class II bike lanes existing/proposed along Citrus Avenue near the vicinity of the Project. Existing pedestrian facilities within the study area are shown on Exhibit 3-6. Field observations indicate nominal pedestrian and bicycle activity within the study area.

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS





LEGEND:

- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

N

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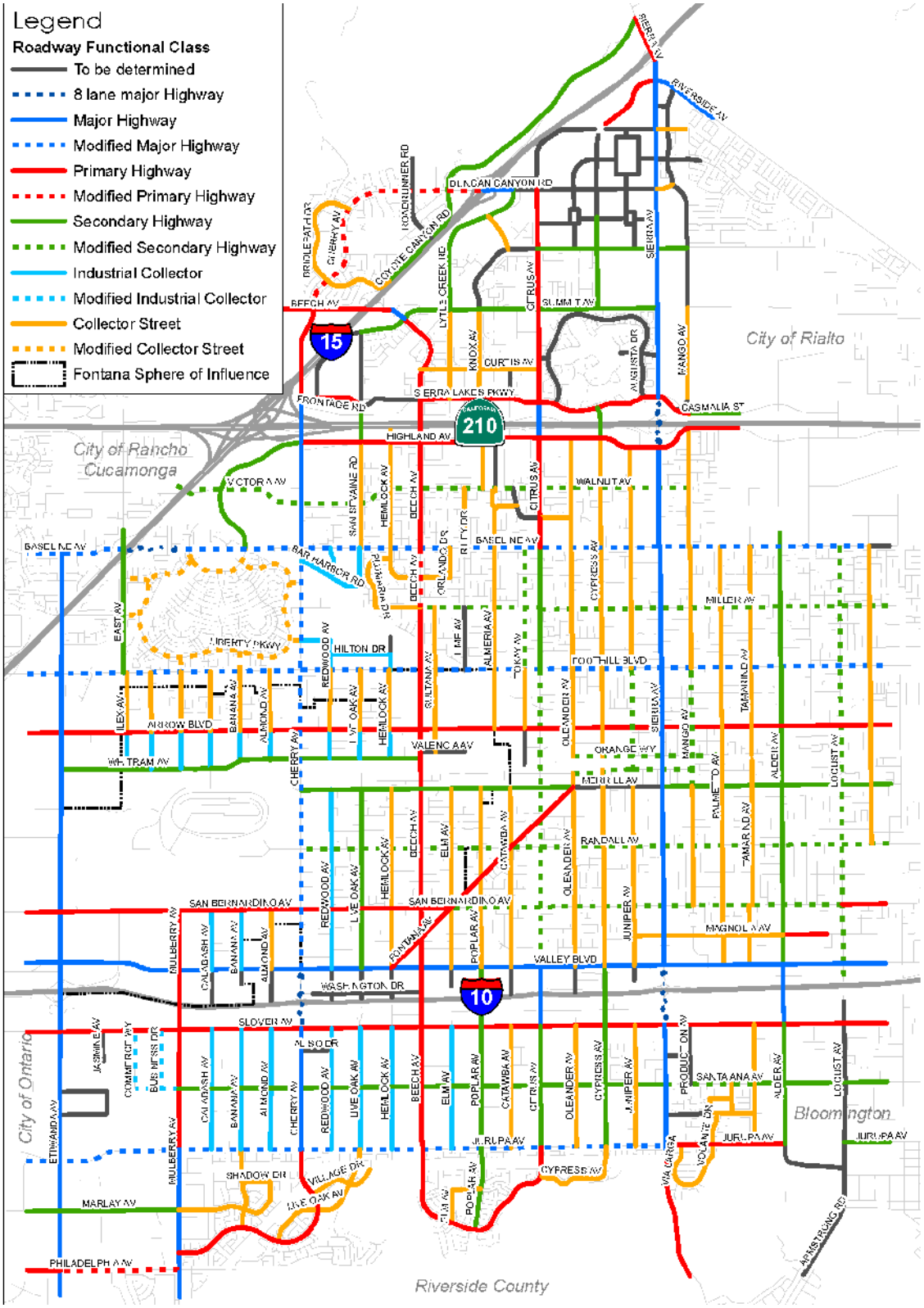
EXHIBIT 3-2: CITY OF FONTANA CIRCULATION MASTER PLAN



Source: City of Fontana
November 2018

EXHIBIT 3-3 (1OF2): CITY OF FONTANA GENERAL PLAN ROADWAY CROSS-SECTIONS

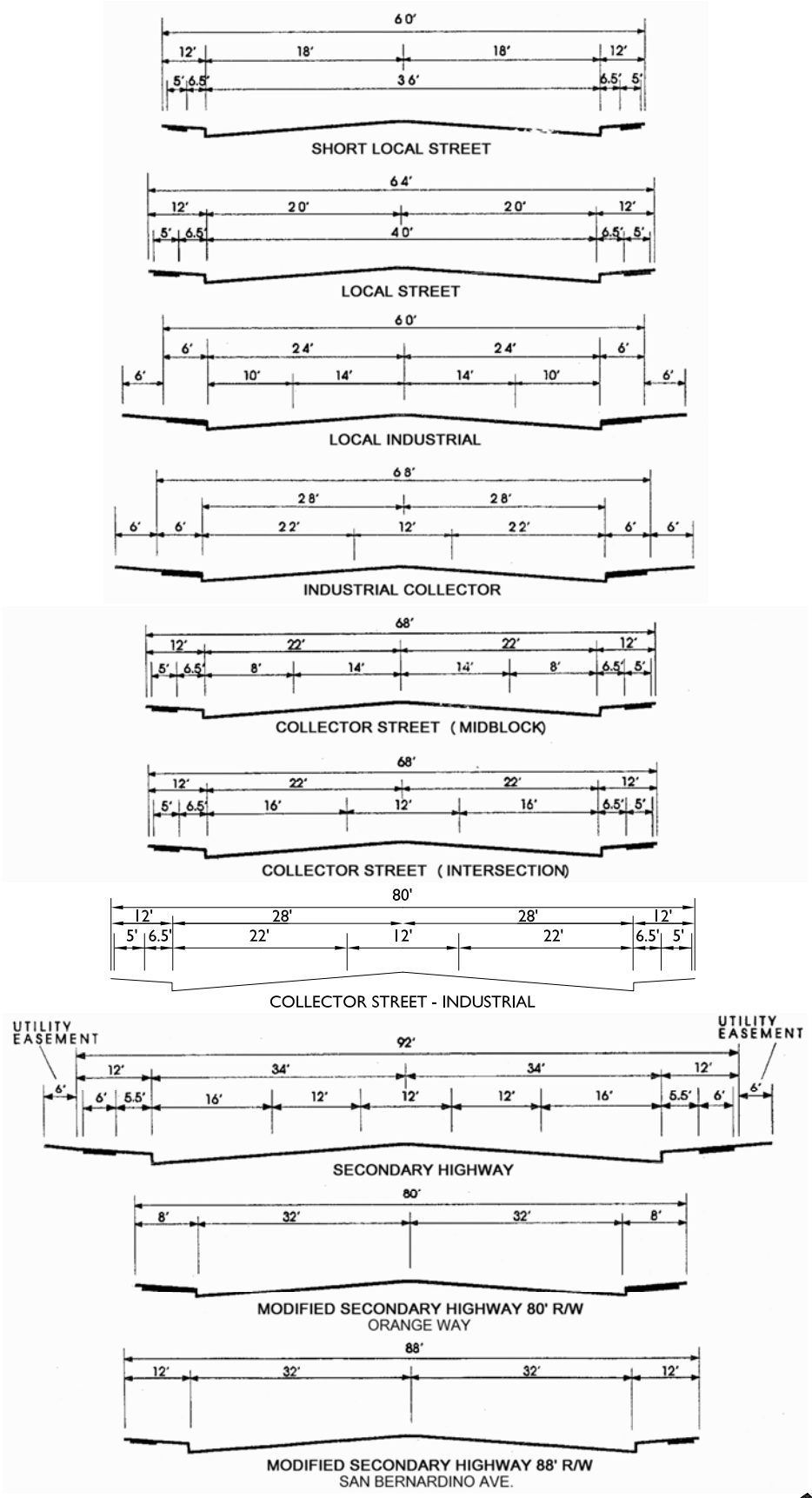


EXHIBIT 3-3 (2OF2): CITY OF FONTANA GENERAL PLAN ROADWAY CROSS-SECTIONS

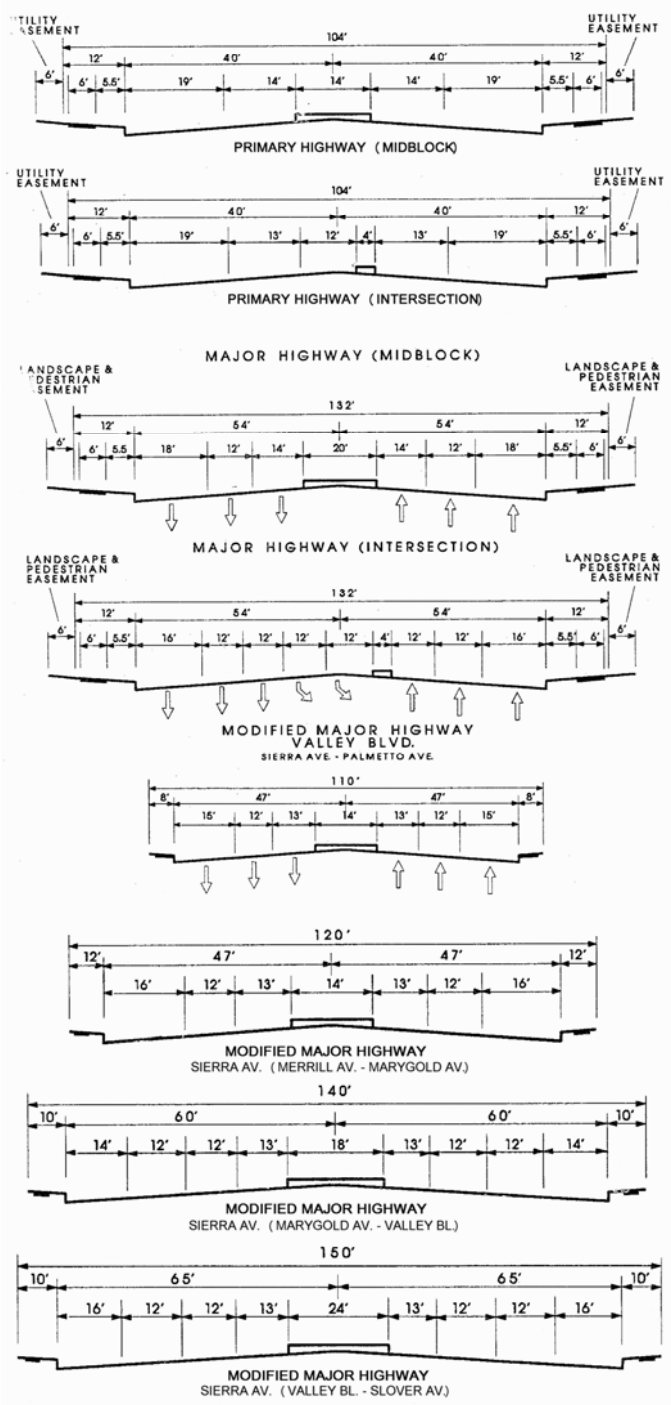
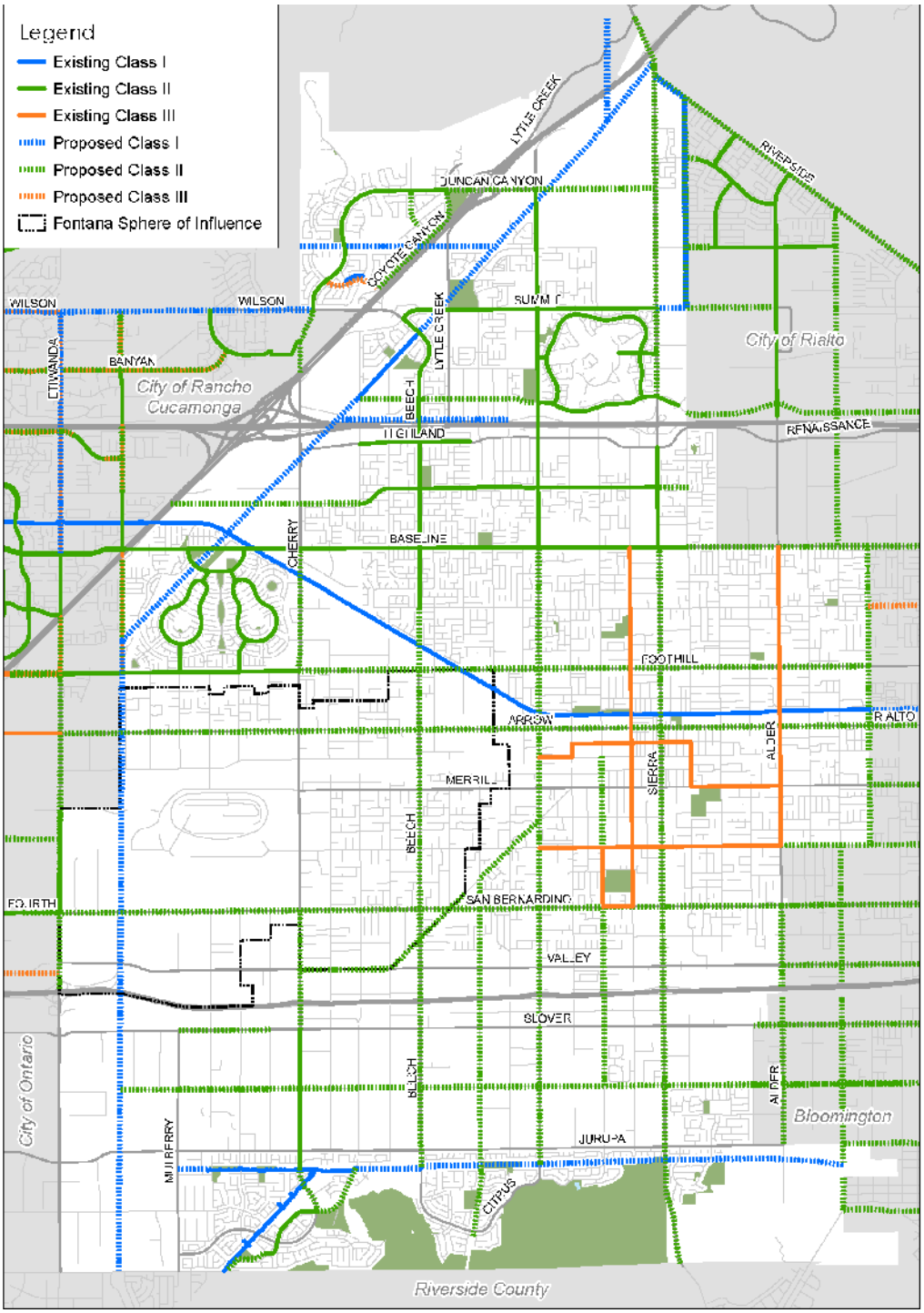


