APPENDIX E
TRANSPORTATION IMPACT ANALYSIS

HEXAGON TRANSPORTATION CONSULTANTS, INC.

699 Serramonte Faculty & Staff Housing

Transportation Impact Analysis

Prepared for:

Jefferson Union High School District

September 26, 2019

Hexagon Office: 5776 Stoneridge Mall Road, Suite 175
Pleasanton, CA 94588
Hexagon Job Number: 18BW15
Phone: 925.225.1439

Table of Contents

Appendices

List of Tables

List of Figures

Executive Summary

The purpose of this report is to document the findings of the transportation impact analysis conducted for the proposed Jefferson Union High School District (JUHSD) faculty and staff housing project at 699 Serramonte Boulevard in Daly City. The project, as proposed, would construct 122 faculty and staff housing units for the JUHSD employees. Project access would be provided directly onto Serramonte Boulevard via the realigned Campus Drive, directly opposite the SR 1 northbound ramps. There are no traffic-generating uses currently on the project site.

The potential impacts of the project were evaluated following the standards and methodologies set forth by the City of Daly City and City/County Association of Governments of San Mateo County, the administering agency for the Congestion Management Program (CMP) of San Mateo County. The study includes an analysis of commute AM, school PM and commute PM peak-hour traffic conditions during weekdays at 5 study intersections in the vicinity of the project site. Potential impacts to pedestrians, bikes, transit service, and vehicle queues were also considered. The project is anticipated to generate fewer than 100 trips in any of the peak hours during the peak periods specified. Per the County CMP requirements, a CMP analysis was therefore not required.

Based on trip generation rates recommended by the Institute of Transportation Engineers and data provided by the District for faculty/staff housing, it is estimated that the proposed project would generate 92 new vehicle trips during the commute AM peak hour and 68 new vehicle trips during each of the school PM and commute PM peak hours.

The proposed project would not result in any impacts to level of service, vehicle queues, pedestrians, bikes or transit with the implementation of the following recommendations:

Recommendation 1: A traffic signal is warranted at the intersection of SR-1 southbound ramps and Clarinada Avenue. This improvement is identified in the City of Daly City General Plan. Accordingly, the applicant shall pay their fair share contribution for the improvement. The project would add 35 AM, 22 school PM, and 22 PM peak-hour trips.

Recommendation 2: A traffic signal with crosswalks across Serramonte Boulevard is warranted at the intersection of SR-1 northbound ramps and Serramonte Boulevard. This improvement is identified in the City of Daly City General Plan. Accordingly, the applicant shall pay their fair share contribution for the improvement. The project would add 92 AM, 68 school PM, and 68 PM peak-hour trips to the intersection.

Recommendation 3: The project shall ensure that, in the final design, alignments of the drive aisles and the corner radii on site are adequate for circulation of trucks, garbage collection, and emergency vehicles, subject to review city staff/Republic Services. The northern east-west drive aisle should be designated one-way outbound (westbound) only.

Recommendation 4: The project shall provide bicycle parking on site in accordance with City requirements. The number, type and location of bicycle facilities provided by the project will be subject to review by city staff.

Recommendation 5: Prior to final design, the project applicant shall work with City of Daly City and SamTrans staff to consider the desirability of upgrades to the existing bus stop along the project frontage.

1. Introduction

This report presents the results of the transportation impact analysis conducted for the proposed Jefferson Union High School District (JUHSD) faculty and staff housing project at 699 Serramonte Boulevard in Daly City. The project, as proposed, would construct 122 faculty and staff housing units for the JUHSD employees. Project access would be provided directly onto Serramonte Boulevard via the realigned Campus Drive, directly opposite the SR 1 northbound ramps. The project site and the surrounding study area are shown on Figure 1. The project site plan is shown on Figure 2.

Scope of Study

The potential impacts of the project were evaluated relative to the applicable level of service standards and methodologies in order to satisfy the requirements of the California Environmental Quality Act (CEQA), the City of Daly City, and the County Congestion Management Program (CMP). The City/County Association of Governments (C/CAG) of San Mateo County administers the CMP.

The study includes an analysis of peak-hour intersection levels of service, vehicle queuing, site access, and on-site circulation. The traffic analysis evaluated conditions at one signalized and four unsignalized intersections in the vicinity of the project site. The study intersections included:

1. St. Francis Boulevard and Clarinada Avenue*
2. SR 1 SB Ramps and Clarinada Avenue*
3. St. Francis Boulevard and Higate Drive/Serramonte Boulevard*
4. SR 1 NB Ramps/Project Driveway and Serramonte Boulevard*
5. Callan Boulevard and Serramonte Boulevard

*denotes unsignalized intersection

Traffic conditions at the study locations were analyzed for the weekday AM and PM peak hours. The AM peak hour of traffic is typically between 7:00 AM and 9:00 AM and the PM peak hour is typically between 4:00 PM and 6:00 PM. These periods represent the most congested traffic conditions on the surrounding street network during a typical weekday. Traffic conditions were also analyzed for the school PM peak hour, which occurs between 2:00 PM and 4:00 PM.

The project is anticipated to generate fewer than 100 trips in any of the peak hours during the peak periods specified. Per the County CMP requirements, a CMP analysis was therefore not required.

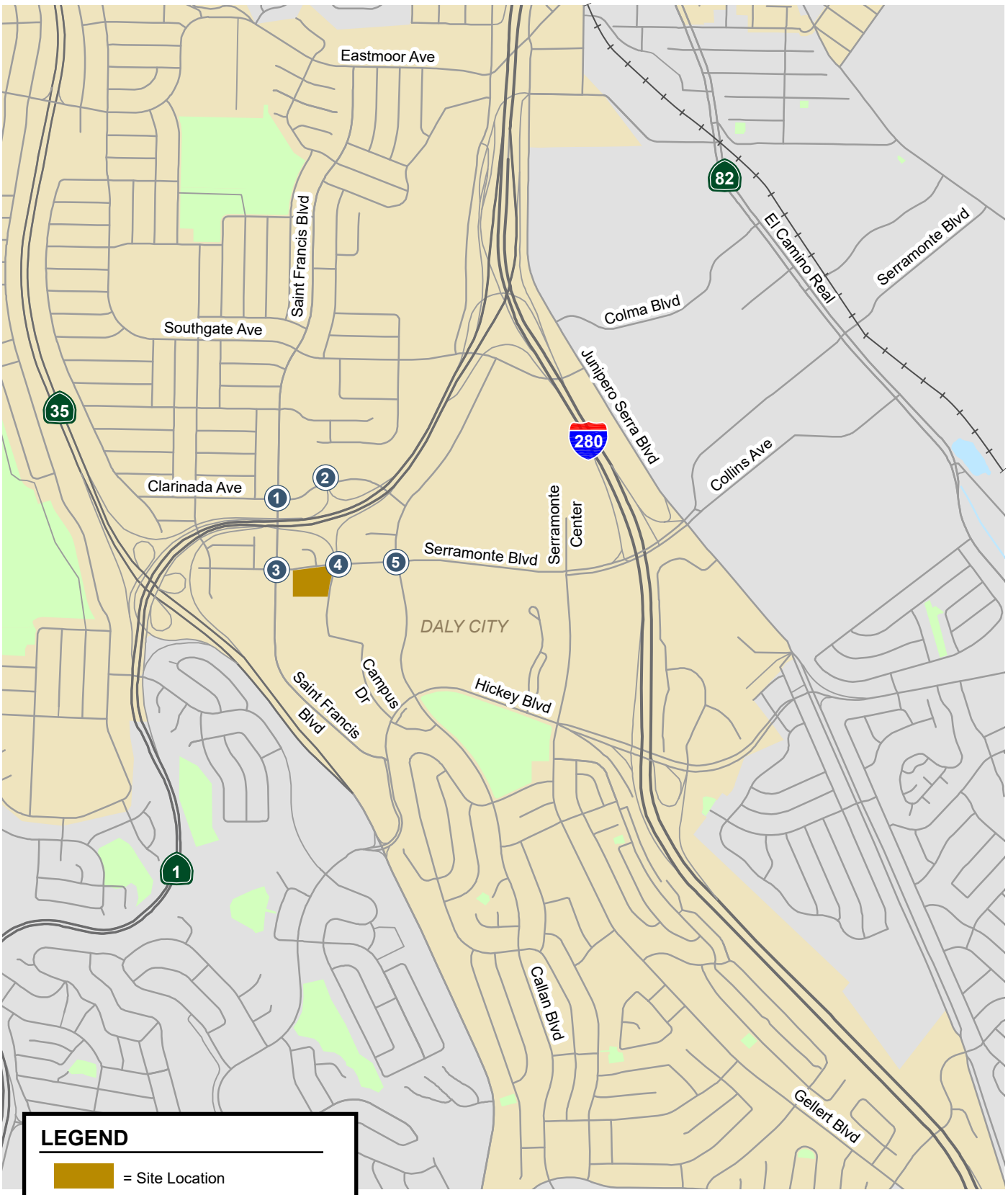
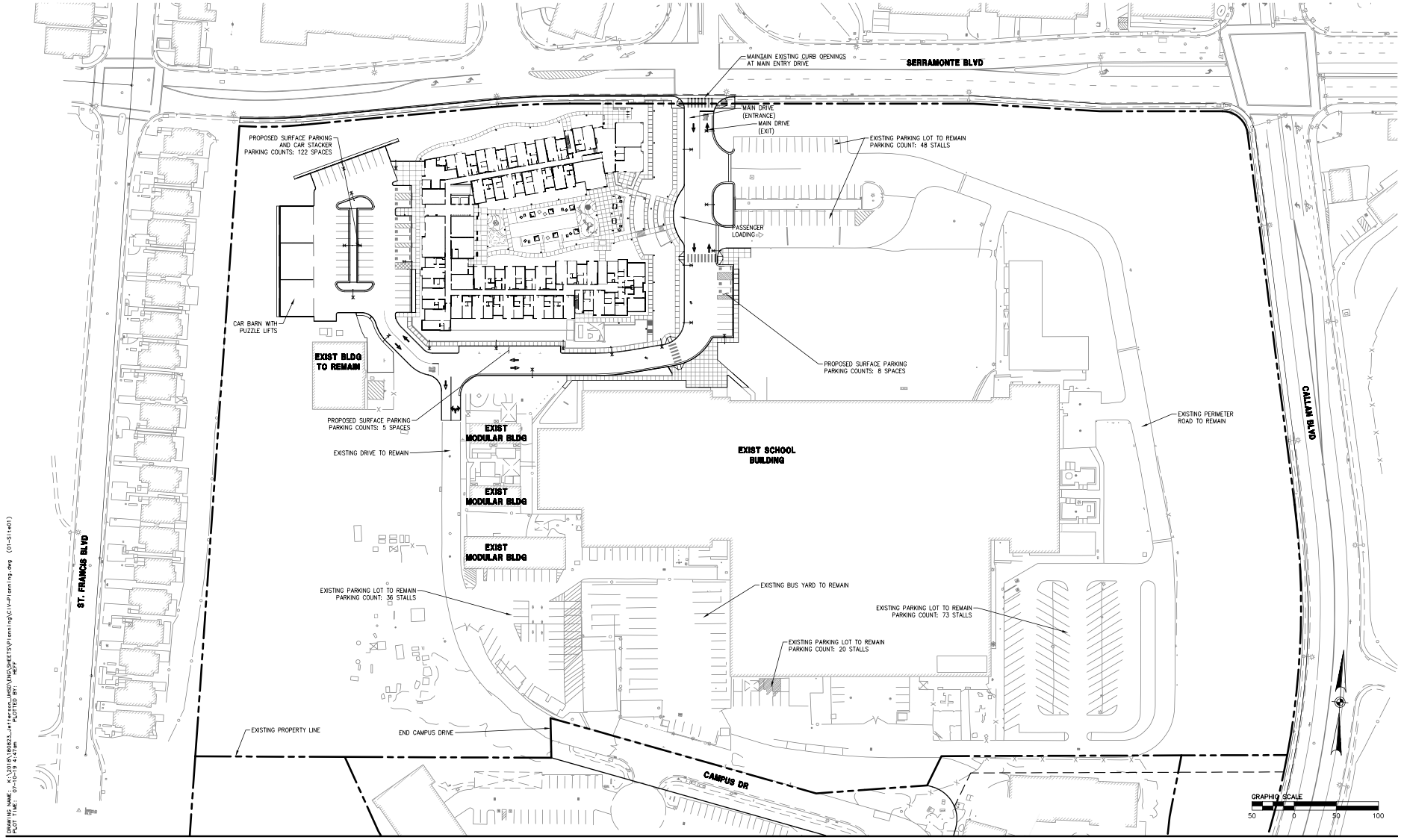


Figure 1
Site Location and Study Intersections



SEIDEL ARCHITECTS · BDE ARCHITECTURE · JETT Landscape Architecture + Design · BKF 100+ YEARS ENGINEERS . SURVEYORS . PLANNERS

JUHSD FACULTY & STAFF HOUSING
699 SERRAMONTE BLVD., DALY CITY
PLANNING SUBMITTAL

Brookwood Advisors

C1.0
OVERALL CONCEPTUAL SITE PLAN
7/09/2019

Figure 2
Conceptual Site Plan

Traffic conditions were evaluated for the following scenarios:

Scenario 1: *Existing Conditions.* Existing conditions were represented by existing traffic volumes on the existing roadway network. Existing traffic volumes were obtained from recent traffic counts.

Scenario 2: *Existing Plus Project Conditions.* Existing plus Project conditions represent existing peak-hour traffic volumes with the addition of project traffic from the new faculty and staff housing units. Existing plus project conditions were evaluated relative to existing conditions in order to identify potential impacts associated solely with the proposed project.

Scenario 3: *Cumulative No Project Conditions*. Cumulative No Project conditions were represented by Cumulative No Project traffic volumes on the existing roadway network with the addition of funded transportation improvements. Cumulative No Project traffic volumes were obtained from the Daly City Travel Demand Forecast model. The Cumulative No Project traffic volumes reflect all approved and pending development in the City.

Scenario 4: *Cumulative Plus Project Conditions*. Cumulative plus Project conditions were represented by Cumulative plus Project traffic volumes on the existing roadway network with the addition of funded transportation improvements. Cumulative plus Project traffic volumes were estimated by adding to the Cumulative No Project traffic volumes the traffic from the new faculty and staff housing units. Cumulative plus Project conditions were evaluated relative to Cumulative No Project conditions in order to determine potential cumulative project impacts.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above. It includes descriptions of the data requirements, the analysis methodologies, and the applicable level of service standards.

Data Requirements

The data required for the analysis were obtained from traffic counts, published data, public documents, previous traffic studies, the City's traffic model, and field observations. The following data were collected from these sources:

- existing traffic volumes
- existing traffic conditions
- lane configurations
- signal phasing
- existing bicycle facilities
- existing transit service
- cumulative traffic volumes

Level of Service Standards and Analysis Methodologies

Traffic conditions at the study locations were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or congested conditions with excessive delays. The analysis methods are described in detail below.

Signalized Intersections

The City of Daly City evaluates level of service at signalized intersections based on the HCM level of service methodology using Synchro software. The HCM method evaluates signalized intersection

operations based on average control delay time for all vehicles at the intersection. *Control delay* is the amount of delay that is attributed to the type of traffic control device at the intersection, and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The correlation between average delay and level of service is shown in Table 1. The City of Daly City has a level of service standard for signalized intersections of LOS D or better.

Table 1
Signalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Control Delay Per Vehicle (sec.)
A	Signal progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.	10.0 or less
B	Operations characterized by good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average vehicle delay.	10.1 to 20.0
C	Higher delays may result from fair signal progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though some vehicles may still pass through the intersection without stopping.	20.1 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.	55.1 to 80.0
F	This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delay levels.	greater than 80.0

Source: Transportation Research Board, *Highway Capacity Manual* .

Significance criteria are used to establish what constitutes an impact. For this analysis, the criteria used to determine significant impacts are based on CEQA Guidelines and the LOS standards of Daly City. Based on these criteria, for signalized intersections in Daly City, the project would result in a significant impact if, for any peak hour under evaluation:

- the addition of project traffic would increase peak hour traffic volumes such that signalized intersection levels of service degrade to below LOS D.
- the project adds traffic at a signalized intersection that is already operating at LOS E or F.

A significant impact at a signalized intersection is said to be satisfactorily mitigated when measures are implemented that would restore intersection levels of service to an acceptable level of service or restore the intersection to operating levels that are equal to or better than no project conditions.

Unsignalized Intersections

Unlike signalized intersections, which typically represent constraint points for the roadway network, unsignalized intersections rarely limit the potential capacity of a roadway. The determination of appropriate improvements to unsignalized intersections typically includes a qualitative and quantitative analysis of movement delay, traffic signal warrants, movement traffic volumes, availability of alternate routes, and intersection safety. For this reason, improvements to unsignalized intersections are frequently determined on the basis of professional engineering judgment. The City of Daly City does not apply significance thresholds to unsignalized intersections.

All four unsignalized intersections are all-way stop controlled. For all-way stop-controlled intersections, the average control delay time for all vehicles at the intersection was reported. The correlation between average delay and level of service is shown in Table 2.

Table 2
Unsignalized Intersection Level of Service Definitions Based on Control Delay

Level of Service	Description	Average Delay Per Vehicle (Sec.)
A	Little or no traffic delay	10.0 or less
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	Extreme traffic delays	greater than 50.0

Source: Transportation Research Board, *Highway Capacity Manual* (HCM).