EXHIBIT 3-4: CITY OF FONTANA GENERAL PLAN BIKEWAYS



Source: City of Fontana
November 2018

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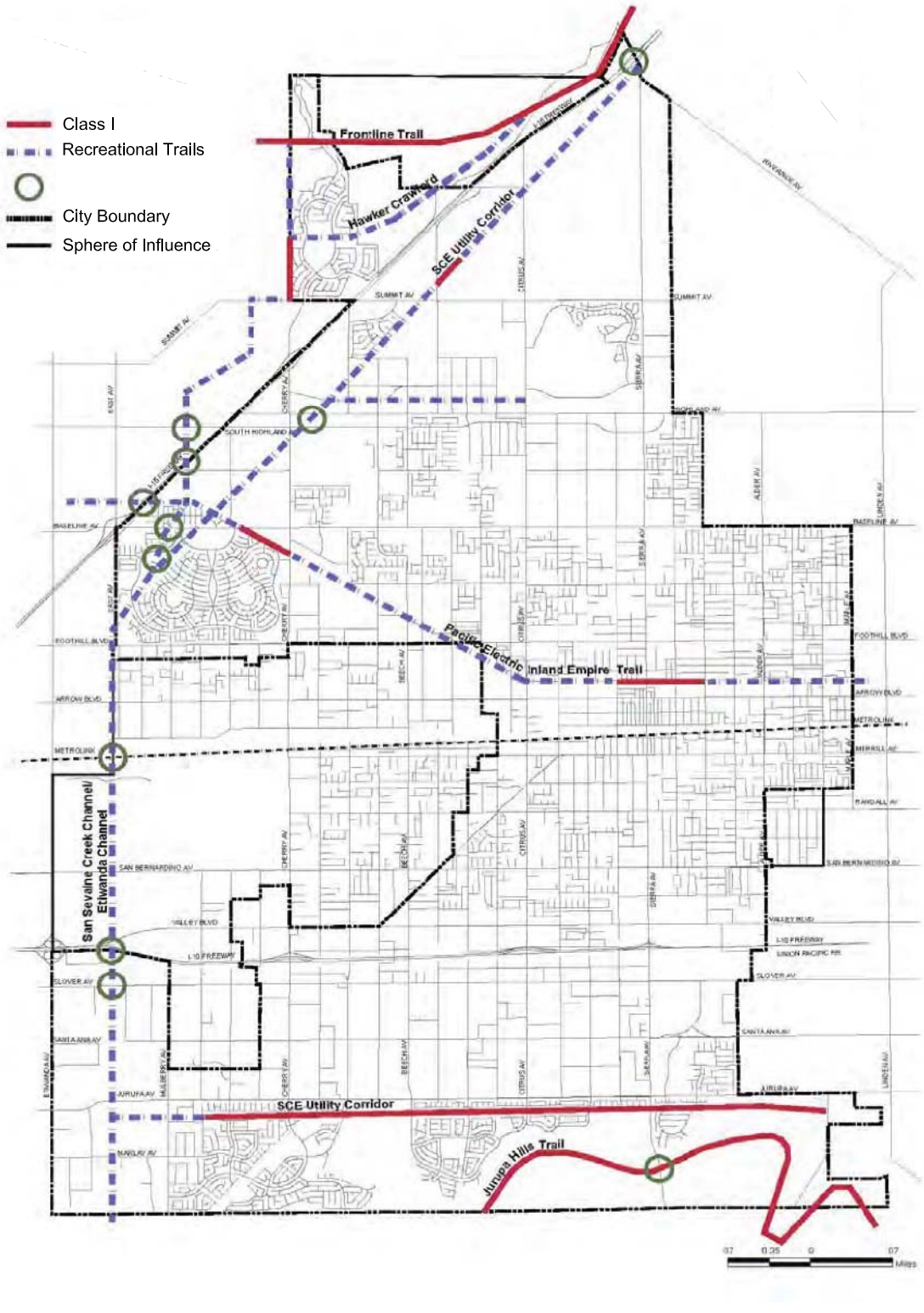
EXHIBIT 3-5: CITY OF FONTANA GENERAL PLAN TRAILS



City of Fontana General Plan

3.4 TRANSIT SERVICE

The study area is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County, with bus service along Merrill Avenue (via Route 20). The existing bus route provided within the area by Omnitrans is shown on Exhibit 3-7. Transit service is reviewed and updated by Omnitrans periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 EXISTING TRAFFIC COUNTS

Manual AM and PM peak hour turning movement counts were conducted in February 2020. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. Existing average daily traffic (ADT) volumes on arterial highways throughout the study area are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 11.87 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 8.43 percent. As such, the above equation utilizing a factor of 11.87 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.43 percent (i.e., 1/0.0843 = 11.87) and was assumed to sufficiently estimate ADT volumes for planning-level analyses. Existing ADT volumes and weekday AM and PM peak hour intersection volumes are shown on Exhibit 3-8.

3.6 EXISTING CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing (2020) peak hour traffic operations have been evaluated for the study area intersection based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized on Table 3-1 which indicates that the existing study area intersection is currently operating at an acceptable LOS. Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions is shown on Exhibit 3-9. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES

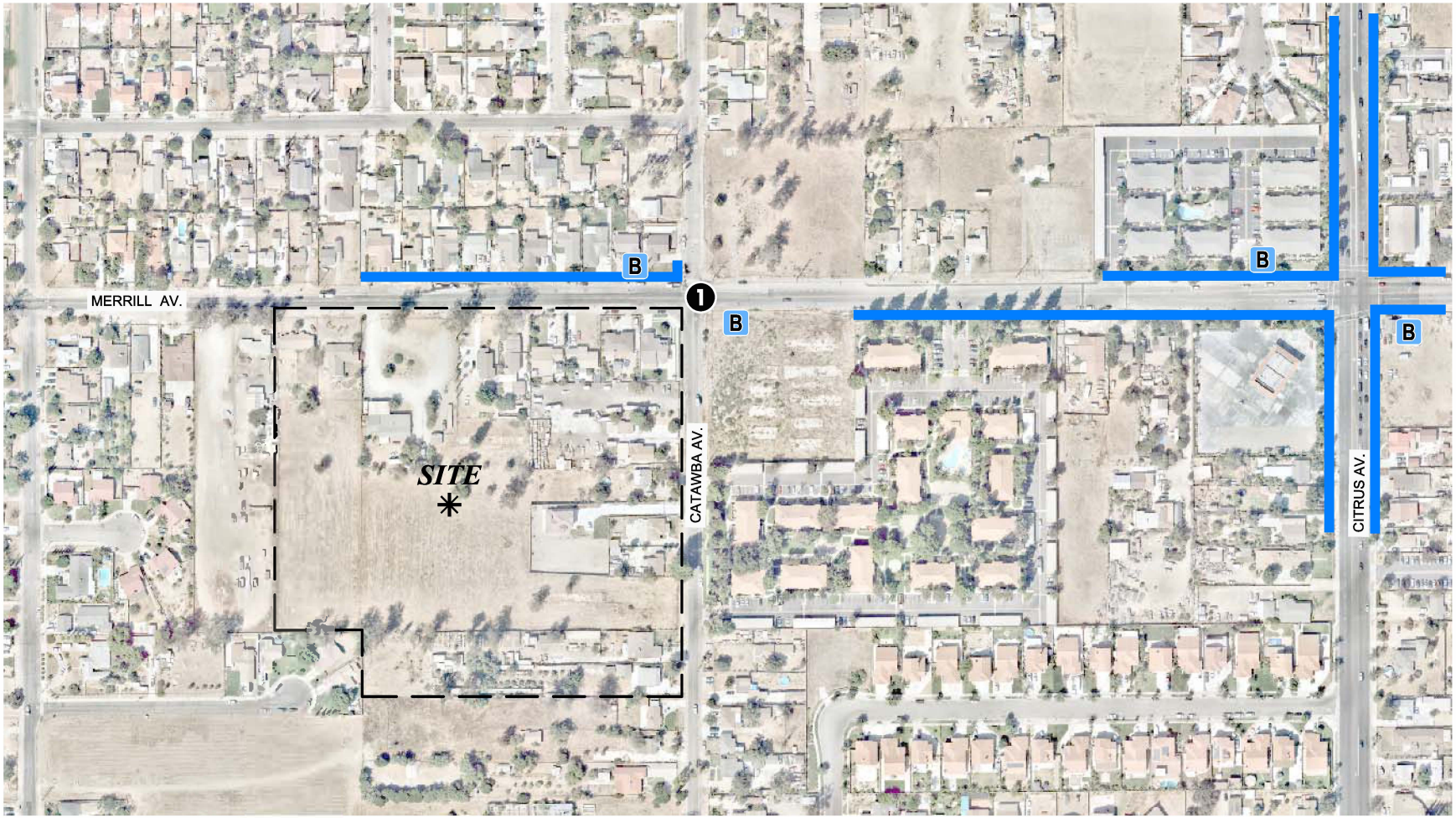
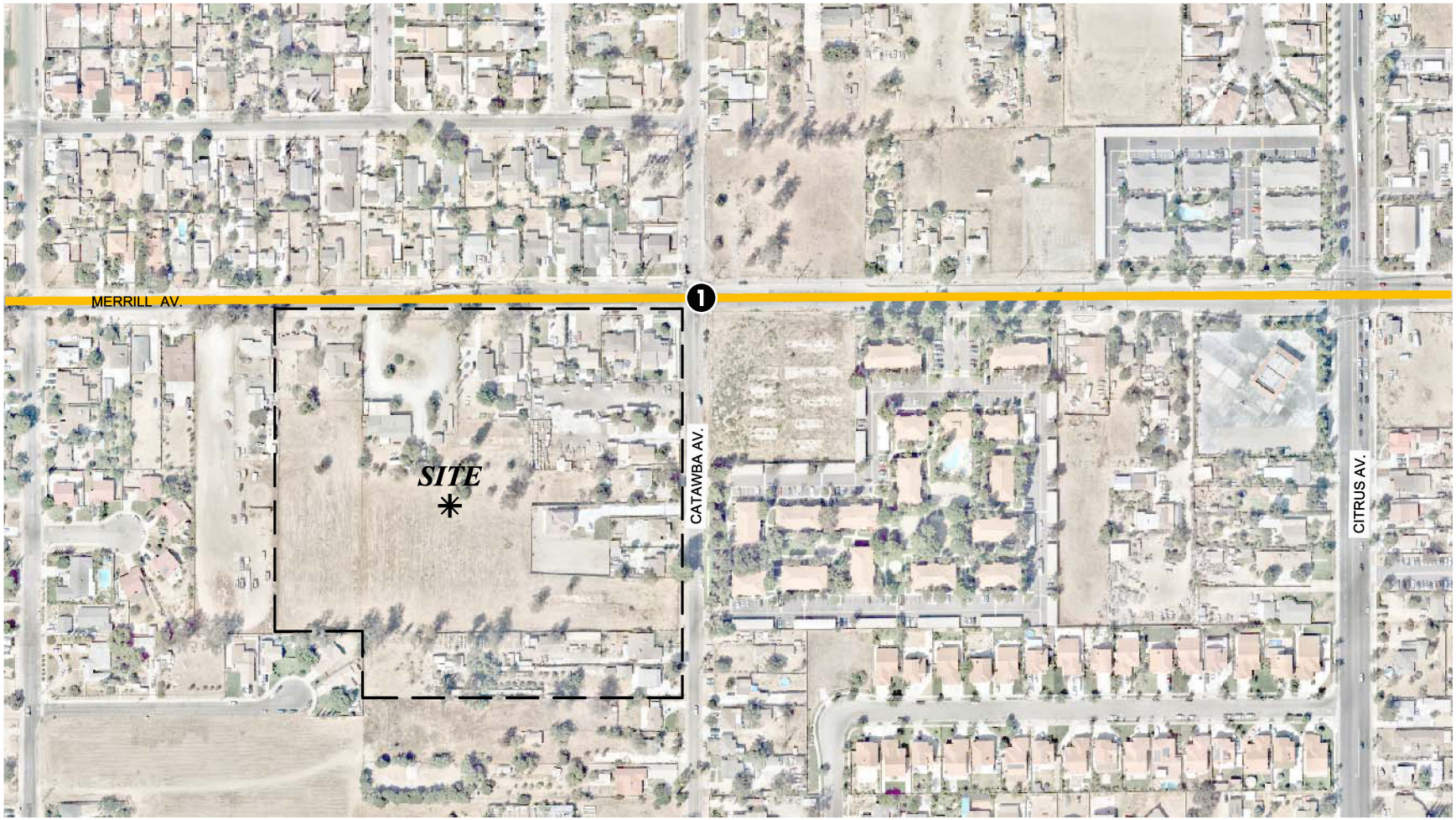