Signal Warrant Methodology

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersections. For this study, the need for signalization is assessed, in part, on the basis of the operating conditions at the intersections (i.e., level of service) and on the peak hour volume signal warrant – warrant #3 – described in the *California Manual on Uniform Traffic Control Devices* (MUTCD). This method provides an indication of whether traffic conditions and peak hour traffic levels are, or would be, sufficient to justify installation of a traffic signal.

Caltrans LOS Standard

Some of the study intersections are maintained by Caltrans and are State highway facilities. As stated in the Caltrans' Guide for the preparation of Traffic Impact Studies: "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and "D" on State highway facilities, however, Caltrans acknowledges that it 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 the appropriate target LOS, the existing Measure of Effectiveness (MOE) should be maintained." Because Daly City is the lead agency for this project, the LOS standards and impact criteria used in this report were based on Daly City standards. This approach is consistent with previous traffic impact analyses conducted in Daly City, and is also consistent with CEQA law.

Vehicle Queuing

A vehicle queuing analysis was performed for high-demand movements at the study intersections. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of "n" vehicles for a vehicle movement using the following formula:

$$P(x=n) = \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:

P (x=n) = probability of "n" vehicles in queue

n = number of vehicles in the queue

λ = Average number of vehicles in the queue per lane (vehicles per hour /signal cycles per hour)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th-percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement.

Report Organization

The remainder of this report is divided into five chapters. Chapter 2 describes the existing roadway network, transit service, existing bicycle and pedestrian facilities, and existing traffic conditions. Chapter 3 explains the method used to estimate project traffic. Chapter 4 describes the potential project impacts on the transportation system under Existing plus Project traffic conditions. Chapter 5 presents Cumulative traffic conditions without and with project traffic. Chapter 6 describes the evaluation of other transportation related issues, including site access and circulation.

2. Existing Conditions

This chapter describes the existing conditions for all of the major transportation facilities in the vicinity of the site, including the roadway network, bicycle and pedestrian facilities, and transit service.

Existing Roadway Network

The existing roadways in the project vicinity are Interstate 280, State Route 35, State Route 1, Serramonte Boulevard, Callan Boulevard, Saint Francis Boulevard, Clarinada Avenue, and Campus Drive. These roadways are described below.

Interstate 280 (I-280) is a north-south freeway that extends from San Francisco to San Jose. In the project vicinity, it has four lanes in each direction and has a posted speed limit of 65 mph. The project is served by an interchange at Serramonte Boulevard. The Serramonte Boulevard interchange provides access to and from I-280 north of the site, via southbound off-ramps from, and northbound on-ramps to, I-280.

State Route 1 (SR-1) is a north-south freeway that runs along most of the Pacific coast of California. It provides regional access to the project site from San Francisco to the north via its interchange with I-280. It is a four- to eight-lane facility in the vicinity of the project with a posted speed limit of 65 mph. The project is served by a hook-ramp interchange on SR-1. The northbound SR-1 off- and on-ramps at Serramonte Boulevard provide direct access into and out of the site at the SR 1 NB ramps/Project Driveway & Serramonte Boulevard intersection. Access to and from southbound SR-1 is provided by the southbound SR-1 on- and off-ramps at Clarinada Avenue.

State Route 35 (Skyline Boulevard) is a north-south state highway that extends from Sloat Boulevard in San Francisco to Highway 17 in Santa Cruz. Skyline Boulevard provides access to the project site via interchange with SR-1.

Serramonte Boulevard is a four-lane, east-west street that extends from Hillside Boulevard (in the Town of Colma) in the east, to St. Francis Boulevard in the west. The exception is the 600-foot segment of Serramonte Boulevard between St. Francis Boulevard and the SR 1 NB ramps/Campus Drive/Project Driveway intersection, which is two-lanes wide. Serramonte Boulevard provides direct access to the project site via the project driveway located directly opposite the SR-1 northbound ramps. The posted speed limit is 30 mph in the project vicinity.

Callan Boulevard is a two- to four-lane, north-south street that connects Southgate Avenue and Serramonte Boulevard to residential land uses south of Hickey Boulevard. Callan Boulevard is four lanes north of Serramonte Boulevard and two lanes south of Serramonte Boulevard. South of Hickey Boulevard, Callan Boulevard has two lanes with a two-way center left-turn lane.

Clarinada Avenue is a two- to four-lane, east-west street that connects residential land uses west of St. Francis Boulevard with Callan Boulevard and Serramonte Center other commercial uses to the east. It also provides ramp access to and from southbound SR-1.

Campus Drive is a two-lane, north-south private street that provides access to both Serramonte Boulevard to the north and Hickey Boulevard to the south. It provides direct access to the project site via Serramonte Boulevard and the SR-1 northbound ramps. Campus Drive had at one time connected Serramonte Boulevard to Hickey Boulevard and had intersected Serramonte Boulevard opposite the intersection at Kent Court. However, Campus Drive was redesigned to prohibit access between Serramonte Boulevard and Hickey Boulevard, and was realigned to intersect Serramonte Boulevard opposite the SR-1 northbound ramps.

Existing Bicycle and Pedestrian Facilities

According to the Daly City Bicycle Master Plan (2013), in the project vicinity, there are existing Class II bike lanes on the following street segments:

- Serramonte Boulevard between Callan Boulevard and Gellert Boulevard
- Callan Boulevard from Serramonte Boulevard to the southern city limit at King Drive
- Southgate Avenue west of St. Francis Boulevard
- Gellert Boulevard south of Hickey Boulevard
- Junipero Serra Boulevard from D Street to Hickey Boulevard

The following street segments are existing Class III bike routes:

- Callan Boulevard between Serramonte Boulevard and Southgate Avenue
- Gellert Boulevard between Serramonte Boulevard and Hickey Boulevard
- Southgate Avenue between St. Francis Boulevard and Junipero Serra Boulevard
- St. Francis Boulevard from Belhaven Avenue to Serramonte Boulevard
- St. Francis Boulevard from Southgate Avenue to Belhaven Avenue
- Serramonte Boulevard between Gellert Boulevard and Junipero Serra Boulevard
- Hickey Boulevard between SR 35 and City Limits
- Serramonte Boulevard between St. Francis Boulevard and Callan Boulevard

Pedestrian access to the site is provided by sidewalks along the site frontage on Serramonte Boulevard, and on all other streets in the vicinity of the site, including St. Francis Boulevard, Callan Boulevard, and Clarinada Avenue. The exception is the south side of Serramonte Boulevard between Callan Boulevard and Gellert Boulevard, which has no sidewalk. Most of the study intersections have pedestrian crosswalks and curb ramps, and the signalized study intersection at Callan Boulevard and Serramonte Boulevard also has pedestrian-actuated pedestrian-crossing phases. The exceptions are the two all-way stop freeway ramp intersections. Neither the intersection of SR 1 southbound ramps and Clarinada Avenue nor the intersection of SR 1 northbound ramps and Serramonte Boulevard have crosswalks or curb ramps. Pedestrians walking on the south side of Clarinada Avenue at the ramp intersection have no crosswalk or curb ramps to the other side, and there are no crosswalks to cross Clarinada Avenue. The same is the case on the north side of Serramonte Boulevard at the ramp intersection, the south leg of which is the site driveway.

Existing Transit Service

Existing transit service to the study area is provided by the San Mateo County Transit District (SamTrans). Figure 3 shows the existing transit service routes in the study area.

SamTrans provides bus service near the project site via Routes 16, 24, 28, 112, 120, 121, 122 and 130. The Serramonte Transit Center is located in the Serramonte Shopping Center, approximately 0.5 miles from the project site. The transit center serves Routes 16, 28, 112, 120, 121, 122 and 130. These are described below.

Route 16 operates only on school days between Serramonte Shopping Center and Terra Nova High School in Pacifica, via Serramonte Boulevard and Callan Boulevard, with two daily southbound AM departures and one daily northbound PM departure. The closest bus stop for Route 16 is located at Serramonte Boulevard and Callan Boulevard, approximately 750 feet (0.14 miles) away from the proposed project site.

Route 24 operates only on school days between Summit Shasta High School and Old County Road/San Francisco Avenue in Brisbane, with one daily westbound AM departure and one daily eastbound PM departure. The closest bus stop for Route 24 is located on Serramonte Boulevard at the project site driveway.

Route 28 operates only on school days between Serramonte Shopping Center and South San Francisco High School with two daily southbound AM departures and one daily northbound PM departure. The nearest bus stop for Route 28 is at the Serramonte Shopping Center, located 0.5 miles away.

Route 112 operates between the Colma BART station and the Linda Mar Shopping Center in Pacifica, with 60-minute headways on weekdays and weekends. The closest bus stop for Route 112 is 0.36 miles away at the corner of Campus Drive and Hickey Boulevard.

Route 120 operates between the Colma BART station and Brunswick Street/Templeton Avenue, with stops at the Daly City BART station and Serramonte Shopping Center. It runs on 10-minute headways during commute periods and 10- to 30-minute headways during non-commute periods on weekdays. Route 120 also provides weekend service with 15- to 45-minute headways. The nearest Route 120 bus stop is located on Serramonte Boulevard at the project site driveway.

Route 121 operates between Skyline College in San Bruno and Pope Street/Bellevue Avenue, with stops at the Daly City BART station, Colma BART station, and Serramonte Shopping Center with 30-minute headways on weekdays and 60-minute headways on weekends. The closest bus stop for Route 121 is located at Serramonte Boulevard and Callan Boulevard, approximately 750 feet (0.14 miles) away from the proposed project site.

Route 122 operates between the South San Francisco BART station and Stonestown Shopping Center, with stops at the Colma BART station and Serramonte Shopping Center, with 20- to 30-minute headways during commute periods and 30-minute headways during non-commute periods on weekdays and during all hours of service on weekends. The nearest bus stop for Route 122 is at the Serramonte Shopping Center, located 0.5 miles away.

Route 130 operates between Airport Boulevard/Linden Avenue (in South San Francisco) and the Daly City BART station, with stops at the Serramonte Shopping Center, Colma BART station and South San Francisco BART station, with 10- to 15-minute headways on weekdays. Route 130 also provides weekend service. The nearest bus stop for Route 130 is at the Serramonte Shopping Center, located 0.5 miles away.

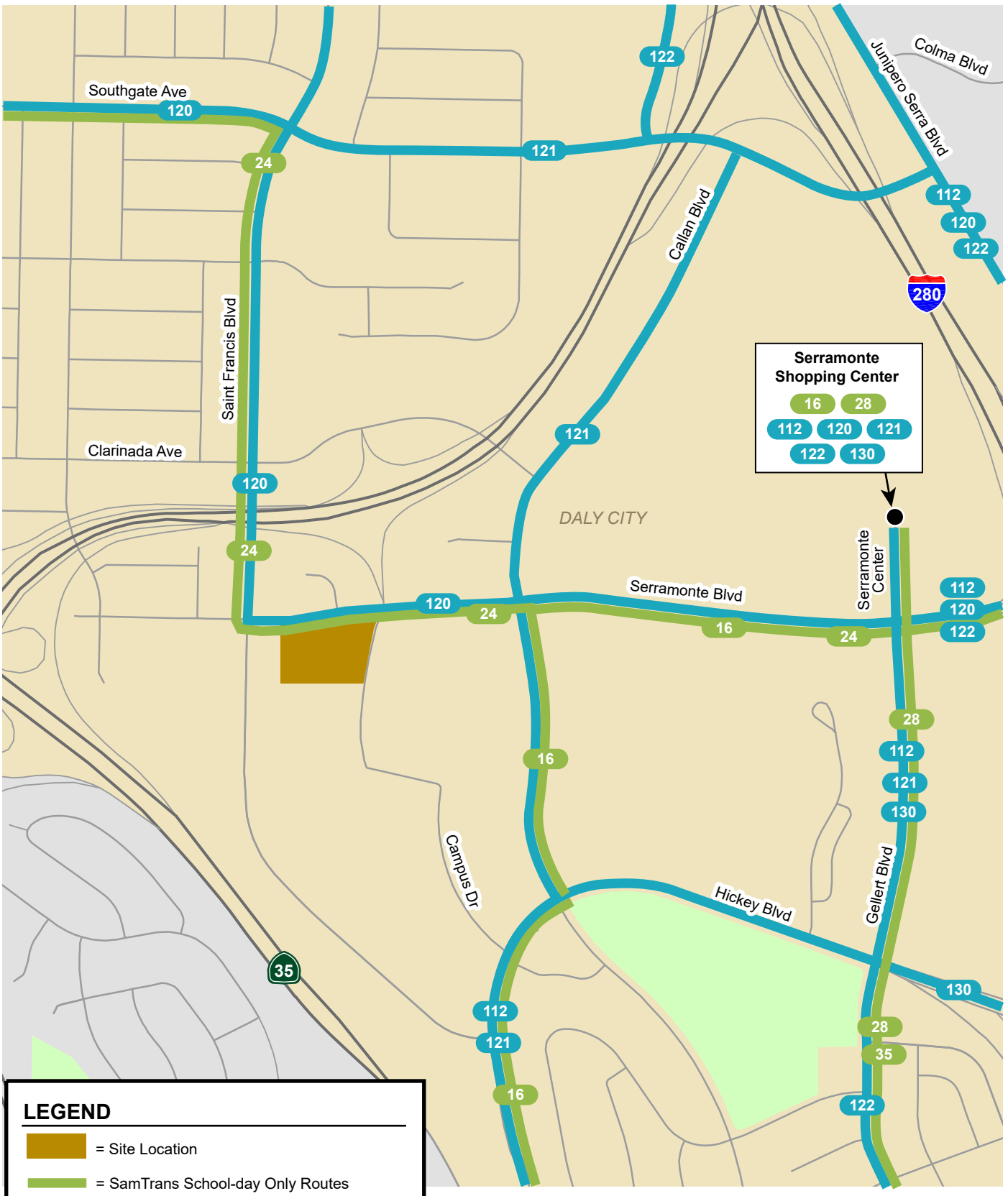


Figure 3
Existing Transit Services

The Colma BART station is located approximately two miles northeast of the project site. The South San Francisco BART station is located approximately two miles east of the project site. BART trains provide access to a variety of locations in the Bay Area including San Francisco, Oakland, Dublin, Fremont, Pittsburg, and Richmond. Trains run on approximately 15 minute headways during commute hours. There are also a number of bus routes operated by SamTrans that stop at the Colma and South San Francisco BART stations.

Existing Intersection Lane Configurations and Traffic Volumes

The existing lane configurations at the study intersections were obtained from field observations. The existing intersection lane configurations are shown on Figure 4. The existing peak hour traffic volumes at the study intersections were obtained from turning movement counts conducted in October 2018. The peak hour traffic volumes are shown on Figure 5. The intersection traffic count data are included in Appendix A.

Existing Signalized Intersection Levels of Service

The results of the signalized intersection level of service analysis under existing conditions are summarized in Table 3. The results indicate that the signalized intersection of Callan Boulevard/Serramonte Boulevard currently operates at an acceptable LOS C during all peak hours. The level of service calculation sheets are included in Appendix B.

Existing Unsignalized Intersection Levels of Service

The results of the unsignalized intersection level of service analysis under existing conditions are summarized in Table 3. The results indicate that the unsignalized intersection of SR-1 southbound ramps/Clarinada Avenue currently operates at an LOS E during the PM peak hour. All other study intersections operate at LOS D or better during all peak hours.

Observed Existing Traffic Conditions

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to intersection level of service, and (2) to identify any locations where the level of service calculation does not accurately reflect level of service in the field. Overall, the level of service analysis appears to accurately reflect actual existing traffic conditions. Field observations showed that operational problems currently occur at some of the study intersections. These are described below.

Callan Boulevard and Serramonte Boulevard. During the AM peak hour, the left-turn queue from northbound Callan Boulevard to westbound Serramonte Boulevard sometimes extends out of the left-turn pocket and into the adjacent through lane. Though, on those occasions, the queue blocks the northbound through lane on Callan Boulevard, vehicles are able to go around so that operations are generally unaffected. Not all northbound left-turning vehicles clear the intersection in a single cycle.

SR-1 Ramps and Serramonte Boulevard. During the AM peak hour, the queue for the eastbound left turn on Serramonte Boulevard to the SR-1 on-ramp sometimes spills out of the left turn pocket and extends to the intersection at Campus Drive.