EXHIBIT 3-7: EXISTING TRANSIT ROUTES



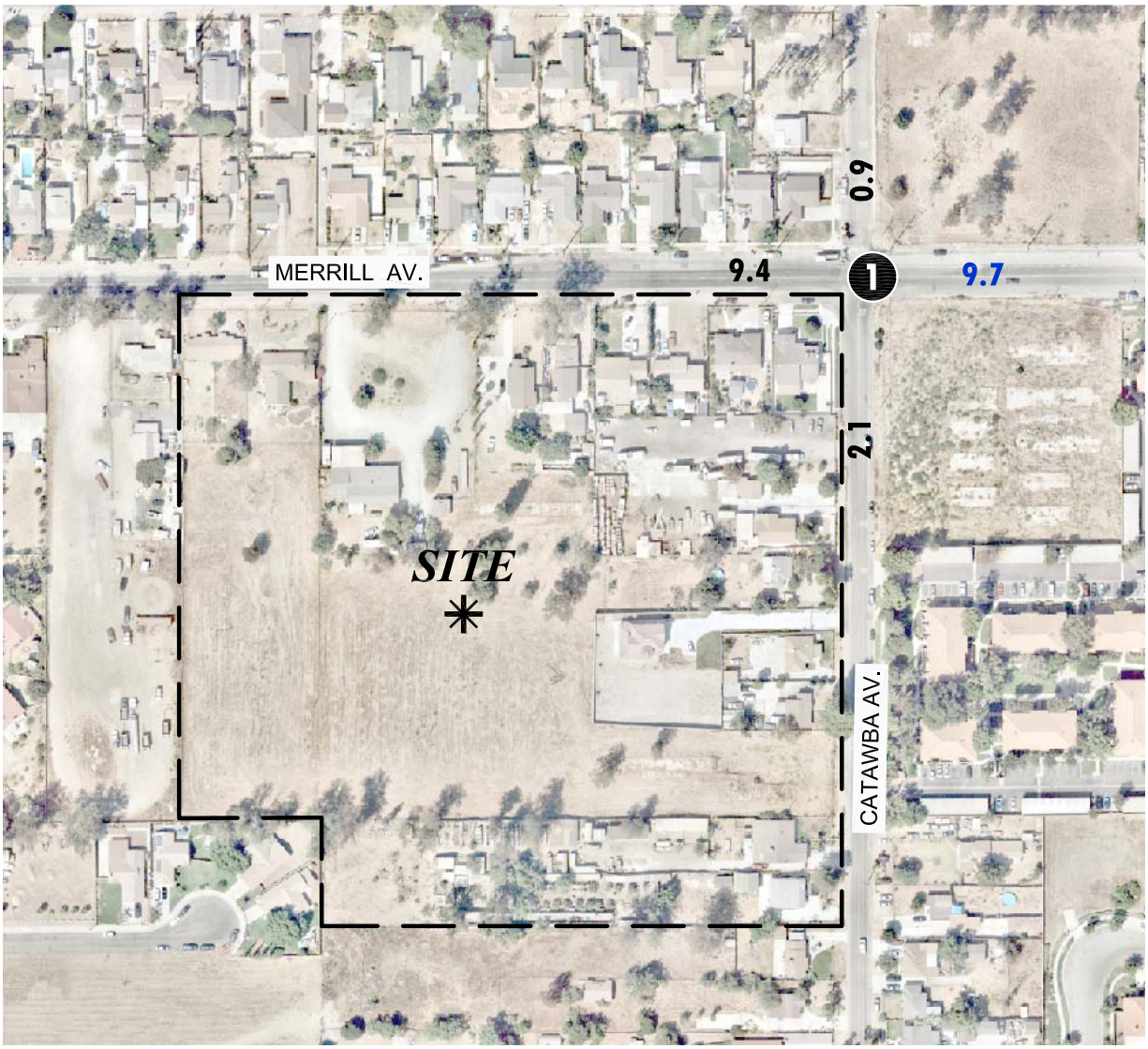
LEGEND:

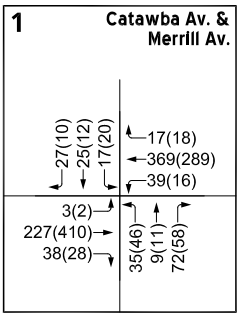
= OMNITRANS ROUTE 20

N

URBAN CROSSROADS

EXHIBIT 3-8: EXISTING (2020) TRAFFIC VOLUMES (IN PCE)



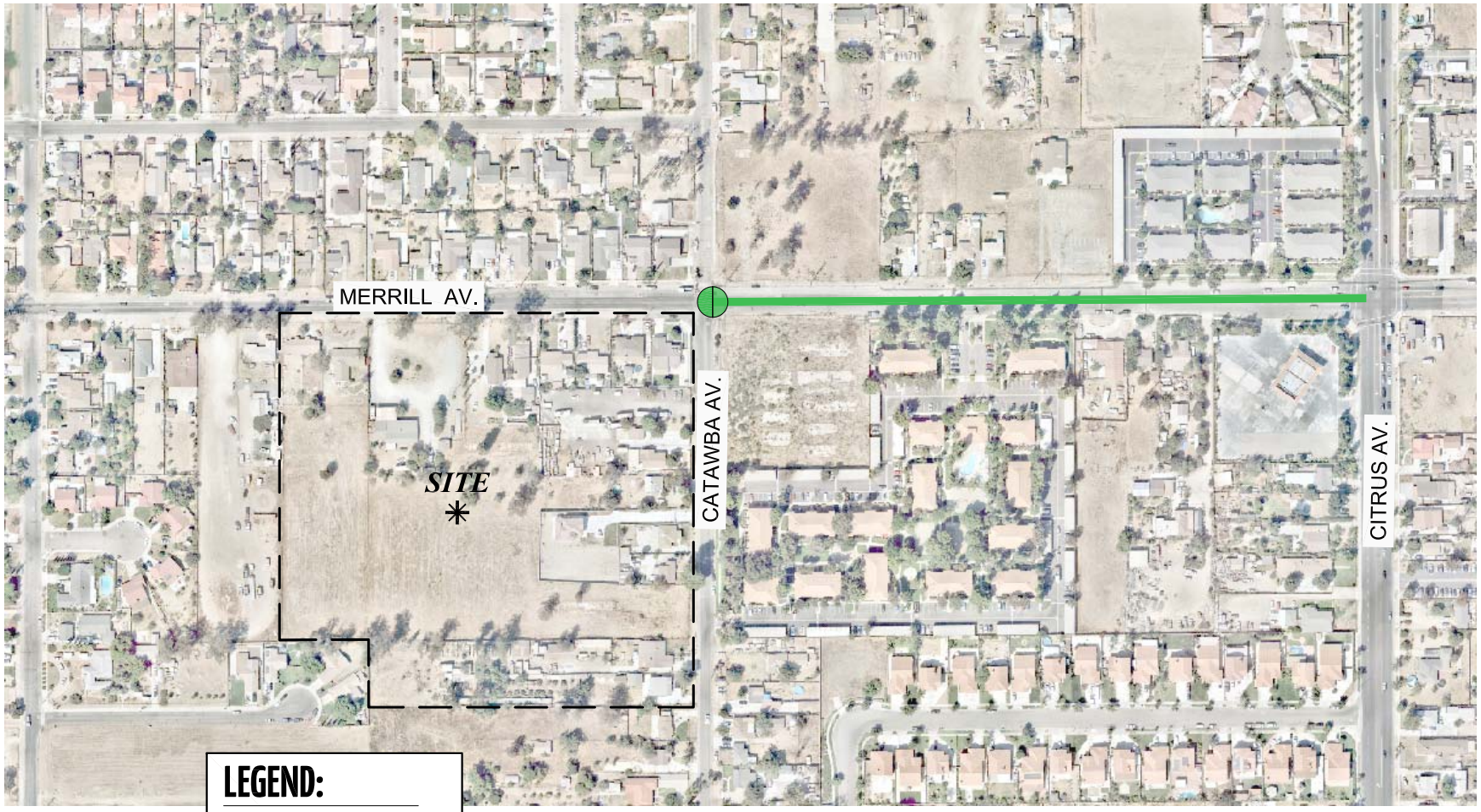


LEGEND:

10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
10.0 = ESTIMATED VEHICLES PER DAY (1000'S)
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

N

EXHIBIT 3-9: EXISTING (2020) SUMMARY OF LOS



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URBAN CROSSROADS

Table 3-1

Intersection Analysis for Existing (2020) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service		Acceptable Level of Service
			Northbound			Southbound			Eastbound			Westbound							
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
1	Catawba Av. & Merrill Av.	CSS	0	1	0	0	1	0	0	1	d	0	1	1	14.4	14.6	B	B	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; d = Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop

3.7 ROADWAY SEGMENT ANALYSIS

These roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2020) conditions roadway segment capacity analysis based on the City of Fontana Roadway Segment Capacity Thresholds. As shown on Table 3-2, the study area roadway segment currently operates at an acceptable LOS based on the City's planning level daily roadway capacity thresholds.

Table 3-2

Roadway Segment Capacity Analysis for Existing (2020) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2020	V/C[2]	LOS[3]	Acceptable LOS
1	Merrill Av.	Catawba Av. to Citrus Av.	4U	24,000	9,728	0.41	A	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. For the purposes of this focused TIA, the net new Project trips (over the currently adopted land use and zoning) have been added to Horizon Year (2040) traffic forecasts to assess potential traffic impacts associated with the proposed change of zone.

The Project is located on the southwest corner of Catawba Avenue and Merrill Avenue on 13.75 acres. The Project is currently designated as Single Family Residential (R-1, 2.1-5 dwelling units/acre) with a maximum of 68 dwelling units (DUs). The proposed zone change would change the zoning designation for the site to Medium Density Residential (R-2) which would allow for a density range of 5.1-12 DU/acre and a maximum of 165 DUs on the site (an increase of up to 97 DUs relative to existing zoning).

The proposed zone change is being considered by the City of Fontana as a legislative action only; no development would occur until and unless the owners of the Project submit subsequent discretionary site development application to the City of Fontana and said application is approved by the appropriate City of Fontana hearing body.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. Trip generation rates used to estimate Project traffic are shown on Table 4-1. A summary of the Project's trip generation is also shown on Table 4-1. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. (3)

The site is currently designated as Single Family Residential (R-1, 2.1-5 DUs/acre) with a maximum of 68 DUs. As shown on Table 4-1, the maximum 165 DUs planned for the Project are anticipated to generate a total of 1,208 trip-ends per day with 75 AM peak hour trips and 92 PM peak hour trips.

As shown on Table 4-2, compared to the traffic generation that would occur under the existing zoning, the additional planned 97 DUs on the site are anticipated to generate a total of 566 additional trip-ends per day with 24 AM peak hour trips and 25 PM peak hour trips. The net new trips for the site will be utilized for the Horizon Year (2040) With Project analysis scenario in order to identify any potential traffic impacts associated with increasing the density from the currently adopted General Plan land use and zoning designation.

Table 4-1

Project Trip Generation Summary

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates									
Multi-Family (Low Rise) Residential	DU	220	0.11	0.35	0.46	0.35	0.21	0.56	7.32

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary									
Multi-Family (Catawba/Merrill)	165	DU	17	58	75	58	34	92	1,208

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

Table 4-2

Trip Generation Comparison

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates									
Single Family Detached Residential	DU	210	0.19	0.56	0.74	0.62	0.37	0.99	9.44

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Comparison									
Currently Adopted: Single Family	68	DU	13	38	51	42	25	67	642
Proposed: Total Net New (Table 1)	165	DU	17	58	75	58	34	92	1,208
Variance			***4***	***20***	***24***	***16***	***9***	***25***	***566***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibit 4-1 shows the trip distributions patterns for the Project.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

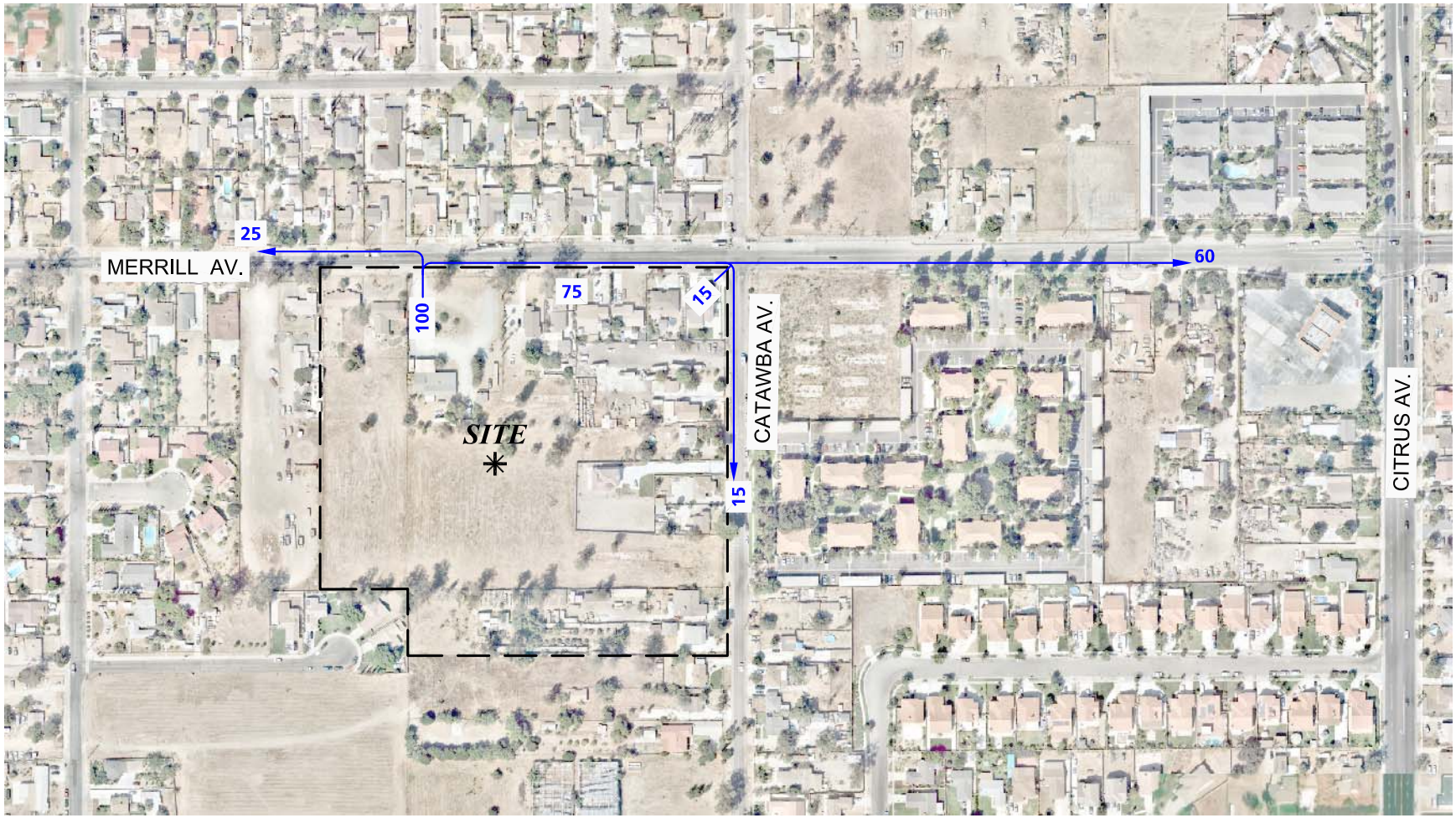
The assignment of traffic from the Project to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADTs and AM and PM peak hour traffic volumes are shown on Exhibit 4-2.

4.5 BACKGROUND TRAFFIC

The currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Strategic Communities Strategy (RTP/SCS) (April 2016) growth forecast for the City of Fontana identifies projected growth in population of 200,200 in 2012 to 280,900 in 2040, or a 40.31% increase over the 28-year period. (6) The change in population equates to roughly a 1.22 percent growth rate compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 49.19 percent, or 1.44 percent growth rate, compounded annually. Finally, growth in employment over the same 28-year period is projected to increase by 50.6 percent, or a 1.47 percent annual growth rate. The average annual growth rate between population, households, and employment is 1.38 percent per year and has been used for the purposes of this analysis.