Table 3
Existing Intersection Levels of Service

No.	Study Intersection	Traffic Control[1]	Peak Hour[2]	LOS Std[2]	Avg. Delay[3]	LOS[4]
1	St. Francis Blvd & Clarinada Ave	AWSC[5]	AM	--	13.8	B
			SPM	--	13.4	B
			PM	--	15.8	C
2	SR 1 SB ramps & Clarinada Ave	AWSC[5]	AM	--	13.9	B
			SPM	--	19.6	C
			PM	--	45.4	E
3	St. Francis Blvd & Serramonte Bl	AWSC[5]	AM	--	14.7	B
			SPM	--	11.1	B
			PM	--	10.8	B
4	SR 1 NB ramps & Serramonte Bl	AWSC[5]	AM	--	28.7	D
			SPM	--	13.1	B
			PM	--	17.0	C
5	Callan Blvd and Serramonte Blvd	signal	AM	D	25.6	C
			SPM	D	23.8	C
			PM	D	25.2	C

[1] The City's LOS standard for signalized intersections is LOS D or better. There is no official LOS standard for unsignalized (AWSC) intersections.
[2] SPM = school PM peak hour.
[3] Signalized intersection levels of service and delays reported are for average control delay per vehicle. The intersection levels of service and delays reported for the all-way-stop-controlled (AWSC) intersections pertain to overall average delay.
[4] Level of service was calculated based on the HCM methodology using Synchro software.
[5] AWSC - All Way Stop Control.
☐ = LOS E or F conditions

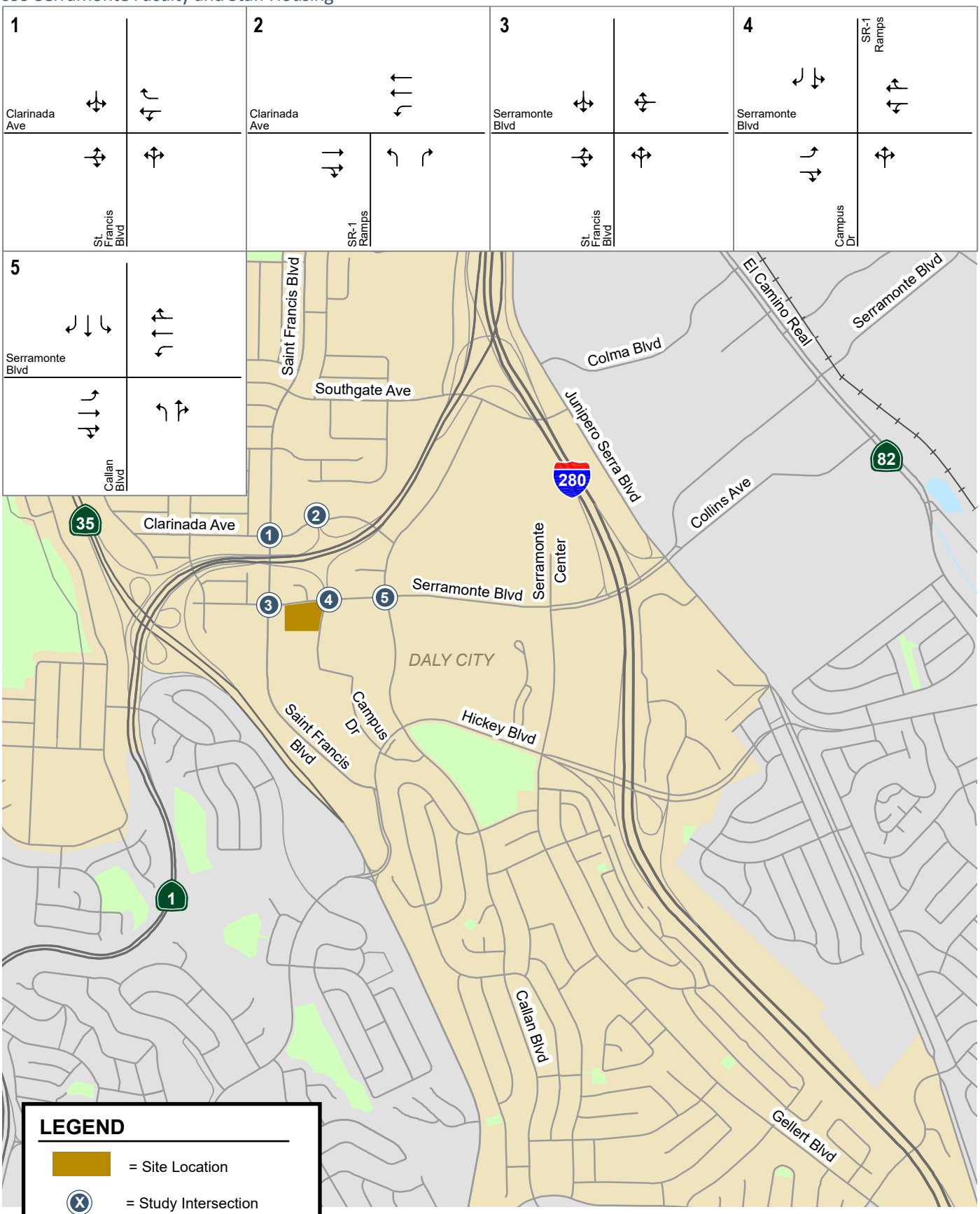


Figure 4
Existing Intersection Lane Configurations

NORTH
Not to Scale

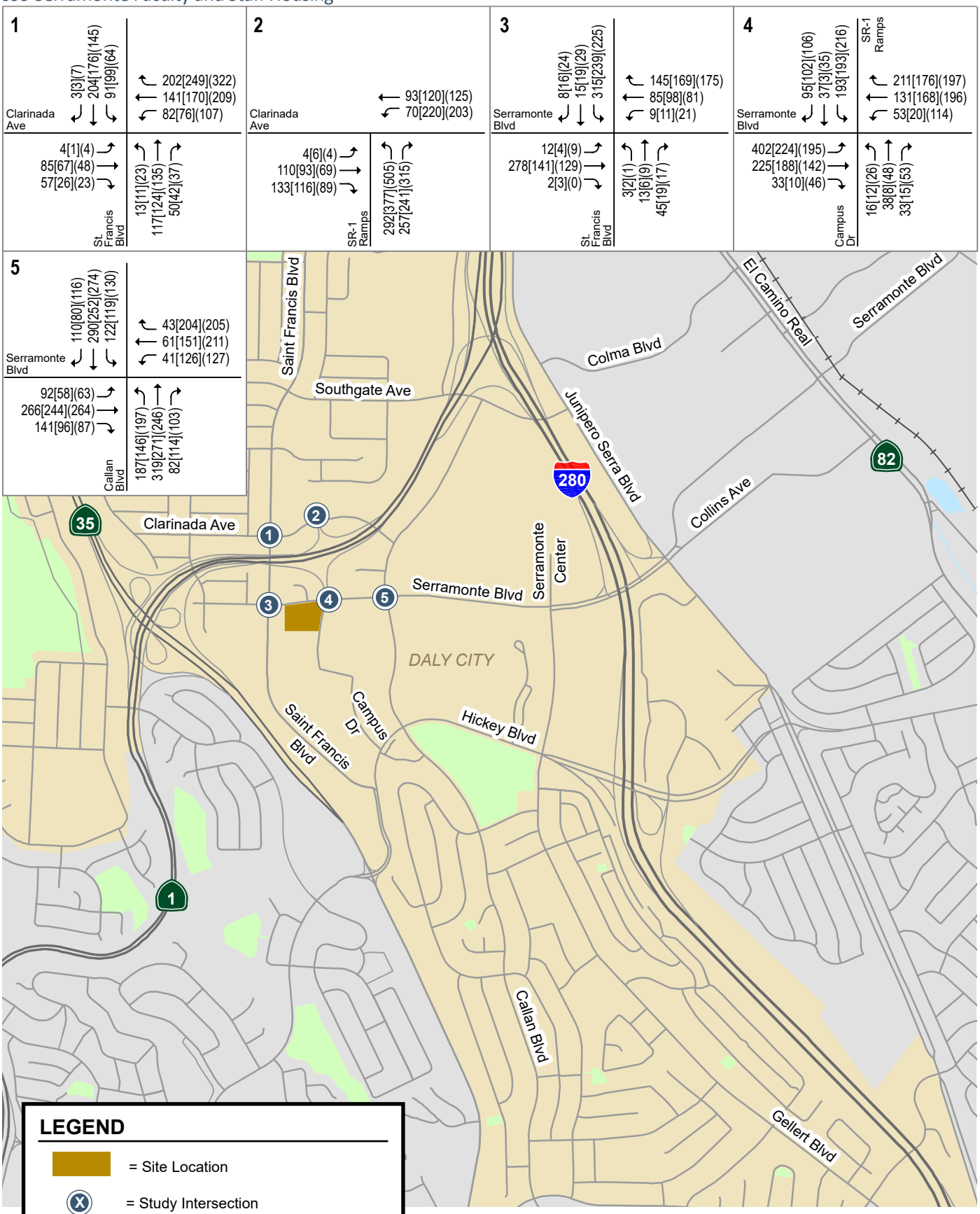


Figure 5
Existing Traffic Volumes

3. Project Characteristics

This chapter describes the method by which project traffic is estimated. The proposed Jefferson Union High School District (JUHSD) faculty and staff housing project would construct 122 faculty and staff housing units for the JUHSD employees. Project access would be provided directly onto Serramonte Boulevard via the realigned Campus Drive, directly opposite the SR 1 northbound ramps.

Project Traffic Estimates

The trip generation of the project was estimated using (1) trip rates from the latest edition of the Institute of Transportation Engineers *Trip Generation* Manual (10th edition) and (2) data provided by the District for faculty/staff housing.

The housing facility will be occupied primarily by the district workforce, comprising school faculty and their spouses, and support staff. Based on the bell schedules of the district's high schools, faculty/school staff would typically arrive at their schools within a one-hour window between 7:00 AM and 8:00 AM, which is a narrower time frame than the typical 7:00 to 9:00 AM window represented by the ITE Trip Generation rates. This compressed departure time frame would cause the faculty/school staff trip rates to be higher than those of their spouses, which are assumed to follow the typical 7:00 to 9:00 AM departure window. Because of this, the trips generated by faculty/school staff were calculated separately using data provided by the District, as shown in Table 4.

Table 4
Project Trip Generation Estimates

	Commute AM Peak Hour			School PM Peak Hour			Commute PM Peak Hour		
Land Use	Total Trips	In	Out	Total Trips	In	Out	Total Trips	In	Out
Trips generated by Faculty	74	7	66	46	41	5	46	41	5
Trips generated by Faculty Spouses	18	4	14	23	14	8	23	14	8
Total Trips	**92**	**12**	**80**	**68**	**55**	**13**	**68**	**55**	**13**

Numbers may not add due to rounding

The project trip distribution was determined based on the locations of schools where the faculty and school staff would work and previous studies in the project vicinity. The addresses of the schools are listed below:

- Jefferson High School — 6996 Mission St, Daly City, CA 94014
- Oceana High School — 401 Paloma Avenue, Pacifica, CA 94044
- Serramonte Del Rey (Adult School) — 699 Serramonte Boulevard, Daly City, CA 94015
- Terra Nova High School — 1450 Terra Nova Boulevard, Pacifica, CA 94044
- Thornton High School — 115 1st Avenue, Daly City, CA 94014
- Westmoor High School — 131 Westmoor Avenue, Daly City, CA 94015

Project trips were assigned to the roadway network based on the project trip distribution. The project trip distribution and trip assignment are shown on Figure 6.

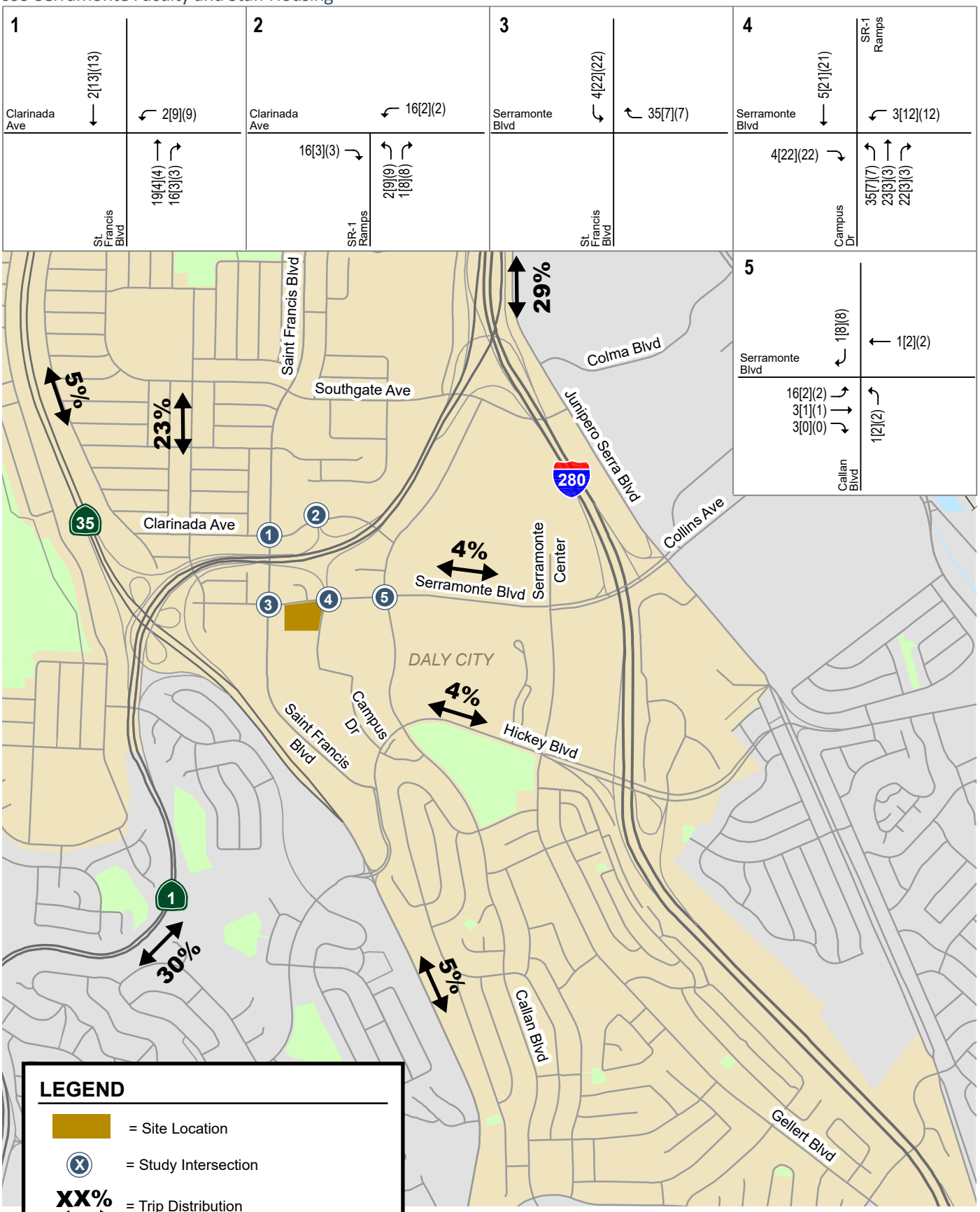


Figure 6
Project Trip Distribution and Trip Assignment

4. Existing Plus Project Conditions

This chapter describes existing plus project traffic conditions. Existing plus project traffic conditions represent the traffic conditions that would occur if the project were constructed and occupied today. This scenario is used to determine project-specific impacts.

Existing Plus Project Traffic Volumes and Transportation Network

It is assumed in this analysis that the roadway network and the study intersection lane configurations under existing plus project conditions would be the same as those described under existing conditions. To estimate traffic for existing plus project conditions, project generated traffic was added to existing traffic at each intersection movement. The existing plus project traffic volumes at the study intersections are shown graphically on Figure 7.

Existing Plus Project Signalized Intersection Levels of Service

The results of the signalized intersection level of service analysis under existing plus project conditions are summarized in Table 5. The results indicate that the signalized intersection of Callan Boulevard/Serramonte Boulevard would continue to operate at an acceptable LOS C during all peak hours. According to the City of Daly City level of service standards, the proposed project would not result in any adverse LOS impacts to the intersection. The level of service calculation sheets are included in Appendix B.

Existing Plus Project Unsignalized Intersection Levels of Service

The results of the unsignalized intersection level of service analysis under existing plus project conditions are summarized in Table 5. The results indicate that the unsignalized intersection of SR-1 southbound ramps/Clarinada Avenue would continue to operate at an LOS E during the PM peak hour. The level of service at the SR-1 northbound ramps/Serramonte Boulevard intersection would degrade from an LOS D under existing conditions to an LOS E under existing plus project conditions. All other study intersections operate at LOS C or better during all peak hours.

Table 5
Existing Plus Project Intersection Levels of Service

No.	Study Intersection	Traffic Control[1]	Peak Hour[2]	Existing Avg. Delay[3]	Existing LOS[4]	Existing + Project Avg. Delay[3]	Existing + Project LOS[4]	Existing + Project Incr. In Avg. Delay	with Improvement[6] Avg. Delay[3]	with Improvement[6] LOS[4]
1	St. Francis Blvd & Clarinada Ave	AWSC[5]	AM	13.8	B	14.7	B	0.9		
			SPM	13.4	B	14.0	B	0.6		
			PM	15.8	C	16.7	C	0.9		
2	SR 1 SB ramps & Clarinada Ave	AWSC[5]	AM	13.9	B	14.4	B	0.5		
			SPM	19.6	C	20.5	C	0.9		
			PM	45.4	E	48.8	E	3.4	14.5	B
3	St. Francis Blvd & Serramonte Bl	AWSC[5]	AM	14.7	B	15.4	C	0.7		
			SPM	11.1	B	11.8	B	0.7		
			PM	10.8	B	11.2	B	0.4		
4	SR 1 NB ramps & Serramonte Bl	AWSC[5]	AM	28.7	D	35.8	E	7.1	20.6	C
			SPM	13.1	B	13.9	B	0.8		
			PM	17.0	C	18.7	C	1.7		
5	Callan Blvd and Serramonte Bl	signal	AM	25.6	C	26.7	C	1.1		
			SPM	23.8	C	23.5	C	-0.3		
			PM	25.2	C	25.5	C	0.3		

[1] The City's LOS standard for signalized intersections is LOS D or better. There is no official LOS standard for unsignalized (AWSC) intersections.

[2] SPM = school PM peak hour.

[3] Signalized intersection levels of service and delays reported are for average control delay per vehicle. The intersection levels of service and delays reported for the all-way-stop-controlled (AWSC) intersections pertain to overall average delay.

[4] Level of service was calculated based on the HCM methodology using Synchro software.

[5] AWSC - All Way Stop Control.

[6] In all cases, the recommended improvement is signalization of the existing 4-way stop. The level of service criteria (thresholds) therefore apply to those for signalized intersections.

☐ = LOS E or F conditions

The City does not have a threshold of significance for level of service for unsignalized intersections. An evaluation of traffic signal warrants can further guide the decision whether to install a traffic signal. The traffic signal warrant analysis is described in Chapter 6.

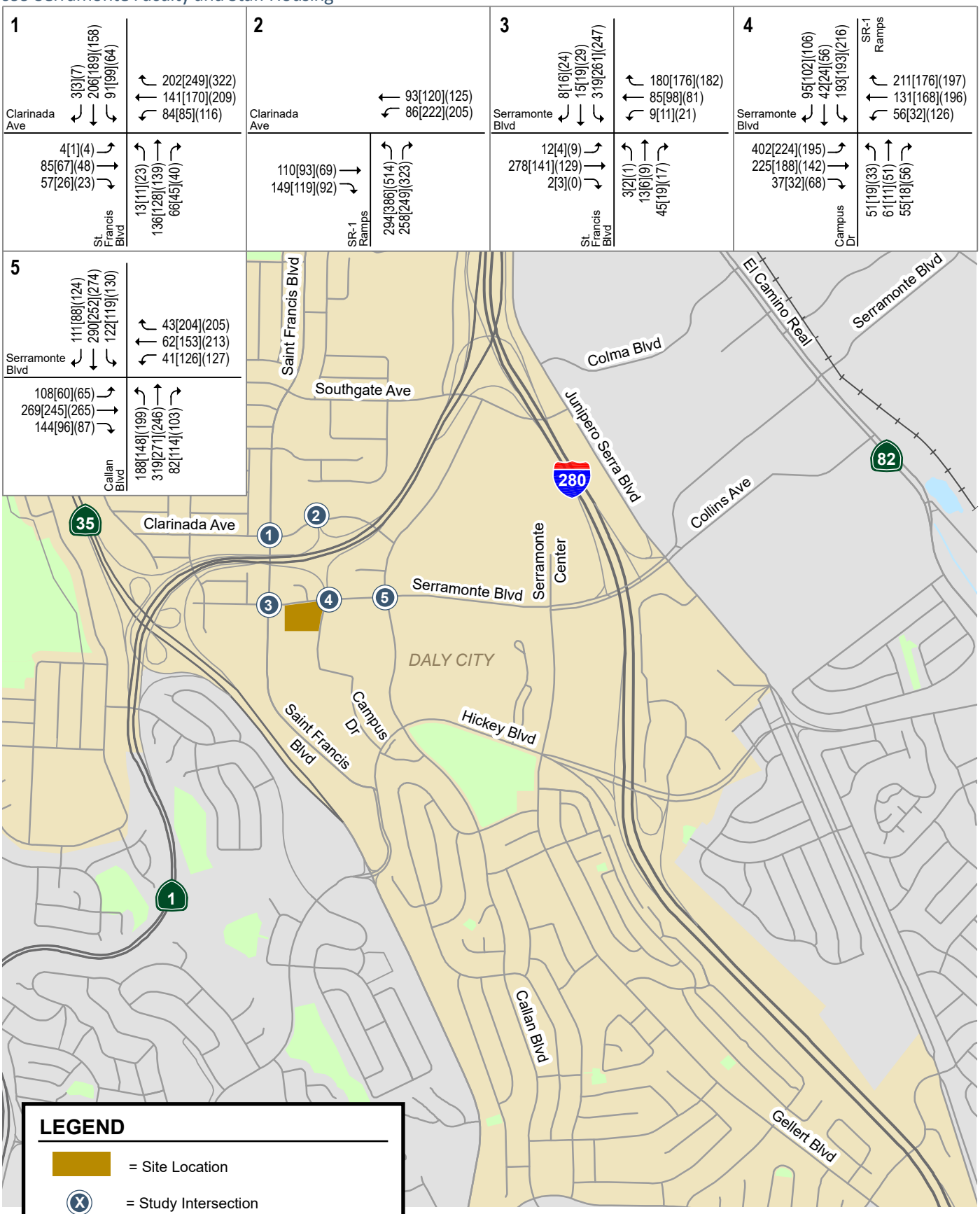


Figure 7
Existing Plus Project Traffic Volumes

NORTH
Not to Scale

5. Cumulative Conditions

This chapter presents a summary of the traffic conditions that would occur under cumulative conditions. For this analysis, cumulative conditions represent traffic conditions assuming the buildout of the Daly City General Plan to year 2035. Cumulative no project and with project traffic volumes were obtained from the Daly City Travel Demand Forecast (TDF) model. The Daly City TDF model includes various local and regional improvements outside of the project area. Included in this chapter is a summary of cumulative intersection impacts caused by the project.

Cumulative Transportation Network and Traffic Volumes

While there are various regional transportation improvements planned by the year 2035, it is assumed in this analysis that the transportation network in the project vicinity under cumulative conditions would be the same as that described under existing conditions. However, the City's General Plan identifies the following planned improvements:

- St. Francis Boulevard and Clarinada Avenue- install a traffic signal
- SR 1 SB Ramps and Clarinada Avenue- install a traffic signal
- SR 1 NB Ramps/Project Driveway and Serramonte Boulevard- install a traffic signal

Traffic volumes for cumulative conditions were obtained from the Daly City TDF model based on the Year 2035 General Plan Buildout land uses. The 2035 forecasts represent volumes under Cumulative No Project conditions. Cumulative with Project volumes were determined by adding to the Cumulative No Project volumes the estimated project trips. The cumulative traffic volumes with and without the proposed project are shown on Figures 8 and 9.

Cumulative Signalized Intersection Levels of Service

The signalized intersection level of service results under cumulative conditions are summarized in Table 6. The results show that, measured against the City of Daly City level of service standard, the signalized study intersection of Callan Boulevard and Serramonte Boulevard would operate at an acceptable LOS C under cumulative conditions both without and with the project. The level of service calculation sheets are included in Appendix B.

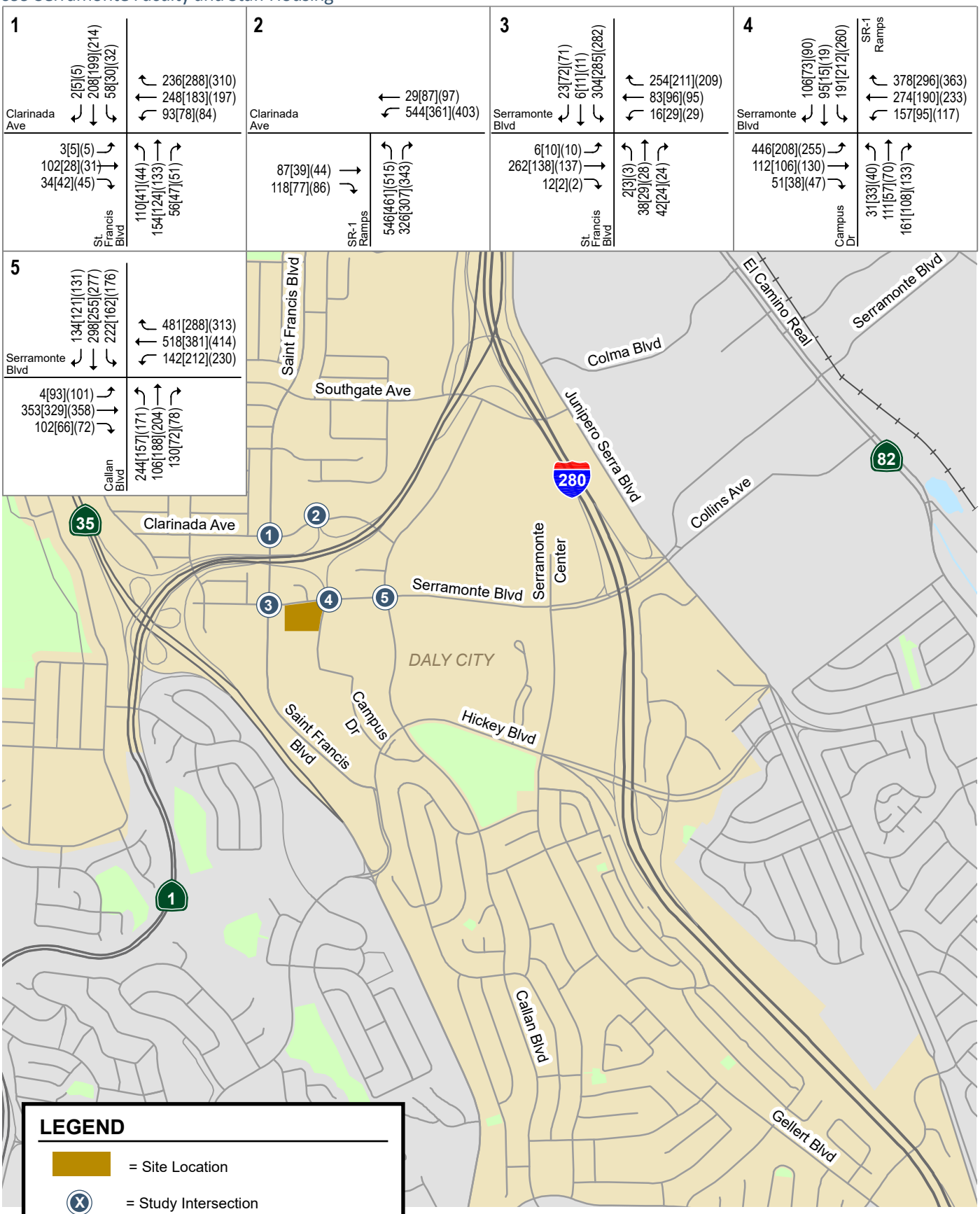


Figure 8
Cumulative No Project Traffic Volumes

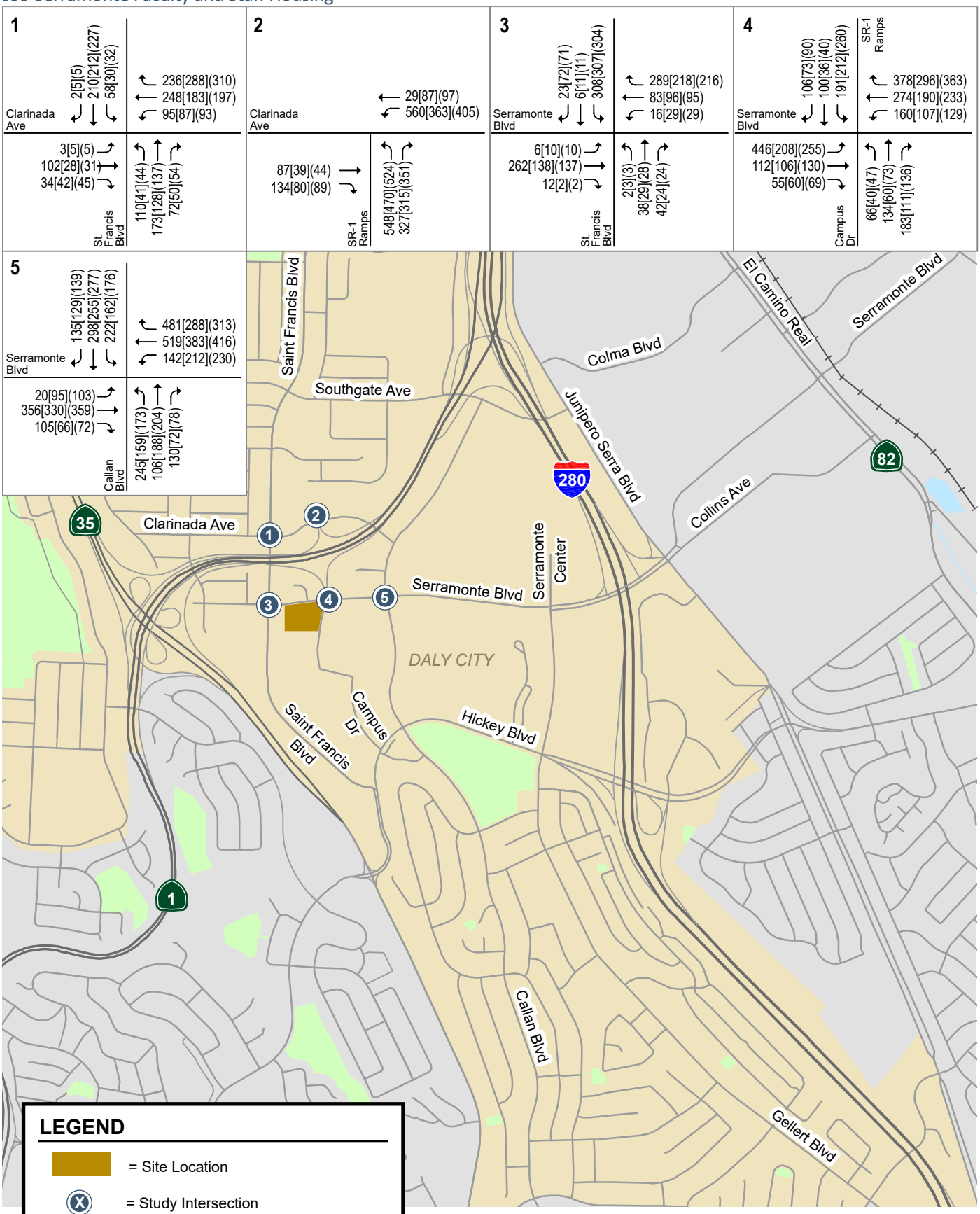


Figure 9
Cumulative With Project Traffic Volumes

Table 6
Cumulative Intersection Levels of Service

No.	Study Intersection	Traffic Control[1]	Peak Hour[2]	No Project Avg. Delay[3]	No Project LOS[4]	With Project Avg. Delay[3]	With Project LOS[4]	Incr. In Avg. Delay	with Improvement[6] Avg. Delay[3]	with Improvement[6] LOS[4]
1	St. Francis Blvd & Clarinada Ave	AWSC[5]	AM	21.7	C	24.3	C	2.6		
			SPM	13.5	B	14.0	B	0.5		
			PM	16.2	C	17.2	C	1.0		
2	SR 1 SB ramps & Clarinada Ave	AWSC[5]	AM	148.5	F	157.8	F	9.3	39.2	D
			SPM	39.5	E	41.7	E	2.2	17.3	B
			PM	76.0	F	79.7	F	3.7	21.4	C
3	St. Francis Blvd & Serramonte Bl	AWSC[5]	AM	17.2	C	18.8	C	1.6		
			SPM	14.7	B	15.7	C	1.0		
			PM	13.7	B	14.6	B	0.9		
4	SR 1 NB ramps & Serramonte Bl	AWSC[5]	AM	122.2	F	139.0	F	16.8	54.0	D
			SPM	20.8	C	23.2	C	2.4		
			PM	46.1	E	51.8	F	5.7	24.6	C
5	Callan Blvd and Serramonte Bl	signal	AM	29.5	C	29.9	C	0.4		
			SPM	25.8	C	24.9	C	-0.9		
			PM	27.8	C	28.1	C	0.3		

[1] The City's LOS standard for signalized intersections is LOS D or better. There is no official LOS standard for unsignalized (AWSC) intersections.

[2] SPM = school PM peak hour.

[3] Signalized intersection levels of service and delays reported are for average control delay per vehicle. The intersection levels of service and delays reported for the all-way-stop-controlled (AWSC) intersections pertain to overall average delay.

[4] Level of service was calculated based on the HCM methodology using Synchro software.

[5] AWSC - All Way Stop Control.

[6] In all cases, the recommended improvement is signalization of the existing 4-way stop. The level of service criteria (thresholds) therefore apply to those for signalized intersections.

☐ = LOS E or F conditions

Cumulative Unsignalized Intersection Levels of Service

The results of the unsignalized intersection level of service analysis under cumulative conditions are summarized in Table 6. The level of service calculation sheets are included in Appendix B.

The results indicate that the unsignalized intersection of SR-1 southbound ramps/Clarinada Avenue would operate at LOS E or worse during all peak hours both without and with the project. It also shows that the unsignalized intersection of SR-1 northbound ramps/Serramonte Boulevard would operate at LOS E or worse during the AM and PM peak hours both without and with the project. The other unsignalized study intersections would operate at LOS C or better during all peak hours under cumulative conditions without and with the project.

The City does not have a threshold of significance for level of service for unsignalized intersections. An evaluation of traffic signal warrants can further guide the decision whether to install a traffic signal. The traffic signal warrant analysis is described in the next chapter.

6. Other Transportation Issues

This chapter presents an analysis of other transportation issues associated with the project site, including:

- Traffic Signal Warrants
- Vehicle Queuing Analysis
- Pedestrian, Bicycles and Transit Analysis
- Site Access and Circulation

Unlike the level of service impact methodology, which is adopted by the City Council, the analyses of non-LOS issues are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Traffic Signal Warrants

The level of service analysis for the unsignalized intersections was supplemented with an assessment of the need for signalization of the intersections. For this study, the need for signalization is assessed on the basis of the peak-hour volume signal warrant – warrant #3 – described in the *California Manual on Uniform Traffic Control Devices* (MUTCD). This method provides an indication of whether traffic conditions and peak-hour traffic levels are, or would be, sufficient to justify installation of a traffic signal.

The peak-hour volume signal warrant analysis was conducted for the four unsignalized intersections under existing and existing plus project conditions. The results are summarized in Table 7. All signal warrant calculation sheets are included in Appendix C. The results are described below.

SR-1 southbound ramps and Clarinada Avenue. The results show that, at the intersection of SR-1 southbound ramps and Clarinada Avenue, the warrant would be met for all peak hours under all study scenarios. The warrants would be met principally because of the high volumes of traffic from the off-ramps.

Recommendation 1: A traffic signal is warranted at the intersection of SR-1 southbound ramps and Clarinada Avenue. This improvement is identified in the City of Daly City General Plan. Accordingly, the applicant shall pay their fair share contribution for the improvement. The project would add 35 AM, 22 school PM, and 22 PM peak-hour trips to the intersection.