Based on a comparison of Existing (2020) traffic volumes to the Horizon Year (2040) forecasts, the average growth rate is estimated at approximately 1.47 percent per year, compounded annually between Existing (2020) and Horizon Year (2040) traffic conditions. Therefore, this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Fontana for Horizon Year (2040) traffic conditions would tend to overstate as opposed to understate the potential impacts to traffic and circulation.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION

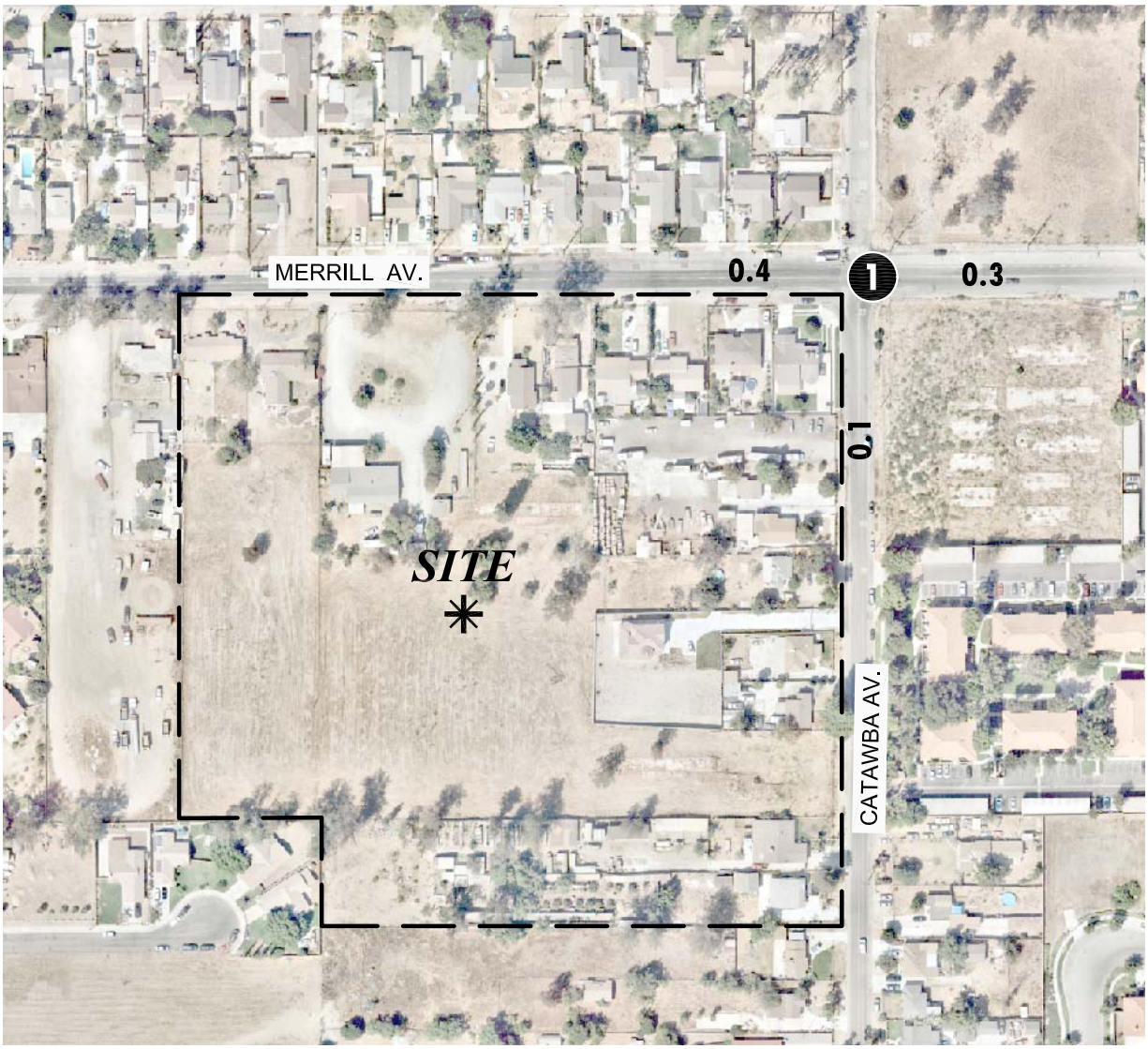


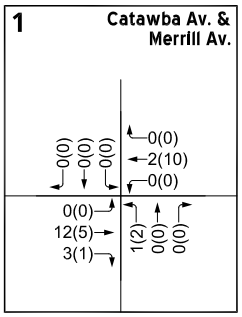
LEGEND:

10 = PERCENT TO/FROM PROJECT

N

EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES (IN PCE)





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

N

4.6 HORIZON YEAR (2040) VOLUME DEVELOPMENT

Traffic projections for Horizon Year (2040) without Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing for the study area intersection. The traffic forecasts reflect the area-wide growth anticipated between Existing (2020) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, and existing peak hour traffic count data collected at each analysis location in January 2020. The SBTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 255), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.27. These factors represent the relationship of the highest single AM peak hour to the modeled 3-hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4-hour PM peak period (an even distribution would result in a factor of 0.25).

Typically, the model growth is prorated and is subsequently added to the existing base (validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from Existing traffic conditions were not assumed as part of this analysis. As such, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts.

The future Horizon Year (2040) without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis. Post-processing worksheets for Horizon Year (2040) Without Project traffic conditions are provided in Appendix 4.1.

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5 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations and roadway segment analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1.

5.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM (see Section 4.6 *Horizon Year (2040) Volume Development* of this TIA for a detailed discussion on the post-processing methodology). The ADT volumes for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 5-1. AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are also shown on Exhibit 5-1.

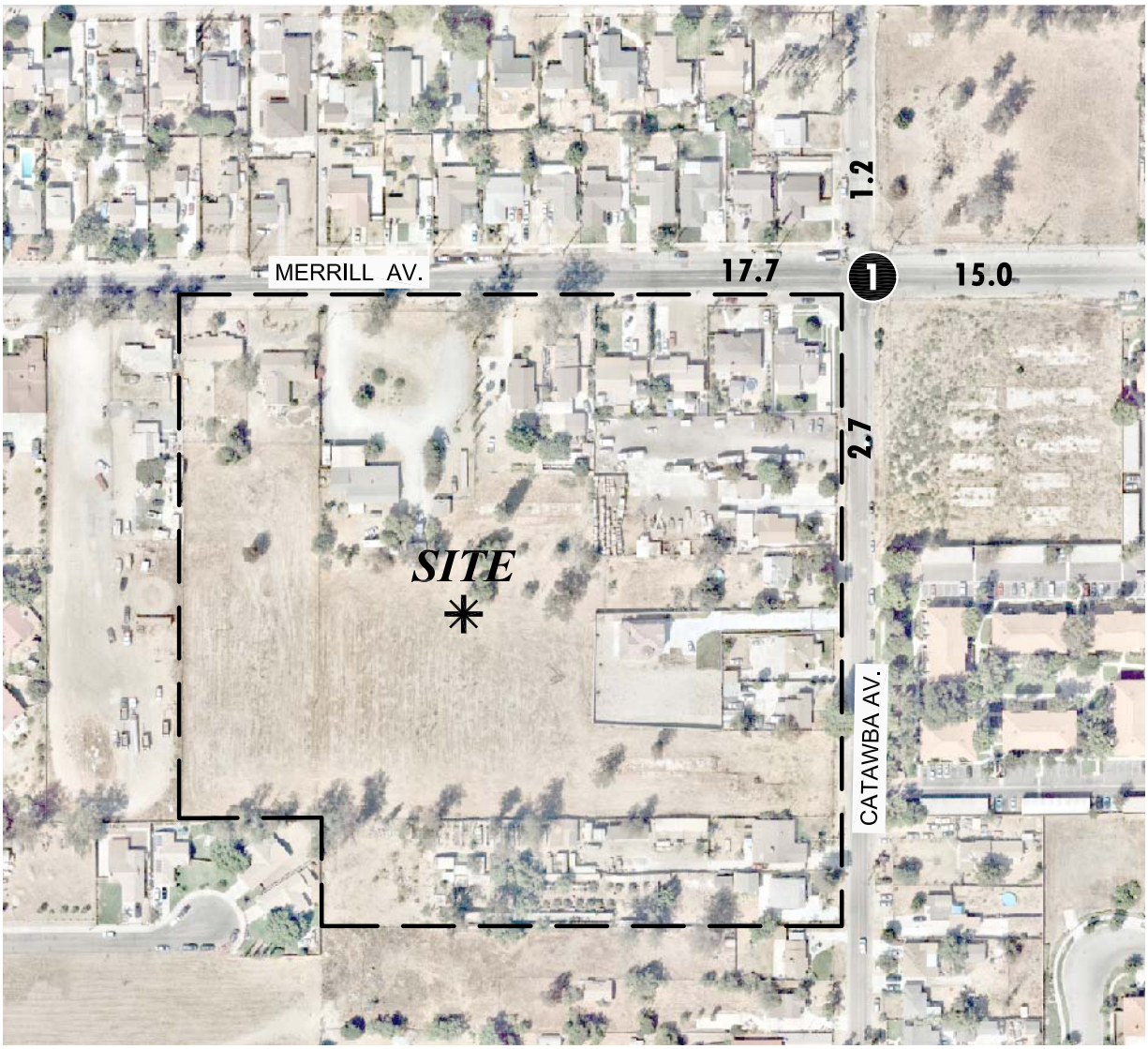
5.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

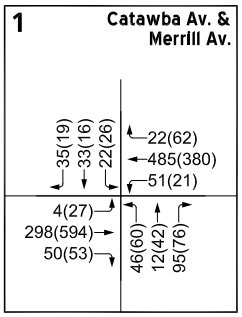
This scenario includes the refined post-process volumes obtained from the SBTAM, plus Project traffic (net new traffic above the currently adopted land use zoning). The ADT volumes for Horizon Year (2040) With Project traffic conditions are shown on Exhibit 5-2. AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are also shown on Exhibit 5-2.

5.4 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersection to evaluate its operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Section 5.1 *Roadway Improvements*. As shown on Table 5-1, the study area intersection is anticipated to operate at an unacceptable LOS (i.e. LOS D or worse) during the PM peak hour only under Horizon Year (2040) Without and With Project traffic conditions. A summary of the peak hour intersection LOS for Horizon Year (2040) Without and With Project conditions are shown on Exhibit 5-3 and Exhibit 5-4, respectively. However, the addition of Project traffic is not anticipated to exceed the City's significance threshold. As such, the Project's impact at Catawba Avenue and Merrill Avenue is less than significant and no improvements have been recommended. The intersection operations analysis worksheets for Horizon Year (2040) Without and With Project traffic conditions are included in Appendix 5.1 and Appendix 5.2 of this TIA, respectively.

EXHIBIT 5-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

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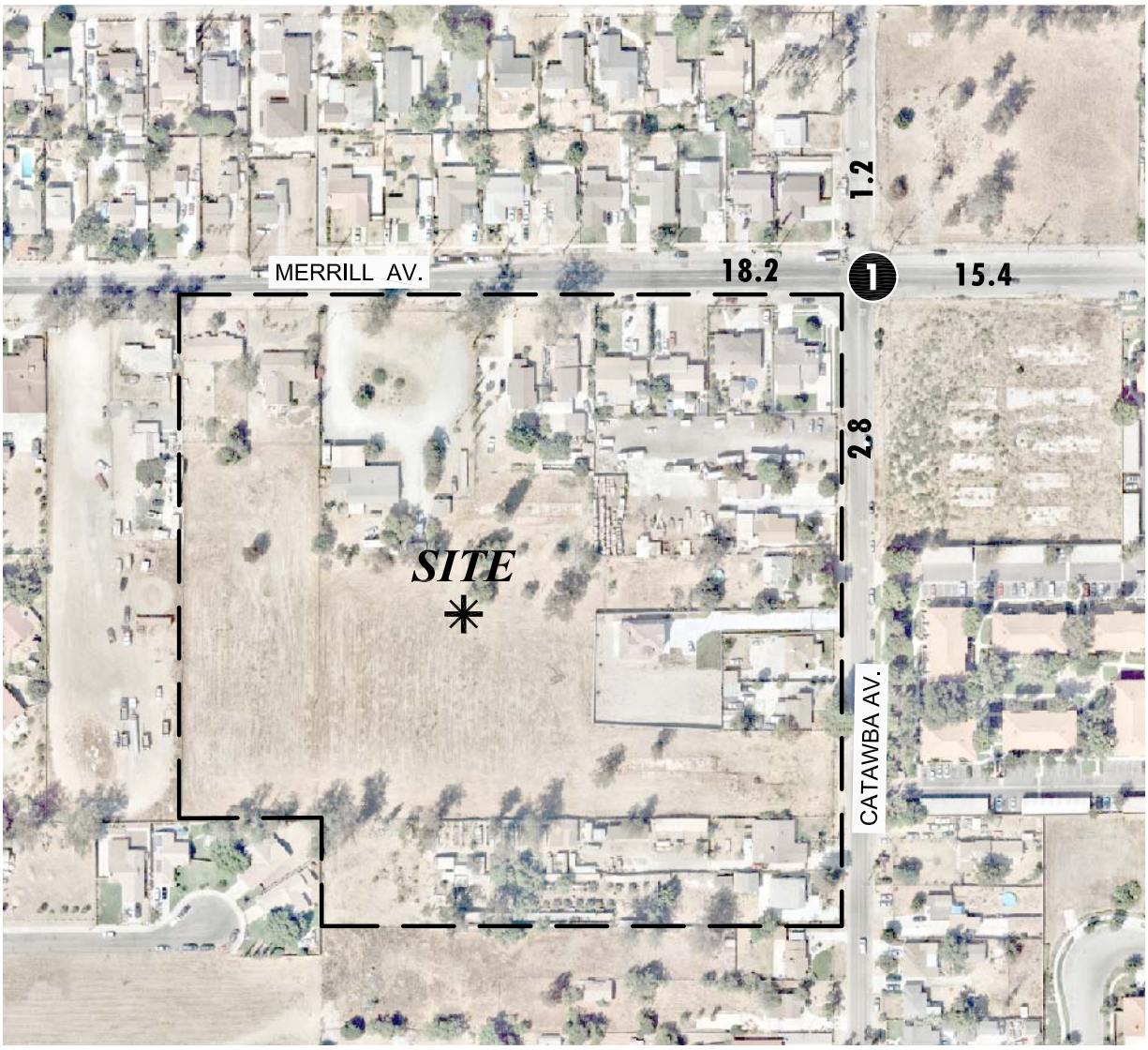
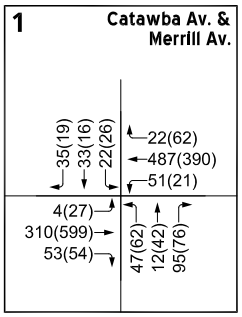
EXHIBIT 5-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 5-3: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS

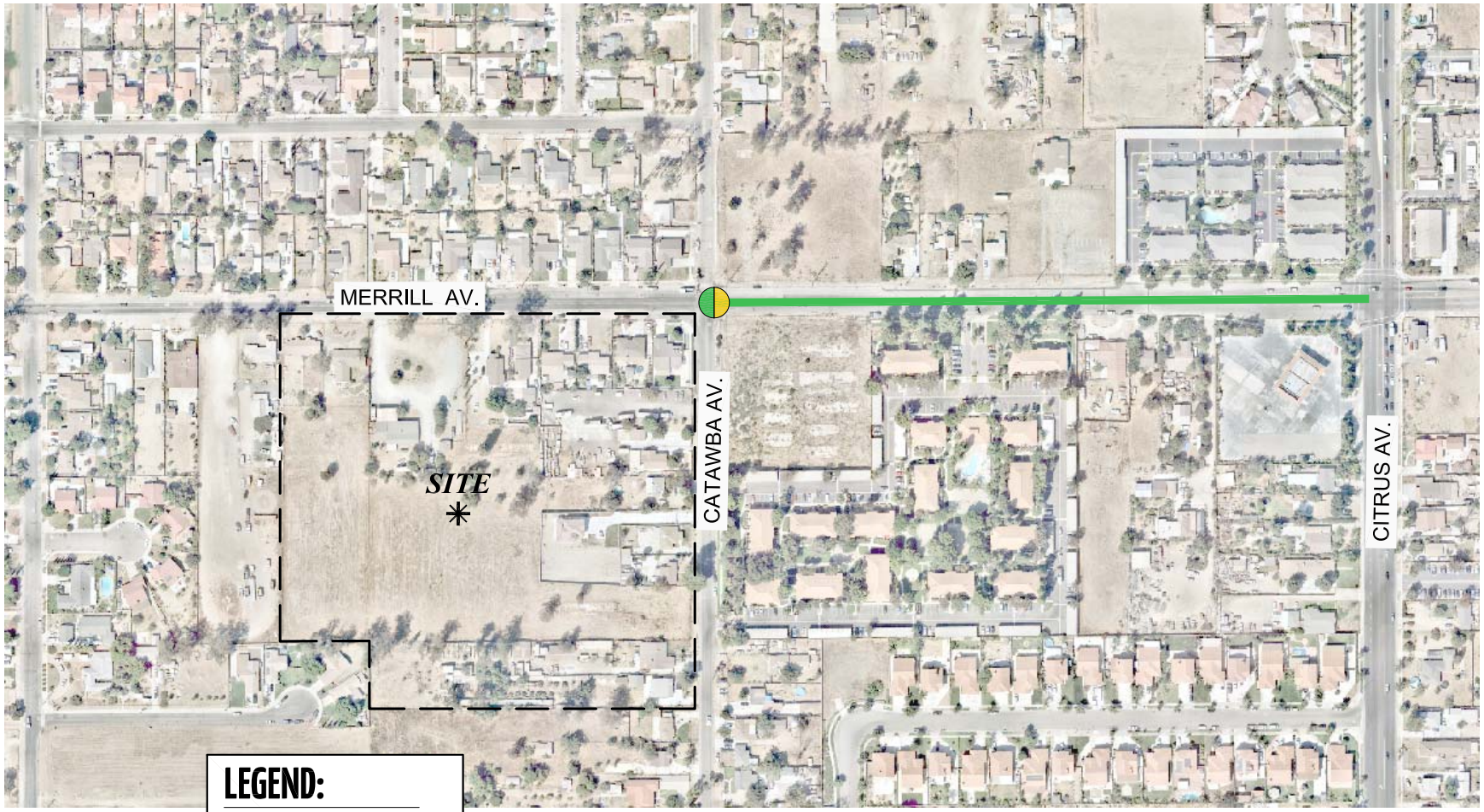


EXHIBIT 5-4: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS

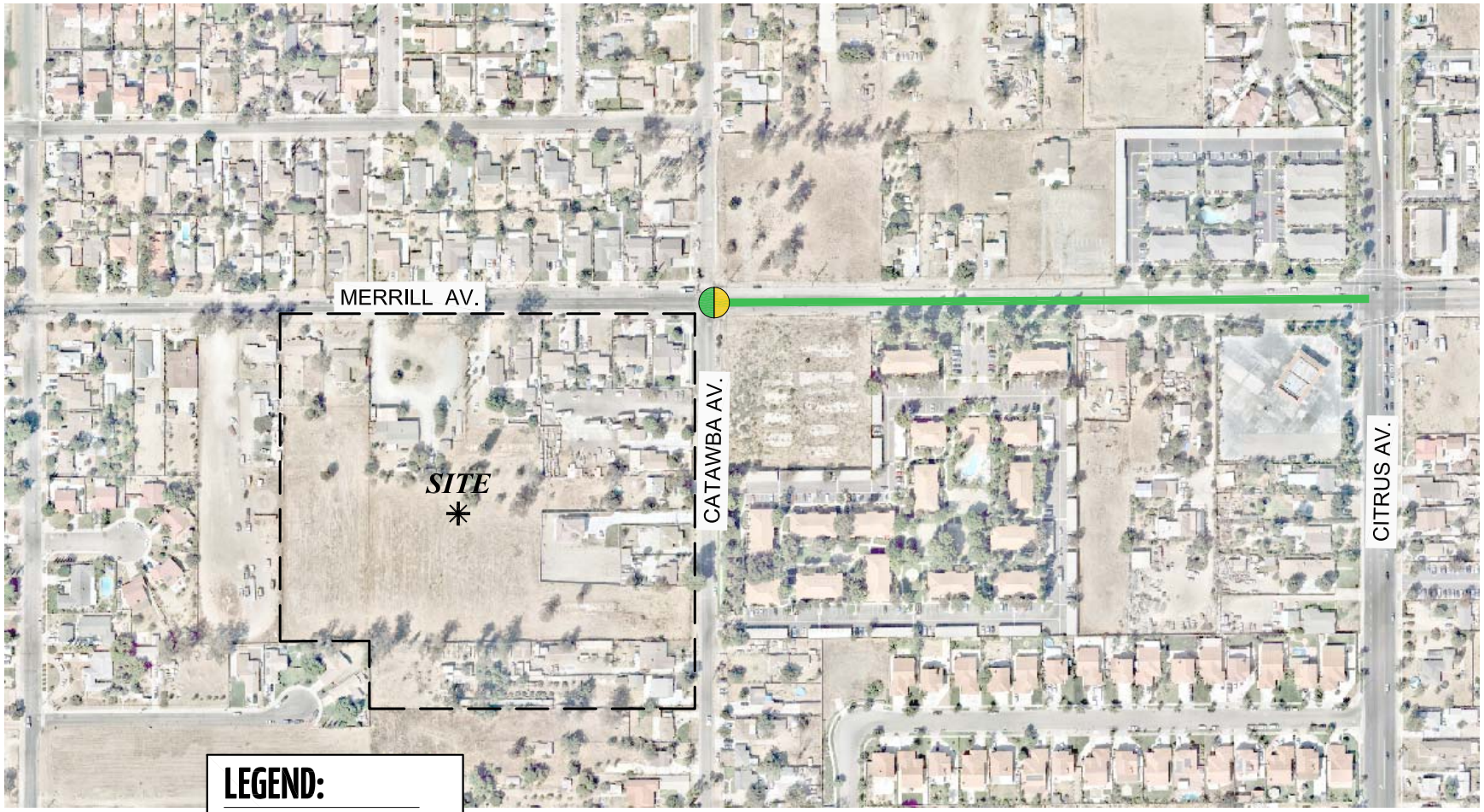


Table 5-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project				Difference in Delay (sec.) AM	Difference in Delay (sec.) PM	Significant Impact?[3]
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service				
			AM	PM	AM	PM	AM	PM	AM	PM			
1	Catawba Av. & Merrill Av.	CSS	18.5	**28.0**	C	**D**	18.7	**29.0**	C	**D**	0.2	1.0	No

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[2] CSS = Cross-Street Stop

[3] Significant near-term impacts have been identified based on each applicable agency's threshold of significance and if the Project contributes 50 or more peak hour trips.

5.5 ROADWAY SEGMENT ANALYSIS

The roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the Horizon Year (2040) Without Project conditions roadway segment capacity analysis based on the City of Fontana Roadway Segment Capacity Thresholds. As shown on Table 5-2, the study area roadway segment is anticipated to operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds for Horizon Year (2040) Without and With Project traffic conditions.

Table 5-2

Roadway Segment Capacity Analysis for Horizon Year (2040) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2040 NP	V/C[2]	LOS[3]	2040 WP	V/C[2]	LOS[3]	Acceptable LOS
1	Merrill Av.	Catawba Av. to Citrus Av.	4U	24,000	15,013	0.63	B	15,353	0.64	B	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6 REFERENCES

1. **City of Fontana.** *Draft Traffic Study Guidelines.* City of Fontana : s.n., October 2019.

2. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.

3. **Institute of Transportation Engineers.** *Trip Generation.* 10th Edition. 2017.

4. **City of Fontana.** *City of Fontana General Plan.* Fontana : s.n., Adopted November 13, 2018.

5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.

6. **Southern California Association of Governments.** *2016 Regional Transportation Plan.* April 2016.

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APPENDIX 1.1:

APPROVED SCOPING AGREEMENT

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Exhibit B

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Fontana Engineering Department requirements for traffic impact analysis of the following project. The analysis must follow the SBCTA Congestion Management Plan (CMP) Guidelines Updated 2016.

Case No. MCN 19-0109; DR No. 19-036; TPM No. 20171
Related Cases -
SP No. 19-011
EIR No.
GPA No. 19-007
CZ No. 19-005
Project Name: Catawba & Merrill Residential Zone Change
Project Address: SWC of Catawba Avenue and Merrill Avenue
Project Description: 68 single family to 165 multi-family (97 new DUs)

	Consultant	Developer
Name:	Urban Crossroads, Inc	EPD Solutions, Inc.
Address:	260 E. Baker Street, Suite 200	2 Park Plaza, Suite 1120
	Costa Mesa, CA 92626	Irvine, CA 92614
Telephone:	949-336-5982	
Fax:		

A. Trip Generation Source: (ITE 10th Edition) (See Table 1)

Current GP Land Use	Residential (R-1)	Proposed Land Use	Residential (R-2)
Current Zoning	R-1	Proposed Zoning	R-2

Current Trip Generation	In	Out	Total	Proposed Trip Generation	In	Out	Total
AM Trips					4	20	24
PM Trips					16	9	25

Internal Trip Allowance ☐ Yes ☑ No (% Trip Discount)
Pass-By Trip Allowance ☐ Yes ☑ No (% Trip Discount)

A pass-by trip discount is allowed for appropriate land uses per ITE trip generation handbook 3rd edition. The pass-by trips at adjacent study area intersections and project driveways shall be indicated on a report figure. (Attach table for detailed trip generation)

B. Trip Geographic Distribution: N 0 % S 15 % E 60 % W 25 %
(attach exhibit for detailed assignment)

C. Background Traffic

Project Opening & Future Build-Out Year: N/A
Annual Ambient Growth Rate: N/A %

Phase Year(s) No Phasing
Other area projects to be analyzed: N/A

Model/Forecast methodology SBTAM 2040

D. Study intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Catawba Avenue & Merrill Avenue
2.
3.
4.
5.
6.
7.
8.
9.
10.

E. Study Roadway Segments: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.)*

1. Merrill Avenue, East of Catawba Avenue
2.
3.
4.
5.
6.
7.
8.
9.
10.

E. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one-mile radius of City boundaries? ☑ Yes ☐ No

If so, name of City Jurisdiction: County of San Bernardino

F. Site Plan (please attach reduced copy)

G. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by Engineering Department)
(NOTE: If the traffic study states that "a traffic signal is warranted" (or "a traffic signal appears to be warranted," or similar statement) at an existing unsignalized intersection under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection.)

H. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.
Date of counts

Recommended by:

Charlene So — 1/29/2020
Consultant's Representative — Date

Approved Scoping Agreement:

2/27/20
City of Fontana Traffic Engineer — Date

Scoping Agreement Submitted on 1/29/2020

Revised on 2/26/2020

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

February 26, 2020

Mr. Mahmoud Khodr
City of Fontana
8353 Sierra Avenue
Fontana, CA 92335

SUBJECT: SCOPING AGREEMENT FOR THE CATAWBA AND MERRILL RESIDENTIAL ZONE CHANGE FOCUSED TRAFFIC IMPACT ANALYSIS

Dear Mr. Mahmoud Khodr:

The firm of Urban Crossroads, Inc. is pleased to submit this letter documenting the recommended Scope of Work for the proposed Catawba and Merrill Residential Zone Change development ("Project") which is located on the southwest corner of Catawba Avenue and Merrill Avenue in the City of Fontana. The Project is on 13.75 acres and is proposing to increase in residential density from its current zoning as part of SB330.

Exhibit 1 depicts the location of the proposed Project in relation to the existing roadway network.

The Project is located on the southwest corner of Catawba Avenue and Merrill Avenue on 13.75 acres. The Project is currently designated as Single-Family Residential (R-1, 2.1-5 du/ac) with a maximum of 68 du's. The proposed zone change would increase the density to Medium Density Residential (R-2) which would allow for a density range of 5.1-12 du/ac resulting in a maximum of 165 du's (an additional 97 du's).

The remainder of this letter describes the draft proposed analysis methodology, project trip generation, trip distribution, and project traffic assignment/project trips on the surrounding roadway network, which have been used to establish the draft proposed project study area and analysis locations.

STUDY AREA

Per the City of Fontana traffic study guidelines, intersections where the Project is expected to add at least 50 peak hour trips should be analyzed. Although the proposed net new trips is less than the 50 peak hour trip criteria, the following study area intersection is proposed to be evaluated:

1. Catawba Avenue & Merrill Avenue

The following study area roadway segment is proposed to be evaluated:

1. Merrill Avenue, East of Catawba Avenue

Exhibit 1 identifies the study area analysis locations listed above. Study area intersections will be evaluated using the HCM 6th Edition methodology. Count data will be conducted during the weekday AM and weekday PM peak hours when schools are in session and operating on normal bell schedules.