SR-1 northbound ramps and Serramonte Boulevard. The results show that, at the intersection of SR-1 northbound ramps and Serramonte Boulevard, the warrant would be met for all peak hours under all study scenarios. The warrants would be met principally because of the high volumes of traffic from the off-ramps.

Recommendation 2: A traffic signal with crosswalks across Serramonte Boulevard is warranted at the intersection of SR-1 northbound ramps and Serramonte Boulevard. This improvement is identified in the City of Daly City General Plan. Accordingly, the applicant shall pay their fair share contribution for the improvement. The project would add 92 AM, 68 school PM, and 68 PM peak-hour trips to the intersection.

Table 7
Summary of Peak Hour Signal Warrant Results

No.	Study Intersection	Peak Hour[1]	Signal Warrant Met?			
			Existing		Cumulative	
			No Project	With Project	No Project	With Project
1	St. Francis Blvd & Clarinada Ave	AM	no	no	no	no
		SPM	no	no	no	no
		PM	no	no	no	no
2	SR 1 SB ramps & Clarinada Ave	AM	yes	yes	yes	yes
		SPM	yes	yes	yes	yes
		PM	yes	yes	yes	yes
3	St. Francis Blvd & Serramonte Blvd	AM	no	no	no	no
		SPM	no	no	no	no
		PM	no	no	no	no
4	SR 1 NB ramps / project driveway & Serramonte Blvd	AM	yes	yes	yes	yes
		SPM	yes	yes	yes	yes
		PM	yes	yes	yes	yes

[1] SPM = School PM peak hour

Vehicle Queuing Analysis

There are no established thresholds under CEQA or policy adopted by Daly City for determining significance impacts for vehicle queuing. A vehicle queuing analysis can be useful in determining the adequacy of existing vehicle storage capacity at intersections in the vicinity of the site. Accordingly, a vehicle queuing analysis was conducted for the high demand turn movements where the project would add traffic.

Vehicle queues were estimated using a Poisson probability distribution. The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles per signal cycle for a particular movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the movement. This analysis thus provides a basis for estimating future storage requirements at intersections.

Vehicle queuing was evaluated at the following off-site locations: eastbound left-turn pocket at the intersection of Callan Boulevard and Serramonte Boulevard, and the westbound left-turn pocket at the intersection of SR-1 southbound ramps and Clarinada Avenue. The vehicle queuing estimates for these off-site intersections are shown in Table 8. Vehicle queuing was evaluated at the site driveway

intersection for the movement of the northbound shared left/thru/right-turn lane (site driveway). The vehicle queuing estimates for this site driveway intersection movement is shown in Table 9.

Table 8 shows that the estimated maximum vehicle queues under existing and existing plus project conditions would not exceed the existing vehicle storage capacity at either the eastbound left-turn pocket at the intersection of Callan Boulevard and Serramonte Boulevard or the westbound left-turn pocket at the intersection of SR-1 southbound ramps and Clarinada Avenue during any of the peak hours.

Table 9 shows the existing and projected maximum vehicle queues for the northbound movement at the site driveway intersection. This is discussed in detail in the "Site Access and On-Site Circulation" section of this chapter.

Table 8
Off-Site Vehicle Queuing Analysis

	#5 Callan Blvd & Serramonte Blvd[1]			#2 SB SR-1 ramps & Clarinada Ave[2]		
	Eastbound Left-Turn			Westbound Left-Turn		
Measurement	AM	SPM	PM	AM	SPM	PM
Existing						
Cycle/Delay[3] (sec)	60	60	60	11.9	18.5	19.1
Volume (vph)	102	59	64	80	234	226
Avg. Queue (veh)	1.7	1.0	1.1	0.3	1.2	1.2
Avg. Queue (ft.)[4]	43	25	27	7	30	30
95th %. Queue (veh)	4	3	3	1	3	3
95th %. Queue (ft.)[4]	100	75	75	25	75	75
Storage	160	160	160	150	150	150
Adequate (Y/N)	Y	Y	Y	Y	Y	Y
Existing + Project						
Cycle/Delay[3] (sec)	60	60	60	12.5	18.9	19.4
Volume (vph)	120	61	66	98	236	228
Avg. Queue (veh)	2.0	1.0	1.1	0.3	1.2	1.2
Avg. Queue (ft.)[4]	50	25	28	9	31	31
95th %. Queue (veh)	5	3	3	1	3	3
95th %. Queue (ft.)[4]	125	75	75	25	75	75
Storage	160	160	160	150	150	150
Adequate (Y/N)	Y	Y	Y	Y	Y	Y

[1] Callan Boulevard & Serramonte Boulevard is a signalized intersection.

[2] SB SR 1 ramps & Clarinada Avenue is an unsignalized intersection.

[3] Vehicle queue calculations based on cycle length for signalized intersections and movement delay for unsignalized intersections.

[4] Assumes 25 feet per vehicle queued.

Table 9
Site Driveway Vehicle Queuing Analysis

Measurement	Site Driveway at Serramonte Boulevard Northbound shared Left/Thru/Right[3] AM	SPM	PM
Existing			
Delay[1] (sec)	14.3	10.9	14.4
Volume (vph)	96	36	132
Avg. Queue (veh)	0.4	0.1	0.5
Avg. Queue (ft.) [2]	10	3	13
95th %. Queue (veh)	2	1	2
95th %. Queue (ft.) [2]	50	25	50
Storage	50	50	50
Adequate (Y/N)	Y	Y	Y
Existing + Project			
Delay[1] (sec)	19.2	11.4	15.5
Volume (vph)	183	50	145
Avg. Queue (veh)	1.0	0.2	0.6
Avg. Queue (ft.) [2]	24	4	16
95th %. Queue (veh)	3	1	2
95th %. Queue (ft.) [2]	75	25	50
Storage	130	130	130
Adequate (Y/N)	Y	Y	Y

[1] Vehicle queue calculations based on movement delay for unsignalized intersections.
[2] Assumes 25 feet per vehicle queued.
[3] Under existing conditions, the northbound shared left/thru/right-turn lane on the drive aisle at the existing school site extends 50 feet back from the northbound stop bar to the intersecting parking aisle at the east lot. Per the proposed site plan, the northbound shared left/thru/right-turn lane would extend 130 feet back to the relocated southern east-west parking aisle at the east lot.

Pedestrian, Bicycle, and Transit Analysis

Pedestrian Facilities. Existing observations at the study intersections showed a moderate amount of pedestrian activity. Pedestrian activity at the St. Francis Boulevard/Clarinada intersection is fairly heavy for a non-CBD area, ranging between 40 and 80 pedestrian crossings per hour. Pedestrian volumes at the Callan Boulevard/Serramonte Boulevard intersection are moderate, ranging between 25 and 50 pedestrian crossings per hour. Pedestrian volumes directly in front of the project site were fairly light, ranging from 10 to 25 pedestrian crossings per hour.

Overall, the volume of pedestrian trips generated by the project is expected to be relatively low and not exceed the carrying capacity of the sidewalks and crosswalks nearby. Nearly all of the streets in the project vicinity have sidewalks and crosswalks at intersections. Currently, there is an existing bus stop on the north side of Serramonte Boulevard, opposite the project site, just west of the SR 1 ramps. There is no crosswalk across Serramonte Boulevard at the SR 1 ramps intersection, and it is anticipated that the project would add to the demand for this crossing. With the implementation of Recommendation 1, the installation of a traffic signal, pedestrian crosswalks

should be added at this intersection, improving pedestrian access between the existing bus stop and the project site.

Bicycle Facilities. According to the U.S. Census and City of Daly City General Plan, approximately one percent of the proposed project's users could be expected to commute via bike to and from the project site. For the proposed project, this would equate to approximately one new bike trip during each of the AM, school PM, and PM peak hours. The low volume of bicycle trips generated by the project would not exceed the bicycle-carrying capacity of the streets surrounding the site, and the increase in bicycle trips would not, by itself, require new off-site bicycle facilities. Daly City has installed bike facilities on Serramonte Boulevard along the project frontage.

Transit Service. Transit service in the project vicinity is currently provided by SamTrans. The nearest bus service is provided by Lines 24 and 120, with bus stops directly fronting the project site. According to the U.S. Census, bus trips comprise approximately 11 percent of the total commute mode share in the City of Daly City. For the proposed project, this would equate to 10 new transit trips during the AM peak hour and 7 new transit trips during each of the school PM and PM peak commute hours. This volume of riders would not exceed the carrying capacity of the existing bus service near the project site. Therefore, the proposed project would not create an adverse impact to transit service in the area.

According to the CEQA Guidelines, a project would create an impact to bicycle, transit or pedestrians on the transportation system if it: (1) conflicts with a program, plan, ordinance or policy addressing the circulation system, including transit, bicycle and pedestrian facilities; or (2) substantially increases hazards due to a geometric design feature; or (3) would create demand in excess of capacity. The project would not alter any existing or planned bicycle, pedestrian or transit facilities nor would it create demand in excess of capacity. However, it is recommended that a crosswalk be installed across Serramonte Boulevard at SR 1 in conjunction with the City's planned traffic signal installation to facilitate the project's pedestrian access to existing bus service. Therefore, the proposed project would not cause a significant impact to bicycle, pedestrian, or transit operations in the study area.

Site Access and On-Site Circulation

This section describes site access and on-site circulation for the proposed project. This review is based on the site plan dated July 9, 2019 (see Figure 2). The site plan is largely conceptual, being that it doesn't provide all necessary labels and dimensions.

Site Access Design

The site is located on the southwest corner of the SR-1 NB ramps/Serramonte Boulevard intersection. Site access would be provided by a single project driveway located at the south leg of the SR-1 northbound ramps/Serramonte Boulevard intersection. There is currently a driveway at this location that provides access to the existing education center on the parcel directly east of, and adjacent to, the site. The site driveway is located 175 feet east of Kent Court, and directly opposite the northbound SR-1 ramps. The distance to Callan Boulevard, the nearest street east of the site driveway, is approximately 600 feet. Along the site frontage, west of the site driveway, Serramonte Boulevard is two lanes wide with on-street parking on the north side. East of the site driveway, Serramonte Boulevard is four lanes wide with on-street parking on both sides. The proposed site driveway would have one lane in each direction, with the northbound approach functioning as a single shared left/thru/right-turn lane.

Access Operations

The results of the level of service and signal warrant analyses for the Site Driveway/Serramonte Boulevard intersection were reported previously. As shown on Figure 6, the project would add to the northbound approach of the Site Driveway/Serramonte Boulevard intersection 80 trips in the AM peak hour, and 13 trips in each of the school PM and PM commute peak hours. The project

would add to the westbound left turn movement from Serramonte Boulevard into the site 3 trips in the AM peak hour, and 12 trips in each of the school PM and PM commute peak hours.

One measure of storage capacity for the northbound (outbound) driveway approach at the Serramonte Boulevard intersection could be based on the distance to the nearest intersecting east-west parking aisle upstream (south) of the intersection stop bar at Serramonte Boulevard. Under existing conditions, this distance- the distance to the parking lot's northern east-west parking aisle, and the point at which vehicles would obstruct this aisle- is 50 feet. By this same measure, with new crosswalk striping and modified curb radius into the east-west parking aisle, the main north-south drive aisle would provide an effective storage capacity of 40 feet on the northbound approach under project conditions. However, were the northern east-west parking aisle to be obstructed, vehicles in the parking lot could still exit their parking spaces and exit the parking lot via the parking lot's southern east-west parking aisle, which is located 130 feet south of the intersection at Serramonte Boulevard. The same holds for southbound vehicles turning left into the east parking lot. Therefore, if the measure of storage capacity were based on ensuring that vehicles could enter and exit the east parking lot, the effective storage capacity would be considered 130 feet.

Driveway Queuing. The results of the vehicle queuing analysis at the site driveway are shown in Table 9. For the northbound shared left/thru/right-turn lane, the analysis showed that, under existing conditions, the available storage of 50 feet accommodates the estimated maximum vehicle queue of 50 feet in the AM and PM peak hours and the 25-foot maximum vehicle queue during the school PM peak hour. Under existing plus project conditions, the estimated maximum vehicle queues were projected to be 75 feet in the AM peak hour and 25- to 50-feet in the school PM and PM commute peak hours. As explained above, the effective storage capacity for this movement was assumed to be 130 feet, but vehicle queues in excess of 50 feet would block the subject east/west drive aisle. Given that the vehicle queuing analysis is based on the worst-case, 95th-percentile maximum queues which, by definition, occur infrequently, and given the very low volume of traffic in the east/west drive aisle, the occasional blockage of the east-west drive aisle would likely not create an operational problem. Nevertheless, it would be beneficial to restrict southbound left turns into the northern east-west drive aisle, thereby directing the southbound left turns to enter at the southern east-drive aisle.

Westbound left turns into the site are made from the westbound shared through/left-turn lane on Serramonte Boulevard. Since there is no left-turn pocket, the effective storage capacity for the westbound left turn is 600 feet- the distance to the Callan Boulevard intersection.

Signal Warrant. As reported previously, the peak-hour signal warrant is and would be met for the site driveway intersection at Serramonte Boulevard under all scenarios during all 3 peak hours studied. Signalization of the intersection is planned under the City's General Plan.

Sight Distance. The issue of sight distance at the site driveway is relevant primarily when the site driveway is the minor street at a two-way-stop controlled intersection. That is not the case for the proposed project. The site driveway intersection at Serramonte Boulevard currently operates under all-way-stop control and is planned to operate under signal control.

The factors affecting sight distance at the site driveway are the vertical curve on Serramonte Boulevard and the on-street parking on the south side of Serramonte Boulevard east of the driveway. Serramonte Boulevard slopes upward from the driveway in the west direction. With no on-street parking on the south side of Serramonte Boulevard west of the driveway, the line of sight looking west is unimpeded and would remain so after completion of the project, provided there are no monument signs or landscaping installed that would obstruct it. East of the site driveway, Serramonte Boulevard slopes downward, away from the driveway in the east direction, limiting the line of sight to approximately 100 to 220 feet, depending on on-street parking obstructions. The on-street parking on the south side of Serramonte Boulevard potentially limits sight distance to the east. However, because the intersection would operate under all-way stop or signal control, the limited sight distance does not pose a safety issue.

On-Site Circulation

The project access driveway on Serramonte Boulevard provides direct access to the on-site circulation via the main north-south drive aisle. The main north-south drive aisle extends approximately 260 feet southward from Serramonte Boulevard to a ninety-degree curve that extends westward about 265 feet on the main east-west drive aisle along the south frontage of the site where it connects to Campus Drive via a three-legged intersection. From the junction with Campus Drive, the main east-west drive aisle extends northwestward about 100 feet toward the project's west parking lot. The east parking lot is accessed from the main north-south drive aisle via the two previously mentioned east-west parking aisles. At its east end, the east lot also connects to the existing Perimeter Road.

All aisles on site have two lanes and serve two-way traffic. The main north-south drive aisle is approximately 34 feet wide from Serramonte Boulevard to and past the passenger loading area, until the pedestrian crossing, where the main north-south drive aisle widens to about 39 feet. The drive aisle continues 39 feet wide from the pedestrian crossing to the curve, where it narrows to 26 feet. The main east-west drive aisle is 26 feet wide from that point westward to the three-legged intersection at Campus Drive. The main east-west drive aisle is 24 feet wide between Campus Drive and the west parking lot. South of the main east-west drive aisle, Campus Drive is shown to be about 22 feet wide. There is no public access to this section of Campus Drive.

Several perpendicular parking spaces are located on the east side of the main north-south drive aisle, at the south end before the curve. Though the perpendicular parking is located in close proximity to the curve, the design of the curve and the location of the parking are such that adequate sight distance would be provided. Parallel parking would be provided on the north side of the main east-west drive aisle, at the west end before the three-legged intersection at Campus Drive. Because of the low volumes and speeds on the main east-west drive aisle, the proximity of the parallel parking to the intersection is not likely to pose any problems with operations at the intersection.

A passenger loading area would be located on the west side of the main north-south drive aisle, fronting the main pedestrian entry leading to the courtyard. The passenger loading area is of sufficient width and length to accommodate one to two cars without obstructing the southbound lane of the main north-south drive aisle. Vehicles would exit the passenger loading area southbound, turn left into the southern east-west drive aisle, circulate around to the northern east-west drive aisle back to the main north-south drive aisle, then turn right to access Serramonte Boulevard.

Circulation in the west parking lot consists of a single loop with 26-foot wide, two-way aisles with perpendicular (90-degree) parking along both sides, with the exception of the west side of the western north-south aisle, which provides a car barn with puzzle lifts. The three-level puzzle lift parking system would stack three vehicles in each parking stall. Upon arriving at the lot, residents would utilize a remote control to open their designated, secured, parking bay. The parking slots would shift to find an open space. The operation requires a short wait time to complete, depending if the shift is laterally only, requires raising and/or lowering, or if a shift is even needed. Based on Hexagon's prior observations of an existing two-level lift system, it was determined that the time to access a vehicle in the puzzle lift system can vary from 30 seconds to one minute and 45 seconds, depending on the configuration of vehicles within the system. It is anticipated that the proposed lift system would have adequate capacity to accommodate the number of trips into and out of the proposed parking lot, and the lift is far enough away from the public street that any minor inconveniences would be limited to the parking lot only.

The loop circulation layout in the west lot provides a simple circulation pattern with no dead-end aisles and parking spaces that are generally easy to access. The site plan shows that, conceptually, the alignments of the drive aisles on site, and the radii of the corners and curbs appear to be adequate to accommodate the circulation of trucks, garbage collection, and emergency vehicles.

A review of the east parking lot was not conducted as it will remain unchanged from its existing layout.