ANALYSIS SCENARIOS

The analysis of peak hour operations at study area intersection and roadway segment will be provided for the following analysis scenarios in the programmatic-level focused TIA:

- Existing (2020) Conditions
- Horizon Year (2040) Without Project – Based on the SBTAM Traffic Model
- Horizon Year (2040) With Project

TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. Trip generation rates for the Project are shown in Table 1. The trip generation summary for the proposed Project is also shown on Table 1. The trip generation rates used for this analysis are based upon trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017).

As shown on Table 1, the Project is anticipated to generate a total of 1,208 trip-ends per day with 75 AM peak hour trips and 92 PM peak hour trips.

TABLE 1: PROJECT TRIP GENERATION SUMMARY

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates									
Multi-Family (Low Rise) Residential	DU	220	0.11	0.35	0.46	0.35	0.21	0.56	7.32

Land Use	Quantity	Units[2]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary									
Multi-Family (Catawba/Merrill)	165	DU	17	58	75	58	34	92	1,208

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

As shown on Table 2, compared to the traffic generation that would occur under existing zoning, the additional 97 du's in are anticipated to generate a total of 566 additional trip-ends per day with 24 AM peak hour trips and 25 PM peak hour trips.

TABLE 2: TRIP GENERATION COMPARISON

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Rates									
Single Family Detached Residential	DU	210	0.19	0.56	0.74	0.62	0.37	0.99	9.44

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Trip Generation Comparison									
Currently Adopted: Single Family	68	DU	13	38	51	42	25	67	642
Proposed: Total Net New (Table 1)	165	DU	17	58	75	58	34	92	1,208
Variance			***4***	***20***	***24***	***16***	***9***	***25***	***566***

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] DU = Dwelling Units

The net new trips will be utilized for the Horizon Year With Project analysis scenario in order to identify any potential traffic impacts associated with increasing the density from the currently adopted General Plan land use and zoning designations.

TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. Exhibit 2 illustrates the proposed trip distribution patterns.

LEVEL OF SERVICE (LOS) CRITERIA

City of Fontana: The City of Fontana has set the goal for acceptable LOS as LOS C or better, wherever feasible (see Goal #1, Policy #12 of the City of Fontana General Plan Circulation Element). However, in some instances maintaining the LOS C threshold within a built environment may require extensive roadway widening that could affect existing uses, property rights and substantial costs associated with implementing these improvements. In the event that the improvements required to maintain LOS C is

determined to be infeasible, the City of Fontana recognizes that LOS D may be considered the worst acceptable level of service in urbanized areas of the City.

County of San Bernardino: The definition of an intersection deficiency in the County of San Bernardino is based on the County's General Plan Circulation Element. The County of San Bernardino's General Plan states that target LOS D be maintained at County intersections and roadway segments wherever possible within the Valley region.

THRESHOLDS OF SIGNIFICANCE – INTERSECTIONS

City of Fontana: For the intersections that lie within the City of Fontana, determination of significant impacts will be based on a comparison of without and with project levels of service for each analysis year. A Significant Impact occurs if project traffic increases the average delay at an intersection by more than the thresholds identified on Table 3. The thresholds for LOS A, B, and C do not apply to projects consistent with the General Plan.

TABLE 3: THRESHOLDS OF SIGNIFICANT IMPACT

Pre-Project LOS	Significant Impact Threshold[1]
A/B	10.0 Seconds
C	8.0 Seconds
D	5.0 Seconds
E	2.0 Seconds
F	1.0 Second

[1] Increase in delay

County of San Bernardino:

To determine whether the addition of project traffic at a signalized study intersection results in a significant project-related impact, the following thresholds of significance will be utilized:

- Any study intersection that is operating at a LOS A, B, C or D for any study scenario without project traffic in which the addition of project traffic causes the intersection to degrade to a LOS E or F shall mitigate the impact to bring the intersection back to at least LOS D.
- Any study intersection that is operating at a LOS E or F for any study scenario without project traffic shall mitigate any impacts so as to bring the intersection back to the overall level of delay established prior to project traffic being added.
- For scenarios which include the addition of Cumulative Project Traffic (i.e. shared impacts), study intersections shall be mitigated to LOS 'D' or better in the Valley and Mountain regions and LOS C or better in the Desert regions of the County.

To determine whether the addition of project traffic at an unsignalized study intersection results in a significant project-related impact, the following thresholds of significance will be utilized:

- The addition of project related traffic causes the intersection to move from a LOS D or better to a LOS E or worse

  OR

- The project contributes additional traffic to an intersection that is already projected to operate at an LOS E or F with background traffic (per Section 10.5.2 b))

  AND

- One or both of the following conditions are met:
  - The project adds ten (10) or more trips to any approach
  - The intersection meets the peak hour traffic signal warrant after the addition of project traffic (per Section 10.5.2 c)).

The proposed significance thresholds will be applied at study area intersections for the purposes of determining project-related impacts.

EXISTING COUNT DATA

Intersection turning movement counts will be conducted at the study area intersection locations for **weekday AM** (7-9AM) and **weekday PM** (4-6PM). Counts will be conducted when local schools are in session and operating on normal bell schedules.

VEHICLE MILES TRAVELLED (VMT)

The City of Fontana has not yet established significance thresholds as such VMT analysis will not be performed for this Project.

If you have any questions, please contact me directly at (949) 336-5982.

Respectfully submitted,

Charlene So

Charlene So, PE
Associate Principal

EXHIBIT 1: LOCATION MAP

LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

00 = ROADWAY SEGMENT ANALYSIS LOCATION

N

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EXHIBIT 2: PROJECT TRIP DISTRIBUTION

LEGEND:

10 = PERCENT TO/FROM PROJECT

N

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APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – FEBRUARY 2020

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Fontana
N/S: Catawba Avenue
E/W: Merrill Avenue
Weather: Clear

File Name : FON_Catawba_Merrill AM
Site Code : 05120128
Start Date : 2/25/2020
Page No : 1

Groups Printed- Total Volume

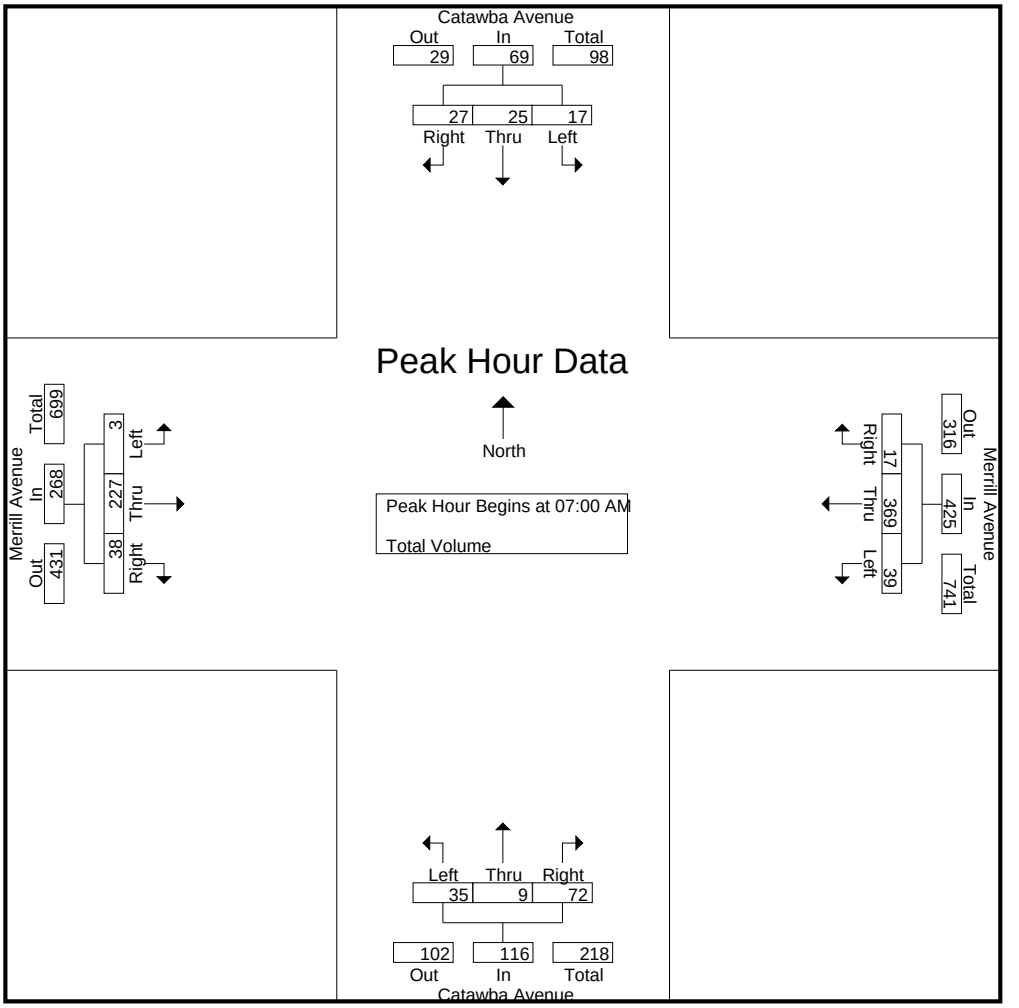
	Catawba Avenue Southbound				Merrill Avenue Westbound				Catawba Avenue Northbound				Merrill Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	7	12	23	11	78	4	93	7	4	21	32	0	48	15	63	211
07:15 AM	5	7	7	19	7	97	6	110	10	2	23	35	1	58	13	72	236
07:30 AM	3	6	5	14	14	109	6	129	7	3	20	30	2	59	8	69	242
07:45 AM	5	5	3	13	7	85	1	93	11	0	8	19	0	62	2	64	189
Total	17	25	27	69	39	369	17	425	35	9	72	116	3	227	38	268	878
08:00 AM	3	1	2	6	1	73	1	75	8	2	9	19	2	52	5	59	159
08:15 AM	0	5	1	6	6	45	4	55	5	5	11	21	0	73	4	77	159
08:30 AM	5	1	1	7	4	40	1	45	5	0	5	10	2	53	5	60	122
08:45 AM	0	0	1	1	0	42	1	43	6	0	12	18	0	44	0	44	106
Total	8	7	5	20	11	200	7	218	24	7	37	68	4	222	14	240	546
Grand Total	25	32	32	89	50	569	24	643	59	16	109	184	7	449	52	508	1424
Apprch %	28.1	36	36		7.8	88.5	3.7		32.1	8.7	59.2		1.4	88.4	10.2		
Total %	1.8	2.2	2.2	6.2	3.5	40	1.7	45.2	4.1	1.1	7.7	12.9	0.5	31.5	3.7	35.7	

	Catawba Avenue Southbound				Merrill Avenue Westbound				Catawba Avenue Northbound				Merrill Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	4	**7**	**12**	**23**	11	78	4	93	7	**4**	21	32	0	48	**15**	63	211
07:15 AM	**5**	7	7	19	7	97	**6**	110	10	2	**23**	**35**	1	58	13	**72**	236
07:30 AM	3	6	5	14	**14**	**109**	6	**129**	7	3	20	30	**2**	59	8	69	**242**
07:45 AM	5	5	3	13	7	85	1	93	**11**	0	8	19	0	**62**	2	64	189
Total Volume	17	25	27	69	39	369	17	425	35	9	72	116	3	227	38	268	878
% App. Total	24.6	36.2	39.1		9.2	86.8	4		30.2	7.8	62.1		1.1	84.7	14.2		
PHF	.850	.893	.563	.750	.696	.846	.708	.824	.795	.563	.783	.829	.375	.915	.633	.931	.907

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Fontana
N/S: Catawba Avenue
E/W: Merrill Avenue
Weather: Clear

File Name : FON_Catawba_Merrill AM
Site Code : 05120128
Start Date : 2/25/2020
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:30 AM			
+0 mins.	4	**7**	**12**	**23**	11	78	4	93	7	**4**	21	32	**2**	59	**8**	69
+15 mins.	**5**	7	7	19	7	97	**6**	110	10	2	**23**	**35**	0	62	2	64
+30 mins.	3	6	5	14	**14**	**109**	6	**129**	7	3	20	30	2	52	5	59
+45 mins.	5	5	3	13	7	85	1	93	**11**	0	8	19	0	**73**	4	**77**
Total Volume	17	25	27	69	39	369	17	425	35	9	72	116	4	246	19	269
% App. Total	24.6	36.2	39.1		9.2	86.8	4		30.2	7.8	62.1		1.5	91.4	7.1	
PHF	.850	.893	.563	.750	.696	.846	.708	.824	.795	.563	.783	.829	.500	.842	.594	.873

Counts Unlimited
PO Box 1178
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(951) 268-6268

City of Fontana
N/S: Catawba Avenue
E/W: Merrill Avenue
Weather: Clear

File Name : FON_Catawba_Merrill PM
Site Code : 05120128
Start Date : 2/25/2020
Page No : 1

Groups Printed- Total Volume

	Catawba Avenue Southbound				Merrill Avenue Westbound				Catawba Avenue Northbound				Merrill Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	9	3	1	13	6	67	2	75	8	2	16	26	2	115	4	121	235
04:15 PM	5	0	3	8	5	82	4	91	16	4	14	34	0	97	8	105	238
04:30 PM	4	4	1	9	4	82	2	88	8	3	13	24	0	100	10	110	231
04:45 PM	7	5	4	16	3	56	9	68	10	2	13	25	1	93	5	99	208
Total	25	12	9	46	18	287	17	322	42	11	56	109	3	405	27	435	912
05:00 PM	4	3	2	9	4	69	3	76	12	2	18	32	1	120	5	126	243
05:15 PM	9	1	3	13	8	77	4	89	8	4	9	21	0	107	5	112	235
05:30 PM	7	6	1	14	6	73	3	82	7	4	13	24	1	91	6	98	218
05:45 PM	11	2	5	18	4	63	1	68	10	3	13	26	2	103	5	110	222
Total	31	12	11	54	22	282	11	315	37	13	53	103	4	421	21	446	918
Grand Total	56	24	20	100	40	569	28	637	79	24	109	212	7	826	48	881	1830
Apprch %	56	24	20		6.3	89.3	4.4		37.3	11.3	51.4		0.8	93.8	5.4		
Total %	3.1	1.3	1.1	5.5	2.2	31.1	1.5	34.8	4.3	1.3	6	11.6	0.4	45.1	2.6	48.1	