Recommendation 3: The project shall ensure that, in the final design, the alignments of the drive aisles and the corner radii on site are adequate for circulation of trucks, garbage collection, and emergency vehicles, subject to review by city staff/Republic Services. The northern east-west drive aisle should be designated one-way outbound (westbound) only.

Pedestrian circulation on site and pedestrian access to off-site pedestrian facilities appear adequate. Three on-site walkways connect to Serramonte Boulevard at the northeast corner of the site. The site plan shows walkways along the perimeter of the site, between the buildings on site, fronting the west parking lot, and on the east side of the main north-south drive aisle on the section adjacent to the aforementioned perpendicular parking. Crosswalks would be provided at three locations: across the south leg of the site access driveway at Serramonte Boulevard; mid-block on the main north-south drive aisle (just south of the southern east-west parking aisle of the east lot); and at the bend where the main north-south drive aisle meets the main east-west drive aisle.

The project site plan shows a bike parking pen on the west side of the site, but the bike parking supply has not yet been finalized. The City requires bike parking in the following amounts:

- Long Term Bike Parking: 5% of the resident vehicular parking spaces
- Short Term Bike Parking: 5% of the visitor vehicular parking spaces

Recommendation 4: The project shall provide bicycle parking on site in accordance with City requirements. The number, type and location of bicycle facilities provided by the project will be subject to review by city staff.

While the project would not create a significant impact to transit operations, the existing bus stop along the site frontage (on the south side of Serramonte Boulevard) west of the site driveway does not currently provide a bench or shelter. In order to encourage transit usage, and as part of the project's enhancement to the site's frontage along Serramonte Boulevard, the project should consider installing a bus shelter or bench. Providing an upgrade to the bus stop, be it a bench or shelter, would encourage transit ridership.

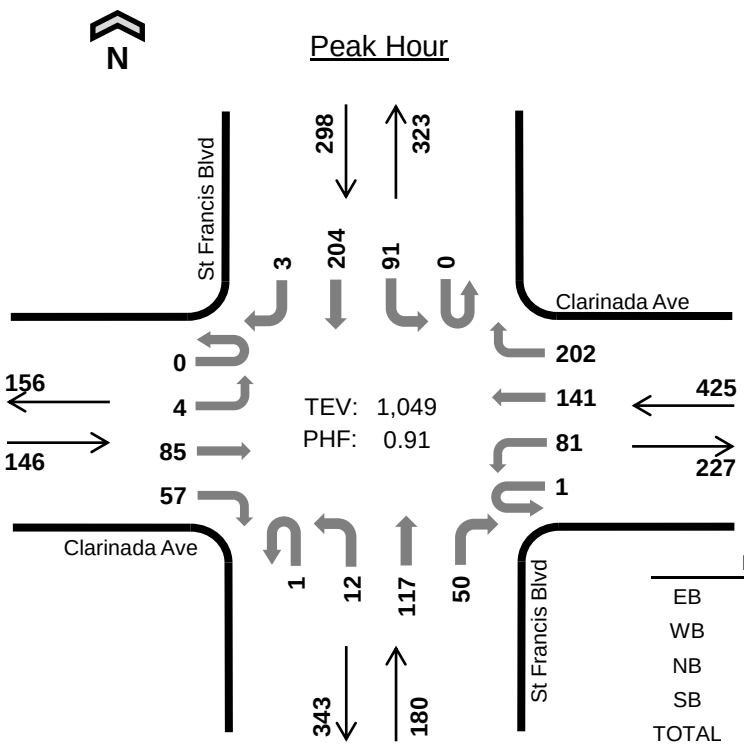
Recommendation 5: Prior to final design, the project applicant shall work with City of Daly City and SamTrans staff to consider the desirability of upgrades to the existing bus stop along the project frontage.

Technical Appendices

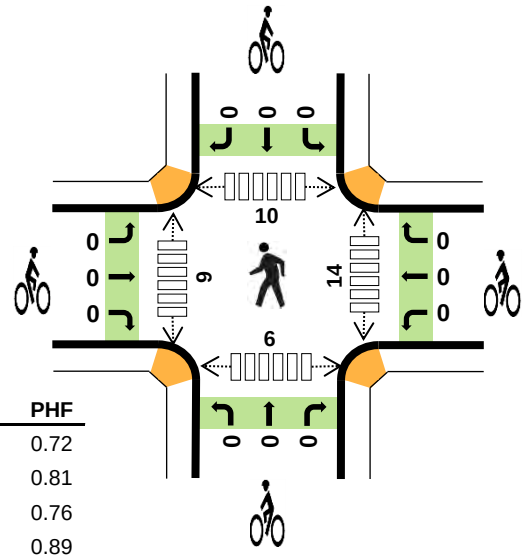
Appendix A

Traffic Counts

St Francis Blvd
Clarinada Ave



Date: 10-18-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	0.7%	0.72
WB	0.7%	0.81
NB	4.4%	0.76
SB	2.3%	0.89
TOTAL	1.8%	0.91

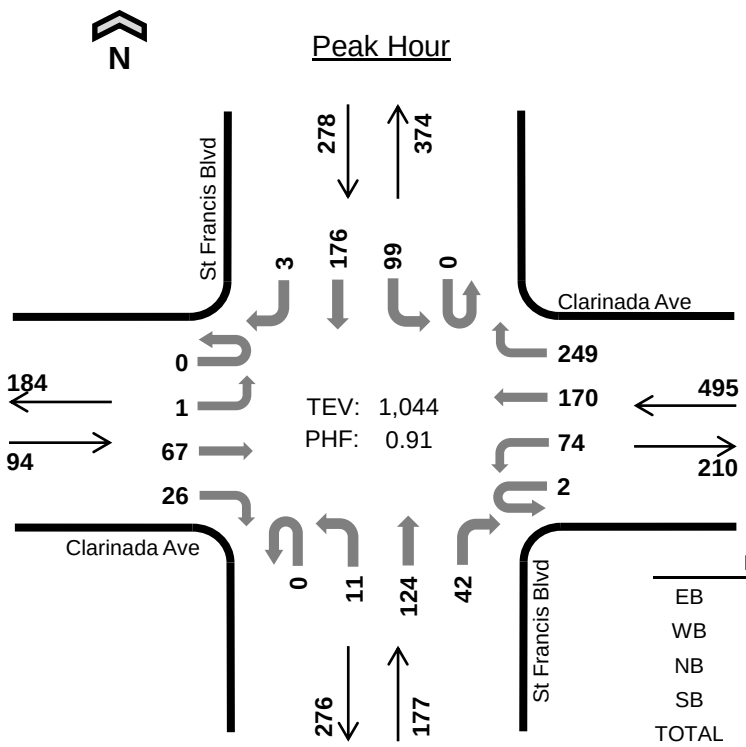
Two-Hour Count Summaries

Interval Start	Clarinada Ave Eastbound				Clarinada Ave Westbound				St Francis Blvd Northbound				St Francis Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	8	18	0	11	10	22	0	2	8	2	0	4	56	0	141	0
7:15 AM	0	0	14	11	0	13	16	30	0	3	12	6	0	12	38	0	155	0
7:30 AM	**0**	**1**	**11**	**8**	**0**	**16**	**33**	**41**	**0**	**2**	**23**	**9**	**0**	**15**	**49**	**2**	**210**	0
7:45 AM	**0**	**0**	**20**	**16**	**0**	**24**	**42**	**65**	**1**	**4**	**23**	**16**	**0**	**18**	**53**	**0**	**282**	788
8:00 AM	**0**	**2**	**31**	**18**	**1**	**29**	**38**	**49**	**0**	**3**	**32**	**8**	**0**	**23**	**53**	**1**	**288**	935
8:15 AM	**0**	**1**	**23**	**15**	**0**	**12**	**28**	**47**	**0**	**3**	**39**	**17**	**0**	**35**	**49**	**0**	**269**	**1,049**
8:30 AM	0	1	10	10	0	13	12	31	0	1	27	14	0	29	55	0	203	1,042
8:45 AM	0	2	12	7	1	18	14	30	0	2	24	12	0	14	43	1	180	940
Count Total	0	7	129	103	2	136	193	315	1	20	188	84	0	150	396	4	1,728	0
Peak Hour All	**0**	**4**	**85**	**57**	**1**	**81**	**141**	**202**	**1**	**12**	**117**	**50**	**0**	**91**	**204**	**3**	**1,049**	**0**
Peak Hour HV	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**0**	**7**	**1**	**0**	**0**	**7**	**0**	**19**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**2%**	**0%**	**1%**	**0%**	**1%**	**0%**	**0%**	**6%**	**2%**	**-**	**0%**	**3%**	**0%**	**2%**	**0**

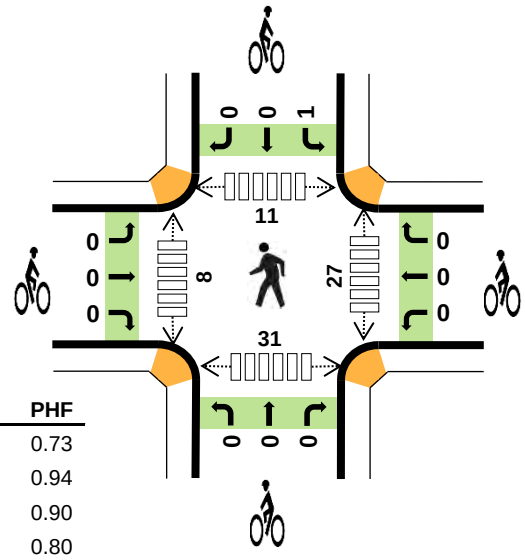
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	1	1	*2*	0	0	0	0	*0*	4	2	1	4	*11*
7:15 AM	0	2	2	1	*5*	0	0	0	0	*0*	1	1	1	1	*4*
7:30 AM	**0**	**1**	**2**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**2**	**0**	*3*
7:45 AM	**0**	**1**	**1**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**4**	**4**	**1**	**3**	*12*
8:00 AM	**1**	**1**	**2**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**7**	**1**	**7**	**3**	*18*
8:15 AM	**0**	**0**	**3**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**3**	**3**	**0**	**0**	***6***
8:30 AM	0	1	2	2	*5*	0	0	0	0	*0*	1	4	2	0	*7*
8:45 AM	0	2	4	1	*7*	0	0	0	1	*1*	1	1	2	2	*6*
Count Total	1	8	17	12	*38*	0	0	0	1	*1*	21	17	16	13	*67*
Peak Hour	**1**	**3**	**8**	**7**	***19***	**0**	**0**	**0**	**0**	***0***	**14**	**9**	**10**	**6**	***39***

St Francis Blvd
Clarinada Ave



Date: 10-18-2018
Count Period: 2:00 PM to 4:00 PM
Peak Hour: 2:45 PM to 3:45 PM



	HV %:	PHF
EB	2.1%	0.73
WB	1.6%	0.94
NB	6.2%	0.90
SB	4.0%	0.80
TOTAL	3.1%	0.91

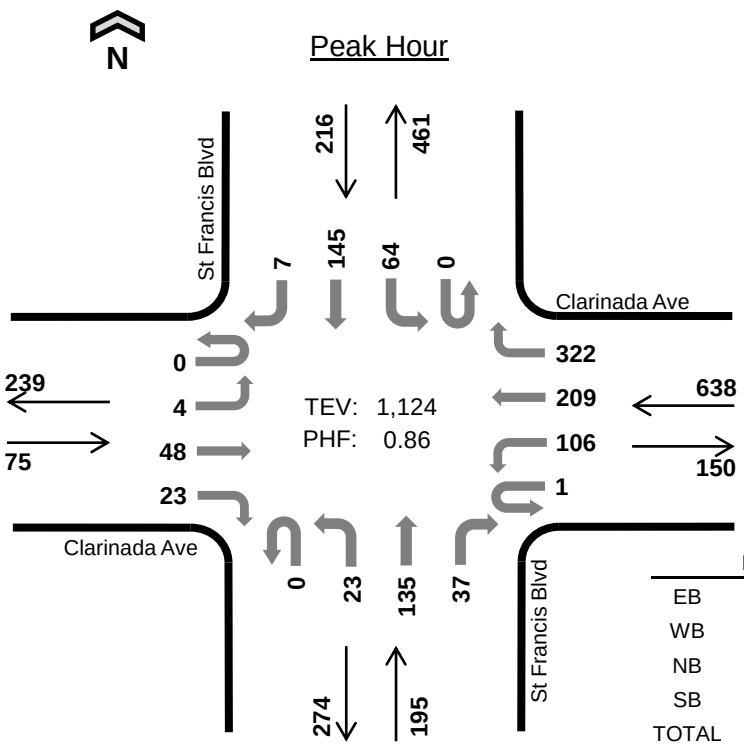
Two-Hour Count Summaries

Interval Start	Clarinada Ave Eastbound				Clarinada Ave Westbound				St Francis Blvd Northbound				St Francis Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	2	10	1	18	24	65	1	1	18	3	0	16	43	0	202	0
2:15 PM	0	1	13	10	0	14	30	45	0	3	21	6	0	29	28	1	201	0
2:30 PM	0	1	4	8	0	12	38	55	0	2	23	7	0	13	32	2	197	0
2:45 PM	**0**	**0**	**9**	**5**	**0**	**16**	**51**	**65**	**0**	**2**	**33**	**14**	**0**	**17**	**34**	**0**	**246**	846
3:00 PM	**0**	**0**	**25**	**7**	**0**	**16**	**39**	**71**	**0**	**2**	**35**	**6**	**0**	**33**	**54**	**0**	**288**	932
3:15 PM	**0**	**1**	**17**	**9**	**0**	**24**	**43**	**55**	**0**	**3**	**32**	**11**	**0**	**32**	**44**	**1**	**272**	1,003
3:30 PM	**0**	**0**	**16**	**5**	**2**	**18**	**37**	**58**	**0**	**4**	**24**	**11**	**0**	**17**	**44**	**2**	**238**	**1,044**
3:45 PM	0	1	12	5	0	20	36	65	0	5	18	11	1	14	39	1	228	1,026
Count Total	0	4	98	59	3	138	298	479	1	22	204	69	1	171	318	7	1,872	0
Peak Hour All	**0**	**1**	**67**	**26**	**2**	**74**	**170**	**249**	**0**	**11**	**124**	**42**	**0**	**99**	**176**	**3**	**1,044**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**3**	**2**	**3**	**0**	**0**	**9**	**2**	**0**	**1**	**10**	**0**	**32**	**0**
Peak Hour HV%	**-**	**0%**	**3%**	**0%**	**0%**	**4%**	**1%**	**1%**	**-**	**0%**	**7%**	**5%**	**-**	**1%**	**6%**	**0%**	**3%**	**0**

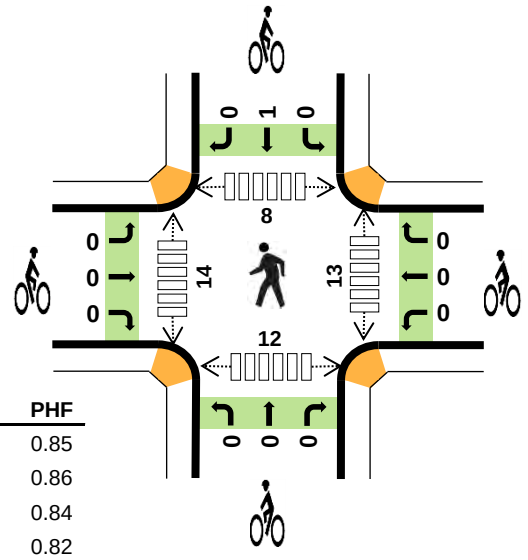
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	3	2	2	*7*	0	0	0	0	*0*	4	4	1	3	*12*
2:15 PM	0	0	0	1	*1*	0	0	0	0	*0*	3	2	4	0	*9*
2:30 PM	0	3	1	3	*7*	0	0	0	0	*0*	1	1	0	0	*2*
2:45 PM	**0**	**4**	**5**	**1**	***10***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**0**	**2**	*6*
3:00 PM	**1**	**0**	**2**	**4**	***7***	**0**	**0**	**0**	**1**	***1***	**1**	**3**	**4**	**3**	*11*
3:15 PM	**0**	**3**	**2**	**4**	***9***	**0**	**0**	**0**	**0**	***0***	**10**	**1**	**1**	**20**	*32*
3:30 PM	**1**	**1**	**2**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**14**	**2**	**6**	**6**	***28***
3:45 PM	0	2	1	2	*5*	0	0	0	0	*0*	1	3	1	1	*6*
Count Total	2	16	15	19	*52*	0	0	0	1	*1*	36	18	17	35	*106*
Peak Hour	**2**	**8**	**11**	**11**	***32***	**0**	**0**	**0**	**1**	***1***	**27**	**8**	**11**	**31**	***77***

St Francis Blvd
Clarinada Ave



Date: 10-18-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.0%	0.85
WB	0.6%	0.86
NB	4.1%	0.84
SB	2.8%	0.82
TOTAL	1.6%	0.86