	Catawba Avenue Southbound				Merrill Avenue Westbound				Catawba Avenue Northbound				Merrill Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	5	0	3	8	**5**	**82**	4	**91**	**16**	**4**	14	**34**	0	97	8	105	238
04:30 PM	4	4	1	9	4	82	2	88	8	3	13	24	0	100	**10**	110	231
04:45 PM	**7**	**5**	**4**	**16**	3	56	**9**	68	10	2	13	25	**1**	93	5	99	208
05:00 PM	4	3	2	9	4	69	3	76	12	2	**18**	32	1	**120**	5	**126**	**243**
Total Volume	20	12	10	42	16	289	18	323	46	11	58	115	2	410	28	440	920
% App. Total	47.6	28.6	23.8		5	89.5	5.6		40	9.6	50.4		0.5	93.2	6.4		
PHF	.714	.600	.625	.656	.800	.881	.500	.887	.719	.688	.806	.846	.500	.854	.700	.873	.947

Counts Unlimited
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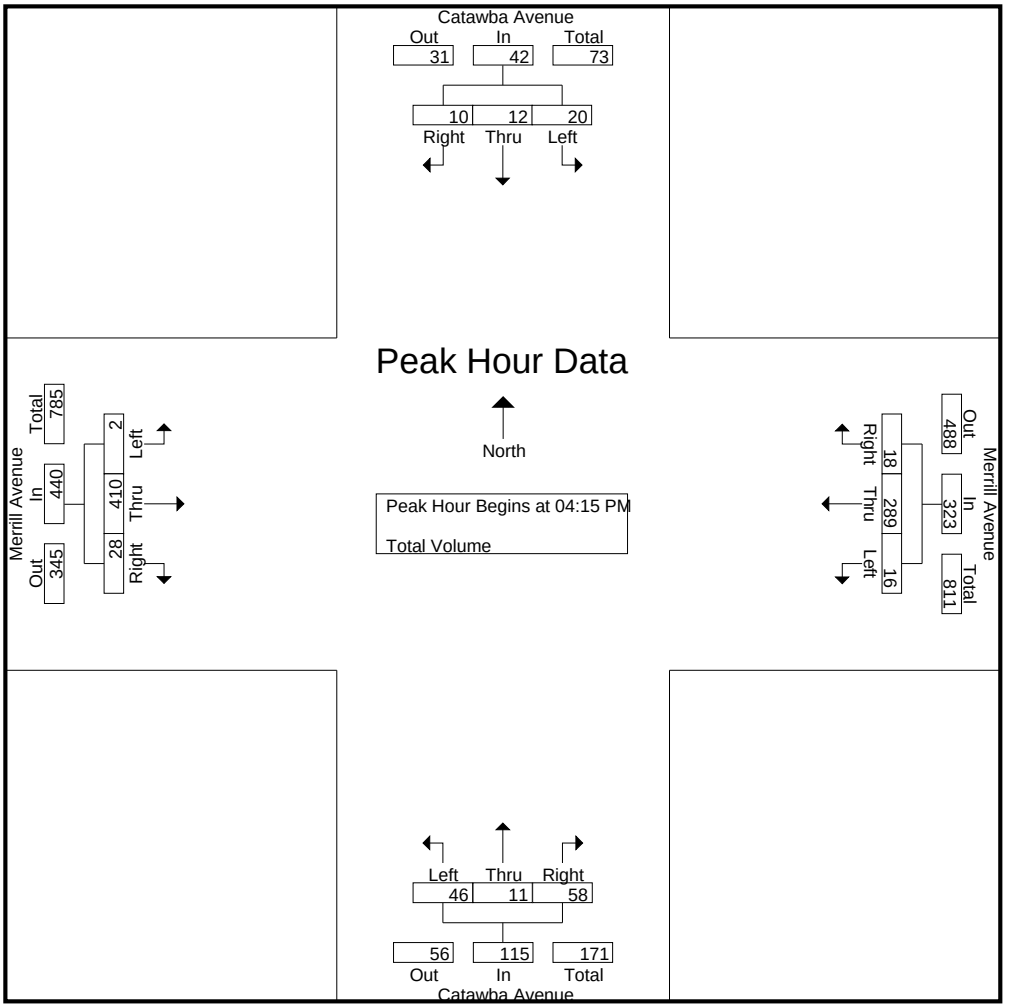
City of Fontana
N/S: Catawba Avenue
E/W: Merrill Avenue
Weather: Clear

File Name : FON_Catawba_Merrill PM
Site Code : 05120128
Start Date : 2/25/2020



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				04:15 PM				04:30 PM			
+0 mins.	4	3	2	9	**5**	**82**	4	**91**	**16**	**4**	14	**34**	0	100	**10**	110
+15 mins.	9	1	3	13	4	82	2	88	8	3	13	24	**1**	93	5	99
+30 mins.	7	**6**	1	14	3	56	**9**	68	10	2	13	25	1	**120**	5	**126**
+45 mins.	**11**	2	**5**	**18**	4	69	3	76	12	2	**18**	32	0	107	5	112
Total Volume	31	12	11	54	16	289	18	323	46	11	58	115	2	420	25	447
% App. Total	57.4	22.2	20.4		5	89.5	5.6		40	9.6	50.4		0.4	94	5.6	
PHF	.705	.500	.550	.750	.800	.881	.500	.887	.719	.688	.806	.846	.500	.875	.625	.887

Location: Fontana
N/S: Catawba Avenue
E/W: Merrill Avenue

Date: 2/25/2020
Day: Tuesday

PEDESTRIANS

	North Leg Catawba Avenue	East Leg Merrill Avenue	South Leg Catawba Avenue	West Leg Merrill Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	1	1
8:15 AM	2	0	0	0	2
8:30 AM	1	0	0	0	1
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	3	0	2	1	6

	North Leg Catawba Avenue	East Leg Merrill Avenue	South Leg Catawba Avenue	West Leg Merrill Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	2	0	2
4:15 PM	0	0	0	1	1
4:30 PM	0	0	1	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	0	0	3	2	5

Location: Fontana
N/S: Catawba Avenue
E/W: Merrill Avenue

Date: 2/25/2020
Day: Tuesday

BICYCLES

	Southbound Catawba Avenue			Westbound Merrill Avenue			Northbound Catawba Avenue			Eastbound Merrill Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Catawba Avenue			Westbound Merrill Avenue			Northbound Catawba Avenue			Eastbound Merrill Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Fontana
Merrill Avenue
E/ Catawba Avenue
24 Hour Directional Volume Count

FONMEECA
Site Code: 051-20128

Start	2/26/2020	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals	
Time	Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		6	56			5	55				
12:15		6	68			9	71				
12:30		10	65			7	60				
12:45		4	56	26	245	5	56	26	242	52	487
01:00		3	70			4	68				
01:15		2	61			6	52				
01:30		5	75			3	70				
01:45		8	61	18	267	5	57	18	247	36	514
02:00		4	94			9	66				
02:15		3	97			4	73				
02:30		4	103			3	80				
02:45		3	114	14	408	8	73	24	292	38	700
03:00		9	**156**			5	87				
03:15		5	**139**			4	79				
03:30		11	**130**			9	76				
03:45		8	**118**	33	543	11	**86**	29	328	62	871
04:00		11	143			14	**81**				
04:15		16	111			25	**87**				
04:30		18	122			21	**86**				
04:45		17	125	62	501	29	74	89	328	151	829
05:00		13	135			23	77				
05:15		19	125			34	86				
05:30		21	112			35	89				
05:45		26	131	79	503	42	71	134	323	213	826
06:00		23	100			33	63				
06:15		46	92			32	82				
06:30		47	95			75	67				
06:45		51	91	167	378	80	57	220	269	387	647
07:00		70	68			**90**	61				
07:15		**97**	71			**98**	64				
07:30		**77**	61			**120**	52				
07:45		**63**	51	307	251	**91**	40	399	217	706	468
08:00		**77**	50			87	49				
08:15		89	40			57	55				
08:30		61	31			75	37				
08:45		64	36	291	157	82	39	301	180	592	337
09:00		61	29			64	30				
09:15		68	36			43	38				
09:30		47	28			69	36				
09:45		64	25	240	118	74	35	250	139	490	257
10:00		55	24			34	27				
10:15		65	29			39	22				
10:30		62	24			42	15				
10:45		61	17	243	94	49	10	164	74	407	168
11:00		63	10			51	13				
11:15		47	12			34	10				
11:30		51	8			50	12				
11:45		54	9	215	39	58	8	193	43	408	82
Total		1695	3504	1695	3504	1847	2682	1847	2682	3542	6186
Combined Total		5199		5199		4529		4529		9728	
AM Peak	-	07:15	-	-	-	07:00	-	-	-	-	-
Vol.	-	314	-	-	-	399	-	-	-	-	-
P.H.F.		0.809				0.831					
PM Peak	-	-	03:00	-	-	-	03:45	-	-	-	-
Vol.	-	-	543	-	-	-	340	-	-	-	-
P.H.F.			0.870				0.977				
Percentage		32.6%	67.4%			40.8%	59.2%				
ADT/AADT		ADT 9,728		AADT 9,728							

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APPENDIX 3.2:

EXISTING (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	227	38	39	369	17	35	9	72	17	25	27
Future Vol, veh/h	3	227	38	39	369	17	35	9	72	17	25	27
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	249	42	43	405	19	38	10	79	19	27	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	424	0	0	292	0	0	785	766	250	812	789	405
Stage 1	-	-	-	-	-	-	256	256	-	491	491	-
Stage 2	-	-	-	-	-	-	529	510	-	321	298	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1135	-	-	1270	-	-	310	333	789	298	323	646
Stage 1	-	-	-	-	-	-	749	696	-	559	548	-
Stage 2	-	-	-	-	-	-	533	538	-	691	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1135	-	-	1269	-	-	270	317	788	254	307	646
Mov Cap-2 Maneuver	-	-	-	-	-	-	369	406	-	373	397	-
Stage 1	-	-	-	-	-	-	746	693	-	557	524	-
Stage 2	-	-	-	-	-	-	461	514	-	611	664	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	13.4	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	557	1135	-	-	1269	-	-	459
HCM Lane V/C Ratio	0.229	0.003	-	-	0.034	-	-	0.165
HCM Control Delay (s)	13.4	8.2	0	-	7.9	0	-	14.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.6

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	410	28	16	289	18	46	11	58	20	12	10
Future Vol, veh/h	2	410	28	16	289	18	46	11	58	20	12	10
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	432	29	17	304	19	48	12	61	21	13	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	323	0	0	462	0	0	798	794	433	825	804	305
Stage 1	-	-	-	-	-	-	437	437	-	338	338	-
Stage 2	-	-	-	-	-	-	361	357	-	487	466	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1237	-	-	1099	-	-	304	321	623	292	316	735
Stage 1	-	-	-	-	-	-	598	579	-	676	641	-
Stage 2	-	-	-	-	-	-	657	628	-	562	562	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1237	-	-	1098	-	-	287	314	622	254	309	734
Mov Cap-2 Maneuver	-	-	-	-	-	-	408	415	-	366	405	-
Stage 1	-	-	-	-	-	-	596	577	-	675	629	-
Stage 2	-	-	-	-	-	-	622	616	-	496	560	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	14.6	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	495	1237	-	-	1098	-	-	429
HCM Lane V/C Ratio	0.245	0.002	-	-	0.015	-	-	0.103
HCM Control Delay (s)	14.6	7.9	0	-	8.3	0	-	14.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1	0	-	-	0	-	-	0.3

APPENDIX 3.3:

EXISTING (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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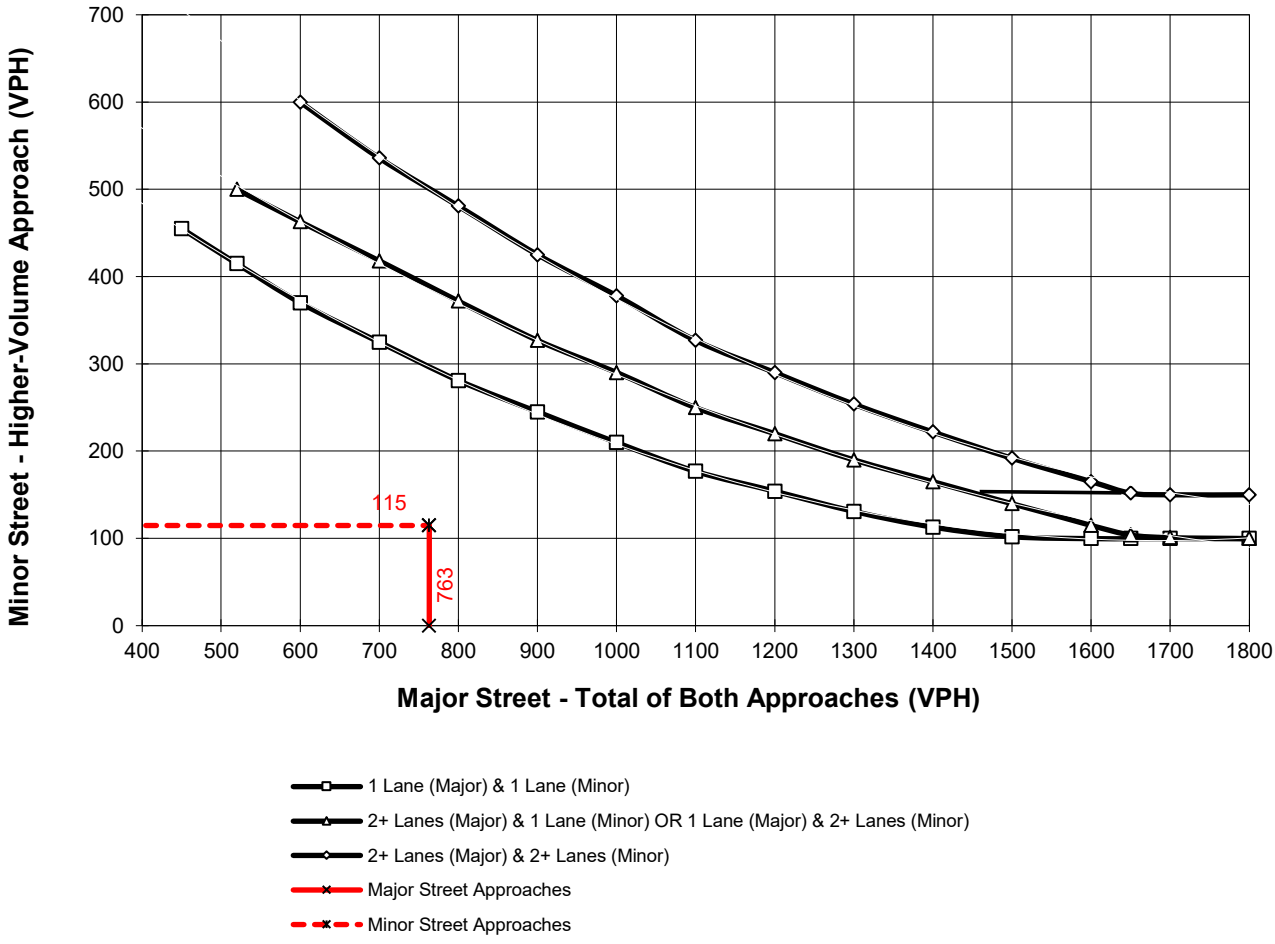
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2020) Conditions - Weekday PM Peak Hour**