Two-Hour Count Summaries

Interval Start	Clarinada Ave Eastbound				Clarinada Ave Westbound				St Francis Blvd Northbound				St Francis Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	3	13	5	2	13	33	65	0	4	24	11	0	12	39	1	225	0
4:15 PM	0	1	8	5	0	16	37	64	0	2	20	10	0	15	31	3	212	0
4:30 PM	0	2	12	4	0	22	50	49	0	4	33	9	0	16	42	3	246	0
4:45 PM	0	2	8	8	1	30	38	67	0	3	29	5	0	7	24	2	224	907
5:00 PM	**0**	**1**	**13**	**4**	**0**	**28**	**40**	**62**	**0**	**3**	**25**	**11**	**0**	**15**	**33**	**1**	**236**	918
5:15 PM	**0**	**1**	**9**	**5**	**0**	**32**	**63**	**90**	**0**	**8**	**33**	**10**	**0**	**15**	**36**	**2**	**304**	1,010
5:30 PM	**0**	**1**	**13**	**8**	**0**	**19**	**45**	**78**	**0**	**6**	**37**	**4**	**0**	**9**	**37**	**2**	**259**	1,023
5:45 PM	**0**	**1**	**13**	**6**	**1**	**27**	**61**	**92**	**0**	**6**	**40**	**12**	**0**	**25**	**39**	**2**	**325**	**1,124**
Count Total	0	12	89	45	4	187	367	567	0	36	241	72	0	114	281	16	2,031	0
Peak Hour All	**0**	**4**	**48**	**23**	**1**	**106**	**209**	**322**	**0**	**23**	**135**	**37**	**0**	**64**	**145**	**7**	**1,124**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**6**	**1**	**0**	**0**	**6**	**0**	**18**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**0%**	**4%**	**0%**	**0%**	**-**	**4%**	**4%**	**3%**	**-**	**0%**	**4%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

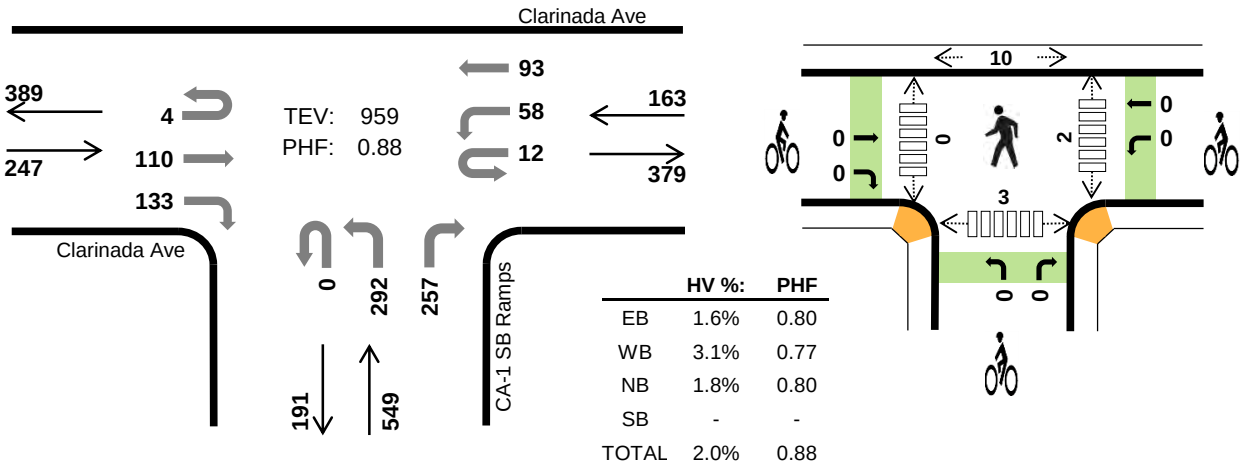
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	3	1	*6*	0	0	0	0	*0*	3	1	3	4	*11*
4:15 PM	0	2	1	2	*5*	0	0	0	0	*0*	1	1	0	1	*3*
4:30 PM	1	0	3	2	*6*	0	0	0	0	*0*	2	2	2	6	*12*
4:45 PM	0	2	2	2	*6*	0	0	0	0	*0*	0	4	2	1	*7*
5:00 PM	**0**	**1**	**3**	**1**	***5***	**0**	**0**	**0**	**1**	***1***	**2**	**3**	**3**	**2**	*10*
5:15 PM	**0**	**2**	**2**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**2**	**7**	**2**	**3**	*14*
5:30 PM	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**5**	**2**	**3**	**6**	*16*
5:45 PM	**0**	**1**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**4**	**2**	**0**	**1**	***7***
Count Total	1	10	17	13	*41*	0	0	0	1	*1*	19	22	15	24	*80*
Peak Hour	**0**	**4**	**8**	**6**	***18***	**0**	**0**	**0**	**1**	***1***	**13**	**14**	**8**	**12**	***47***

CA-1 SB Ramps
Clarinada Ave

N

Peak Hour

Date: 10-18-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	1.6%	0.80
WB	3.1%	0.77
NB	1.8%	0.80
SB	-	-
TOTAL	2.0%	0.88

Two-Hour Count Summaries

Interval Start		Clarinada Ave Eastbound				Clarinada Ave Westbound				CA-1 SB Ramps Northbound				0 Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	10	7	6	11	6	0	0	31	0	28	0	0	0	0	99	0
7:15 AM		0	0	11	22	1	10	11	0	0	48	0	39	0	0	0	0	142	0
7:30 AM		1	0	9	29	4	15	11	0	0	62	0	53	0	0	0	0	184	0
7:45 AM		**1**	**0**	**23**	**29**	**4**	**18**	**31**	**0**	**0**	**85**	**0**	**51**	**0**	**0**	**0**	**0**	**242**	667
8:00 AM		**2**	**0**	**23**	**34**	**2**	**12**	**26**	**0**	**0**	**85**	**0**	**87**	**0**	**0**	**0**	**0**	**271**	839
8:15 AM		**0**	**0**	**39**	**38**	**3**	**13**	**23**	**0**	**0**	**75**	**0**	**69**	**0**	**0**	**0**	**0**	**260**	957
8:30 AM		**1**	**0**	**25**	**32**	**3**	**15**	**13**	**0**	**0**	**47**	**0**	**50**	**0**	**0**	**0**	**0**	**186**	**959**
8:45 AM		0	0	13	24	3	22	14	0	0	47	0	59	0	0	0	0	182	899
Count Total		5	0	153	215	26	116	135	0	0	480	0	436	0	0	0	0	1,566	0
Peak Hour	**All**	**4**	**0**	**110**	**133**	**12**	**58**	**93**	**0**	**0**	**292**	**0**	**257**	**0**	**0**	**0**	**0**	**959**	**0**
	HV	**0**	**0**	**1**	**3**	**1**	**2**	**2**	**0**	**0**	**2**	**0**	**8**	**0**	**0**	**0**	**0**	**19**	**0**
	HV%	**0%**	**-**	**1%**	**2%**	**8%**	**3%**	**2%**	**-**	**-**	**1%**	**-**	**3%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

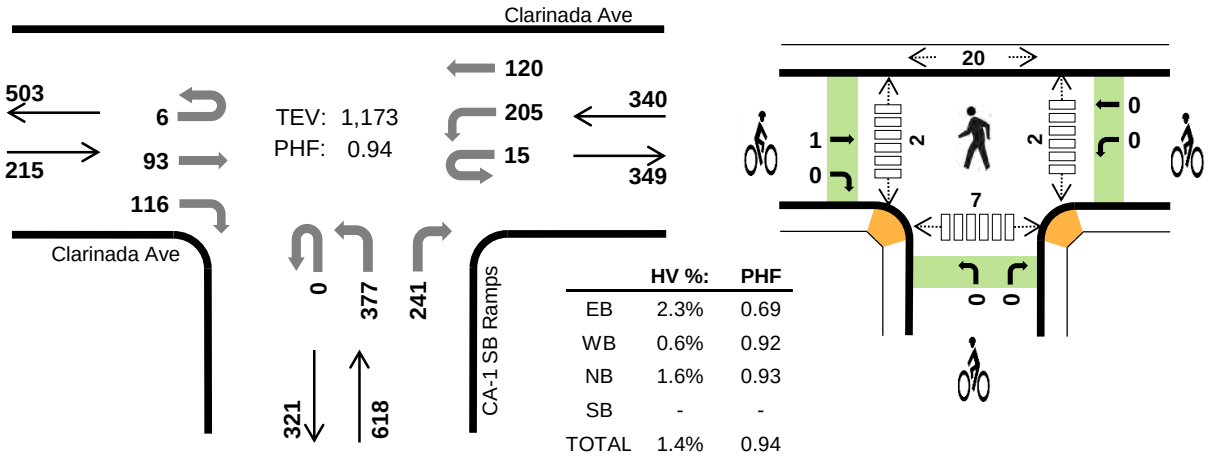
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	2	0	*2*	0	0	0	0	*0*	0	0	6	0	*6*
7:15 AM	0	0	3	0	*3*	0	0	0	0	*0*	0	0	1	2	*3*
7:30 AM	0	0	3	0	*3*	0	0	0	0	*0*	0	0	2	4	*6*
7:45 AM	**1**	**2**	**3**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**1**	*3*
8:00 AM	**1**	**1**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**1**	*2*
8:15 AM	**0**	**2**	**3**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**3**	**1**	*6*
8:30 AM	**2**	**0**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**4**	**0**	***4***
8:45 AM	0	0	6	0	*6*	0	0	0	0	*0*	1	0	1	0	*2*
Count Total	4	5	24	0	*33*	0	0	0	0	*0*	3	0	20	9	*32*
Peak Hr	**4**	**5**	**10**	**0**	***19***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**10**	**3**	***15***

CA-1 SB Ramps
Clarinada Ave

N

Peak Hour

Date: 10-18-2018
Count Period: 2:00 PM to 4:00 PM
Peak Hour: 3:00 PM to 4:00 PM



	HV %:	PHF
EB	2.3%	0.69
WB	0.6%	0.92
NB	1.6%	0.93
SB	-	-
TOTAL	1.4%	0.94

Two-Hour Count Summaries

Interval Start	Clarinada Ave Eastbound				Clarinada Ave Westbound				CA-1 SB Ramps Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	8	15	3	32	21	0	0	89	0	42	0	0	0	0	210	0
2:15 PM	1	0	22	27	6	46	15	0	0	76	0	60	0	0	0	0	253	0
2:30 PM	0	0	13	19	1	36	22	0	0	71	0	28	0	0	0	0	190	0
2:45 PM	3	0	10	17	1	45	35	0	0	90	0	52	0	0	0	0	253	906
3:00 PM	**1**	**0**	**22**	**28**	**2**	**61**	**29**	**0**	**0**	**96**	**0**	**53**	**0**	**0**	**0**	**0**	**292**	988
3:15 PM	**3**	**0**	**43**	**32**	**4**	**49**	**28**	**0**	**0**	**95**	**0**	**57**	**0**	**0**	**0**	**0**	**311**	1,046
3:30 PM	**1**	**0**	**20**	**27**	**3**	**51**	**22**	**0**	**0**	**97**	**0**	**70**	**0**	**0**	**0**	**0**	**291**	1,147
3:45 PM	**1**	**0**	**8**	**29**	**6**	**44**	**41**	**0**	**0**	**89**	**0**	**61**	**0**	**0**	**0**	**0**	**279**	**1,173**
Count Total	10	0	146	194	26	364	213	0	0	703	0	423	0	0	0	0	2,079	0
Peak Hour All	**6**	**0**	**93**	**116**	**15**	**205**	**120**	**0**	**0**	**377**	**0**	**241**	**0**	**0**	**0**	**0**	**1,173**	**0**
Peak Hour HV	**0**	**0**	**3**	**2**	**0**	**0**	**2**	**0**	**0**	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**17**	**0**
Peak Hour HV%	**0%**	**-**	**3%**	**2%**	**0%**	**0%**	**2%**	**-**	**-**	**1%**	**-**	**2%**	**-**	**-**	**-**	**-**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

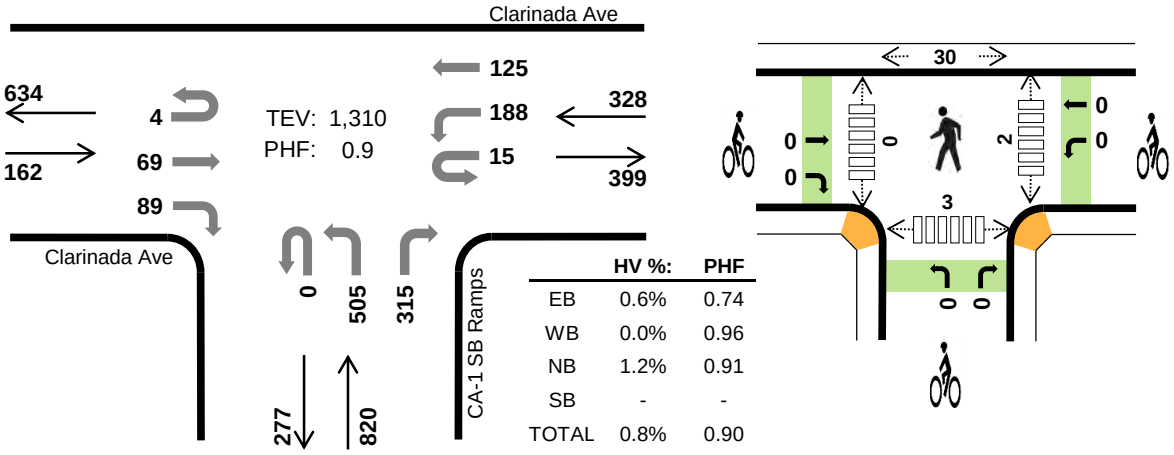
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	3	3	0	*6*	0	0	0	0	*0*	0	0	2	0	*2*
2:15 PM	0	0	2	0	*2*	0	0	0	0	*0*	0	0	5	0	*5*
2:30 PM	0	0	2	0	*2*	0	0	0	0	*0*	0	0	3	0	*3*
2:45 PM	0	0	5	0	*5*	0	0	0	0	*0*	0	0	1	1	*2*
3:00 PM	**1**	**0**	**2**	**0**	***3***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**2**	**0**	*2*
3:15 PM	**2**	**1**	**5**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**10**	**5**	*17*
3:30 PM	**2**	**0**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**4**	**2**	*7*
3:45 PM	**0**	**1**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**4**	**0**	***5***
Count Total	5	5	22	0	*32*	1	0	0	0	*1*	2	2	31	8	*43*
Peak Hr	**5**	**2**	**10**	**0**	***17***	**1**	**0**	**0**	**0**	***1***	**2**	**2**	**20**	**7**	***31***

CA-1 SB Ramps
Clarinada Ave

N

Peak Hour

Date: 10-18-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



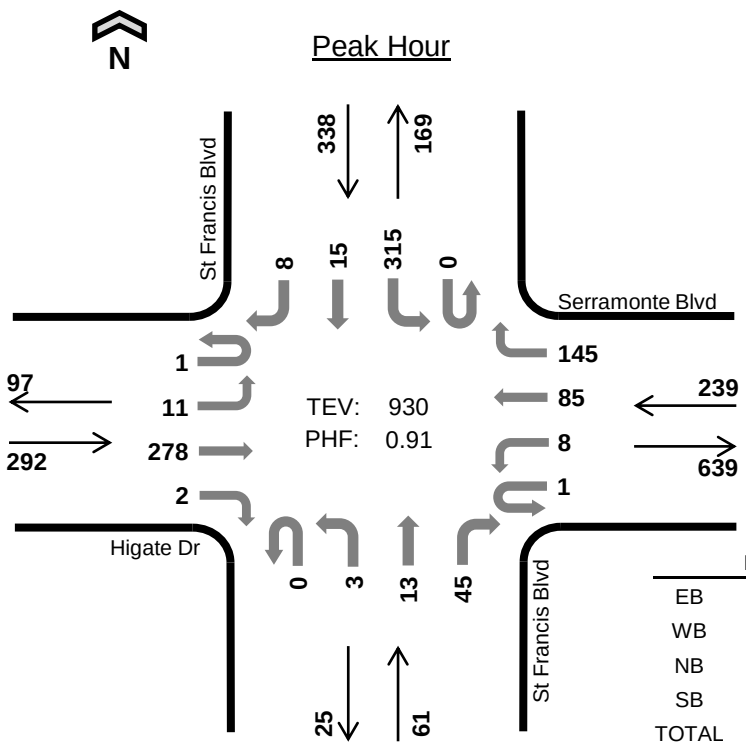
Two-Hour Count Summaries

Interval Start	Clarinada Ave Eastbound				Clarinada Ave Westbound				CA-1 SB Ramps Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	1	0	13	27	1	46	22	0	0	81	0	58	0	0	0	0	249	0
4:15 PM	1	0	8	20	6	55	26	0	0	93	0	67	0	0	0	0	276	0
4:30 PM	0	0	14	24	5	46	19	0	0	107	0	66	0	0	0	0	281	0
4:45 PM	1	0	10	16	5	52	26	0	0	115	0	62	0	0	0	0	287	1,093
5:00 PM	**1**	**0**	**18**	**18**	**3**	**45**	**29**	**0**	**0**	**108**	**0**	**71**	**0**	**0**	**0**	**0**	**293**	1,137
5:15 PM	**1**	**0**	**20**	**16**	**5**	**50**	**29**	**0**	**0**	**137**	**0**	**86**	**0**	**0**	**0**	**0**	**344**	1,205
5:30 PM	**1**	**0**	**10**	**22**	**3**	**46**	**36**	**0**	**0**	**116**	**0**	**76**	**0**	**0**	**0**	**0**	**310**	1,234
5:45 PM	**1**	**0**	**21**	**33**	**4**	**47**	**31**	**0**	**0**	**144**	**0**	**82**	**0**	**0**	**0**	**0**	**363**	**1,310**
Count Total	7	0	114	176	32	387	218	0	0	901	0	568	0	0	0	0	2,403	0
Peak Hour All	**4**	**0**	**69**	**89**	**15**	**188**	**125**	**0**	**0**	**505**	**0**	**315**	**0**	**0**	**0**	**0**	**1,310**	**0**
Peak Hour HV	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**11**	**0**
Peak Hour HV%	**0%**	**-**	**1%**	**0%**	**0%**	**0%**	**0%**	**-**	**-**	**1%**	**-**	**2%**	**-**	**-**	**-**	**-**	**1%**	**0**