Major Street Name = **Merrill Av.**
Total of Both Approaches (VPH) = **763**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Catawba Av.**
High Volume Approach (VPH) = **115**
Number of Approach Lanes On Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project:	Catawba/Merrill Zone Change	Job #:	13218
Scenario:	Horizon Year (2040)	Analyst:	CS
		Date:	2/28/20

LOCATION: Catawba Avenue & Merrill Avenue
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	35	41	6	17%	46	59	13	28%
	Through	9	9	0	0%	11	42	31	282%
	Right	72	80	8	11%	58	24	-34	-59%
	NB Total	116	130	14	12%	115	125	10	9%
SOUTH BOUND	Left	17	20	3	18%	20	12	-8	-40%
	Through	25	26	1	4%	12	10	-2	-17%
	Right	27	34	7	26%	10	19	9	90%
	SB Total	69	80	11	16%	42	41	-1	-2%
EAST BOUND	Left	3	3	0	0%	2	27	25	1250%
	Through	227	233	6	3%	410	594	184	45%
	Right	38	34	-4	-11%	28	53	25	89%
	EB Total	268	270	2	1%	440	674	234	53%
WEST BOUND	Left	39	41	2	5%	16	8	-8	-50%
	Through	369	480	111	30%	289	333	44	15%
	Right	17	19	2	12%	18	62	44	244%
	WB Total	425	540	115	27%	323	403	80	25%
TOTAL ENTERING VOLUME		878	1,020	142	16%	920	1,243	323	35%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	80	41			
North Leg	Outbound	31	131			
North Leg	**TOTAL**	**111**	**172**	**12%**	**18%**	**963**
South Leg	Inbound	130	125			
South Leg	Outbound	101	71			
South Leg	**TOTAL**	**231**	**196**	**10%**	**8%**	**2,424**
East Leg	Inbound	540	403			
East Leg	Outbound	333	630			
East Leg	**TOTAL**	**873**	**1,033**	**6%**	**7%**	**15,013**
West Leg	Inbound	270	674			
West Leg	Outbound	555	411			
West Leg	**TOTAL**	**825**	**1,085**	**5%**	**6%**	**17,739**
OVERALL TOTAL		***2,040***	***2,486***	**6%**	***7%***	***36,139***

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APPENDIX 5.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	298	50	51	485	22	46	12	95	22	33	35
Future Vol, veh/h	4	298	50	51	485	22	46	12	95	22	33	35
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	327	55	56	533	24	51	13	104	24	36	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	557	0	0	383	0	0	1030	1005	328	1066	1036	533
Stage 1	-	-	-	-	-	-	336	336	-	645	645	-
Stage 2	-	-	-	-	-	-	694	669	-	421	391	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1014	-	-	1175	-	-	212	241	713	200	232	547
Stage 1	-	-	-	-	-	-	678	642	-	461	467	-
Stage 2	-	-	-	-	-	-	433	456	-	610	607	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1014	-	-	1174	-	-	170	223	712	156	215	547
Mov Cap-2 Maneuver	-	-	-	-	-	-	271	326	-	279	317	-
Stage 1	-	-	-	-	-	-	674	638	-	459	435	-
Stage 2	-	-	-	-	-	-	344	425	-	507	603	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	17.7	18.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	450	1014	-	-	1174	-	-	364
HCM Lane V/C Ratio	0.374	0.004	-	-	0.048	-	-	0.272
HCM Control Delay (s)	17.7	8.6	0	-	8.2	0	-	18.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.7	0	-	-	0.1	-	-	1.1

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	594	53	21	380	62	60	42	76	26	16	19
Future Vol, veh/h	27	594	53	21	380	62	60	42	76	26	16	19
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	625	56	22	400	65	63	44	80	27	17	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	465	0	0	682	0	0	1178	1191	626	1215	1182	401
Stage 1	-	-	-	-	-	-	682	682	-	444	444	-
Stage 2	-	-	-	-	-	-	496	509	-	771	738	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1096	-	-	911	-	-	168	187	484	158	190	649
Stage 1	-	-	-	-	-	-	440	450	-	593	575	-
Stage 2	-	-	-	-	-	-	556	538	-	393	424	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1096	-	-	910	-	-	146	173	484	110	176	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	270	288	-	204	283	-
Stage 1	-	-	-	-	-	-	421	431	-	568	556	-
Stage 2	-	-	-	-	-	-	505	520	-	282	406	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	28	21.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	339	1096	-	-	910	-	-	286
HCM Lane V/C Ratio	0.553	0.026	-	-	0.024	-	-	0.225
HCM Control Delay (s)	28	8.4	0	-	9.1	0	-	21.2
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	3.2	0.1	-	-	0.1	-	-	0.8

APPENDIX 5.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	310	53	51	487	22	47	12	95	22	33	35
Future Vol, veh/h	4	310	53	51	487	22	47	12	95	22	33	35
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	341	58	56	535	24	52	13	104	24	36	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	559	0	0	400	0	0	1046	1021	342	1084	1055	535
Stage 1	-	-	-	-	-	-	350	350	-	647	647	-
Stage 2	-	-	-	-	-	-	696	671	-	437	408	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1012	-	-	1159	-	-	206	236	701	194	226	545
Stage 1	-	-	-	-	-	-	666	633	-	460	467	-
Stage 2	-	-	-	-	-	-	432	455	-	598	597	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1012	-	-	1158	-	-	165	218	700	151	209	545
Mov Cap-2 Maneuver	-	-	-	-	-	-	268	322	-	274	313	-
Stage 1	-	-	-	-	-	-	662	629	-	458	434	-
Stage 2	-	-	-	-	-	-	342	423	-	496	593	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.8	18.1	18.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	442	1012	-	-	1158	-	-	360
HCM Lane V/C Ratio	0.383	0.004	-	-	0.048	-	-	0.275
HCM Control Delay (s)	18.1	8.6	0	-	8.3	0	-	18.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.8	0	-	-	0.2	-	-	1.1

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	599	54	21	390	62	62	42	76	26	16	19
Future Vol, veh/h	27	599	54	21	390	62	62	42	76	26	16	19
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	631	57	22	411	65	65	44	80	27	17	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	476	0	0	689	0	0	1195	1208	632	1233	1200	412
Stage 1	-	-	-	-	-	-	688	688	-	455	455	-
Stage 2	-	-	-	-	-	-	507	520	-	778	745	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1086	-	-	905	-	-	163	183	480	154	185	640
Stage 1	-	-	-	-	-	-	436	447	-	585	569	-
Stage 2	-	-	-	-	-	-	548	532	-	389	421	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1086	-	-	904	-	-	142	169	480	107	171	639
Mov Cap-2 Maneuver	-	-	-	-	-	-	266	284	-	200	279	-
Stage 1	-	-	-	-	-	-	417	428	-	560	550	-
Stage 2	-	-	-	-	-	-	497	514	-	278	403	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	29	21.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	334	1086	-	-	904	-	-	281
HCM Lane V/C Ratio	0.567	0.026	-	-	0.024	-	-	0.229
HCM Control Delay (s)	29	8.4	0	-	9.1	0	-	21.6
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	3.3	0.1	-	-	0.1	-	-	0.9

APPENDIX 5.3:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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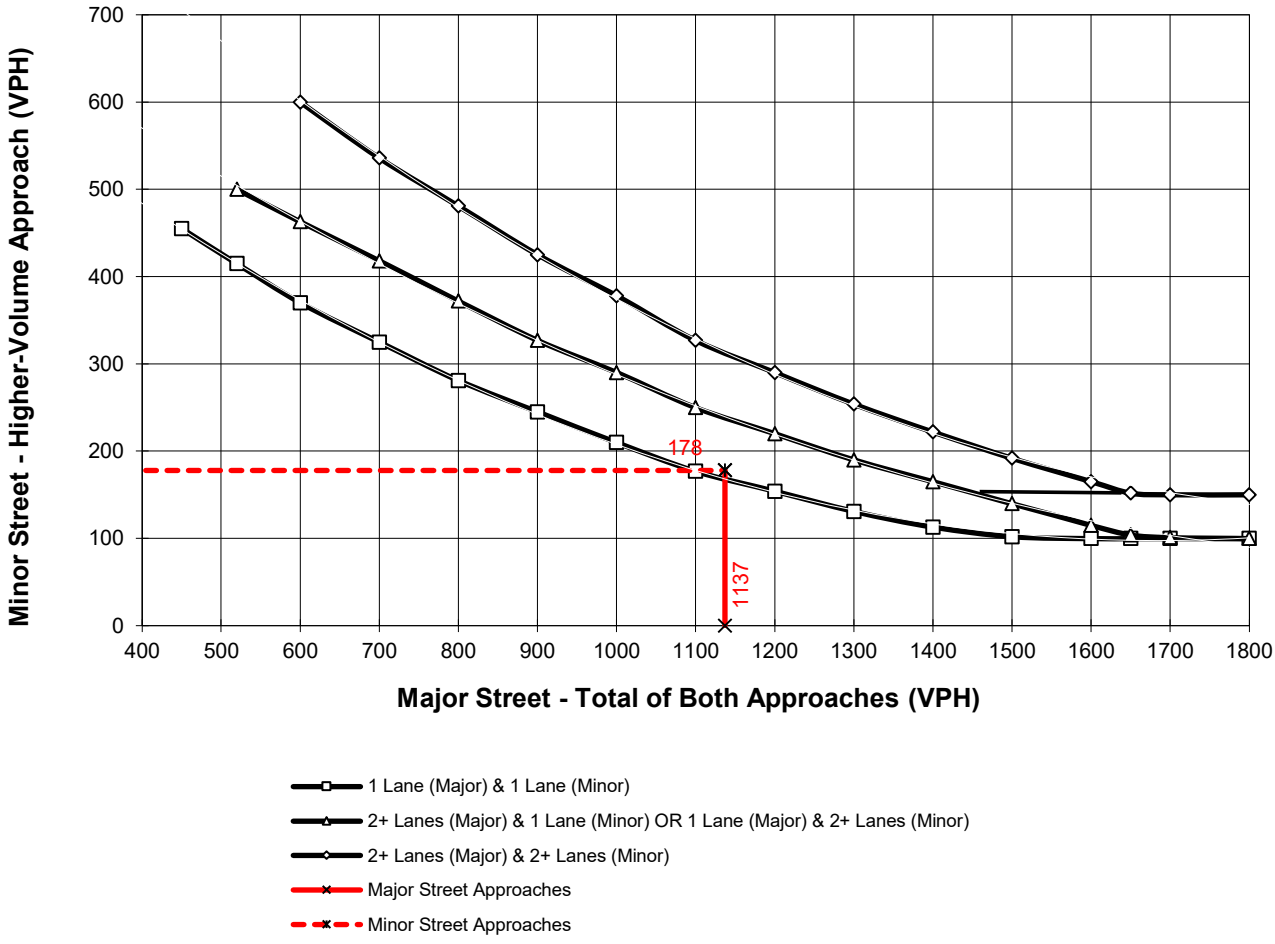
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **2040 Without Project Conditions - Weekday PM Peak Hour**

Major Street Name = **Merrill Av.**
Total of Both Approaches (VPH) = **1137**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Catawba Av.**
High Volume Approach (VPH) = **178**
Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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VMT Memorandum – Upzone Site

ENVIRONMENT | PLANNING | DEVELOPMENT SOLUTIONS, INC.

To: Norah Jaffan
From: Meghan Macias, TE
Date: 5/28/2020
Re: VMT Screening Analysis for the Catawba and Merrill Residential Zone Change

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The purpose of this analysis is to determine whether a Vehicle Miles Traveled Analysis would be required for the proposed Catawba and Merrill Residential Zone Change project. The project is located on a 13.75 acre site at the southwest corner of Catawba Avenue and Merrill Avenue in the City of Fontana. The site is currently designated as Single Family Residential (R-1, 2.1 – 5 dwelling units/acre) with a maximum of 68 dwelling units (DU's). The proposed project would change the zoning designation for the site to Medium Density Residential (R-2), which would allow for 5.1 – 12 DU/acre. The project would allow an increase of up to 97 DUs from the site's existing zoning for a maximum of 165 DUs on the site. Portions of the project site are currently vacant while single family homes are located on the remainder of the site.

Vehicle Miles Traveled Screening Analysis

Senate Bill (SB) 743 was signed by Governor Brown in 2013 and required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating Transportation impacts. SB 743 specified that the new criteria should promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks and a diversity of land uses. The bill also specified that delay-based level of service could no longer be considered an indicator of a significant impact on the environment. In response, Section 15064.3 was added to the CEQA Guidelines beginning January 1, 2019. Section 15064.3 - Determining the Significance of Transportation Impacts states that Vehicle Miles Traveled (VMT) is the most appropriate measure of transportation impacts and provides lead agencies with the discretion to choose the most appropriate methodology and thresholds for evaluating VMT. Section 15064.3(c) states that the provisions of the section shall apply statewide beginning on July 1, 2020.

The City of Fontana has not yet adopted VMT analysis guidelines; however the San Bernardino County Transportation Authority (SBCTA) has initiated a process to assist local agencies in adopting draft guidelines, including development of recommended VMT analysis guidelines and an online VMT screening tool. The recommended guidelines as well as the Governor's Office of Planning and Research (OPR's) *Technical Advisory on Evaluating Transportation Impacts In CEQA*, December 2018, both provide recommendations for projects that could be screened out of VMT analysis because they would be considered to have a less than significant impact on VMT. One of the screening thresholds is for projects within low VMT-generating zones, which are generally exempt from further analysis of VMT. Utilizing the draft SBCTA screening tool indicates that the project is within a low VMT generating TAZ based on VMT per capita. The jurisdictional average VMT per capita is 16.763. The home-based VMT per capita for the project zone is 10.329, approximately 38 percent lower than the jurisdictional average. Since the proposed zone change would maintain the site as a residential site and is consistent with the land use in the project zone, the project would be presumed to have a less than significant impact on VMT and no further analysis should be required.

If you have any questions about this analysis, please contact me at (949) 794-1186 or at meghan@epdsolutions.com.