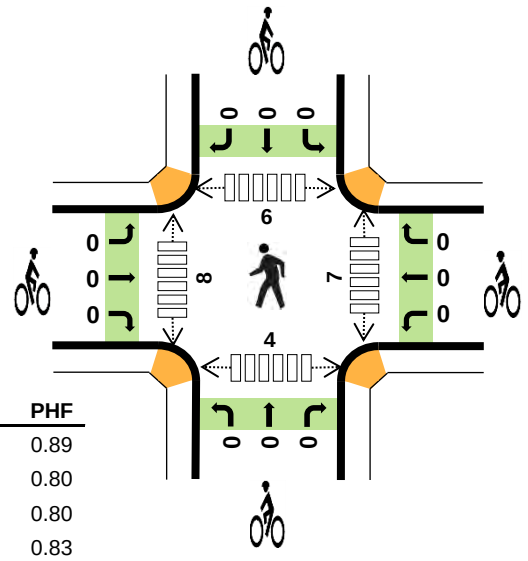
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	1	3	0	*5*	0	0	0	0	*0*	0	2	5	1	*8*
4:15 PM	1	1	2	0	*4*	0	0	0	0	*0*	3	0	3	1	*7*
4:30 PM	2	1	2	0	*5*	0	0	0	0	*0*	0	0	1	2	*3*
4:45 PM	0	0	4	0	*4*	0	0	0	0	*0*	0	1	6	2	*9*
5:00 PM	**1**	**0**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**7**	**1**	*9*
5:15 PM	**0**	**0**	**3**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**3**	**0**	*4*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**7**	**0**	*7*
5:45 PM	**0**	**0**	**5**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**13**	**2**	***15***
Count Total	5	3	21	0	*29*	0	0	0	0	*0*	5	3	45	9	*62*
Peak Hr	**1**	**0**	**10**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**30**	**3**	***35***

St Francis Blvd
Higate Dr/Serramonte Blvd



Date: 10-18-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	0.7%	0.89
WB	3.8%	0.80
NB	1.6%	0.80
SB	3.3%	0.83
TOTAL	2.5%	0.91

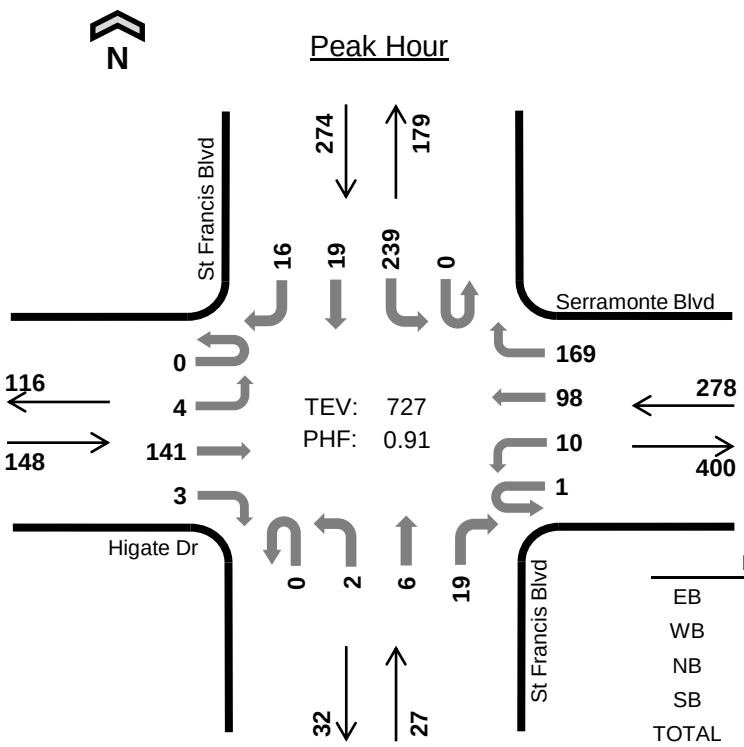
Two-Hour Count Summaries

Interval Start	Higate Dr Eastbound				Serramonte Blvd Westbound				St Francis Blvd Northbound				St Francis Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	60	0	0	0	8	12	0	0	0	6	0	88	2	0	176	0
7:15 AM	0	2	77	0	0	1	5	18	0	0	1	13	0	59	1	2	179	0
7:30 AM	**0**	**3**	**61**	**0**	**0**	**4**	**12**	**31**	**0**	**0**	**1**	**14**	**0**	**65**	**2**	**2**	**195**	0
7:45 AM	**0**	**5**	**75**	**1**	**1**	**1**	**26**	**30**	**0**	**2**	**3**	**9**	**0**	**81**	**6**	**3**	**243**	793
8:00 AM	**1**	**2**	**79**	**0**	**0**	**1**	**21**	**37**	**0**	**1**	**2**	**10**	**0**	**97**	**3**	**2**	**256**	873
8:15 AM	**0**	**1**	**63**	**1**	**0**	**2**	**26**	**47**	**0**	**0**	**7**	**12**	**0**	**72**	**4**	**1**	**236**	**930**
8:30 AM	0	2	55	1	0	1	5	38	0	0	2	11	0	73	2	0	190	925
8:45 AM	0	1	36	0	0	2	6	35	0	0	0	3	0	60	8	2	153	835
Count Total	1	16	506	3	1	12	109	248	0	3	16	78	0	595	28	12	1,628	0
Peak Hour All	**1**	**11**	**278**	**2**	**1**	**8**	**85**	**145**	**0**	**3**	**13**	**45**	**0**	**315**	**15**	**8**	**930**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**7**	**0**	**0**	**1**	**0**	**0**	**10**	**1**	**0**	**23**	**0**
Peak Hour HV%	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**2%**	**5%**	**-**	**0%**	**8%**	**0%**	**-**	**3%**	**7%**	**0%**	**2%**	**0**

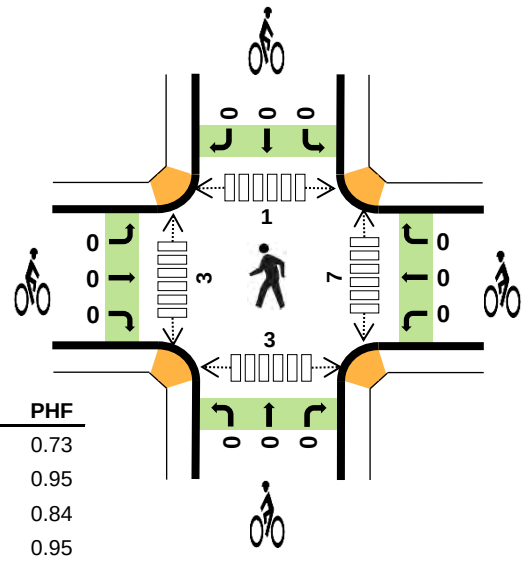
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	0	1	*2*	0	0	0	0	*0*	1	1	0	2	*4*
7:15 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**2**	**0**	**3**	***5***	**0**	**0**	**0**	**0**	***0***	**1**	**3**	**1**	**4**	*9*
7:45 AM	**0**	**2**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**1**	**3**	**2**	**0**	*6*
8:00 AM	**2**	**2**	**0**	**4**	***8***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**2**	**0**	*4*
8:15 AM	**0**	**3**	**1**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**4**	**1**	**1**	**0**	***6***
8:30 AM	0	3	0	3	*6*	0	0	0	0	*0*	1	2	1	3	*7*
8:45 AM	1	5	0	1	*7*	0	0	0	0	*0*	1	3	2	2	*8*
Count Total	3	20	1	16	*40*	0	0	0	0	*0*	10	14	9	11	*44*
Peak Hour	**2**	**9**	**1**	**11**	***23***	**0**	**0**	**0**	**0**	***0***	**7**	**8**	**6**	**4**	***25***

St Francis Blvd
Higate Dr/Serramonte Blvd



Date: 10-18-2018
Count Period: 2:00 PM to 4:00 PM
Peak Hour: 2:45 PM to 3:45 PM



	HV %:	PHF
EB	1.4%	0.73
WB	3.2%	0.95
NB	7.4%	0.84
SB	5.8%	0.95
TOTAL	4.0%	0.91

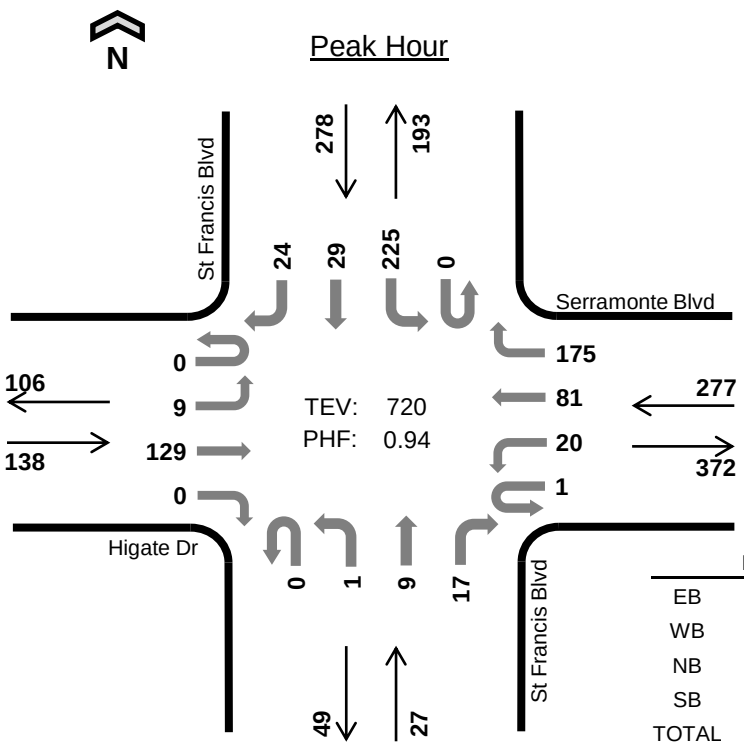
Two-Hour Count Summaries

Interval Start	Higate Dr Eastbound				Serramonte Blvd Westbound				St Francis Blvd Northbound				St Francis Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	2	27	0	0	3	17	18	0	0	1	4	0	62	3	4	141	0
2:15 PM	0	1	20	0	1	3	5	25	0	0	4	7	0	46	6	3	121	0
2:30 PM	0	0	36	0	0	2	15	29	0	0	1	2	0	40	4	1	130	0
2:45 PM	**0**	**2**	**26**	**1**	**0**	**3**	**25**	**45**	**0**	**0**	**1**	**6**	**0**	**50**	**5**	**8**	**172**	564
3:00 PM	**0**	**0**	**44**	**0**	**0**	**2**	**26**	**41**	**0**	**2**	**2**	**4**	**0**	**60**	**5**	**4**	**190**	613
3:15 PM	**0**	**2**	**47**	**2**	**1**	**3**	**24**	**42**	**0**	**0**	**2**	**5**	**0**	**64**	**4**	**4**	**200**	692
3:30 PM	**0**	**0**	**24**	**0**	**0**	**2**	**23**	**41**	**0**	**0**	**1**	**4**	**0**	**65**	**5**	**0**	**165**	**727**
3:45 PM	0	1	30	1	0	2	15	31	0	0	1	7	0	58	3	6	155	710
Count Total	0	8	254	4	2	20	150	272	0	2	13	39	0	445	35	30	1,274	0
Peak Hour All	**0**	**4**	**141**	**3**	**1**	**10**	**98**	**169**	**0**	**2**	**6**	**19**	**0**	**239**	**19**	**16**	**727**	**0**
Peak Hour HV	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**8**	**0**	**0**	**2**	**0**	**0**	**15**	**1**	**0**	**29**	**0**
Peak Hour HV%	**-**	**25%**	**1%**	**0%**	**0%**	**0%**	**1%**	**5%**	**-**	**0%**	**33%**	**0%**	**-**	**6%**	**5%**	**0%**	**4%**	**0**

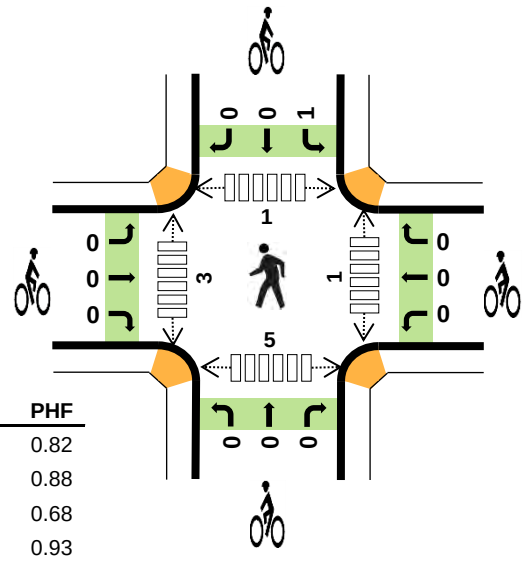
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	2	0	4	*6*	0	0	0	0	*0*	0	0	0	0	*0*
2:15 PM	1	3	0	1	*5*	0	0	0	0	*0*	1	0	0	0	*1*
2:30 PM	0	1	0	3	*4*	0	0	0	0	*0*	1	0	1	0	*2*
2:45 PM	**1**	**4**	**0**	**3**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
3:00 PM	**0**	**2**	**1**	**5**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**1**	**0**	*2*
3:15 PM	**1**	**1**	**1**	**6**	***9***	**0**	**0**	**0**	**0**	***0***	**4**	**1**	**0**	**1**	*6*
3:30 PM	**0**	**2**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**3**	**1**	**0**	**2**	***6***
3:45 PM	1	1	0	2	*4*	0	0	0	0	*0*	1	0	0	2	*3*
Count Total	4	16	2	26	*48*	0	0	0	0	*0*	10	3	2	5	*20*
Peak Hour	**2**	**9**	**2**	**16**	***29***	**0**	**0**	**0**	**0**	***0***	**7**	**3**	**1**	**3**	***14***

St Francis Blvd
Higate Dr/Serramonte Blvd



Date: 10-18-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	0.7%	0.82
WB	2.5%	0.88
NB	0.0%	0.68
SB	4.3%	0.93
TOTAL	2.8%	0.94

Two-Hour Count Summaries

Interval Start	Higate Dr				Serramonte Blvd				St Francis Blvd				St Francis Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	21	1	0	1	15	36	0	1	3	4	0	41	6	7	136	0
4:15 PM	0	1	33	1	0	2	13	31	0	2	1	3	0	45	4	5	141	0
4:30 PM	0	0	35	0	0	3	18	46	0	0	1	8	0	57	5	6	179	0
4:45 PM	0	1	28	0	0	6	18	35	0	0	0	6	0	43	6	2	145	601
5:00 PM	**0**	**3**	**32**	**0**	**1**	**5**	**28**	**34**	**0**	**1**	**0**	**4**	**0**	**59**	**8**	**8**	**183**	648
5:15 PM	**0**	**3**	**39**	**0**	**0**	**4**	**21**	**44**	**0**	**0**	**7**	**3**	**0**	**55**	**10**	**6**	**192**	699
5:30 PM	**0**	**0**	**37**	**0**	**0**	**7**	**11**	**43**	**0**	**0**	**1**	**2**	**0**	**48**	**3**	**7**	**159**	679
5:45 PM	**0**	**3**	**21**	**0**	**0**	**4**	**21**	**54**	**0**	**0**	**1**	**8**	**0**	**63**	**8**	**3**	**186**	**720**
Count Total	0	11	246	2	1	32	145	323	0	4	14	38	0	411	50	44	1,321	0
Peak Hour All	**0**	**9**	**129**	**0**	**1**	**20**	**81**	**175**	**0**	**1**	**9**	**17**	**0**	**225**	**29**	**24**	**720**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**20**	**0**
Peak Hour HV%	**-**	**11%**	**0%**	**-**	**0%**	**0%**	**0%**	**4%**	**-**	**0%**	**0%**	**0%**	**-**	**5%**	**0%**	**0%**	**3%**	**0**

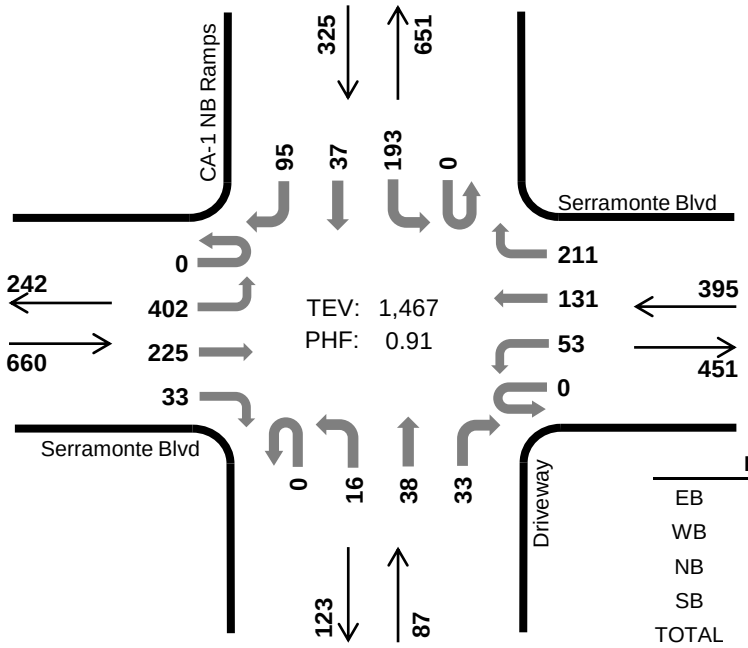
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

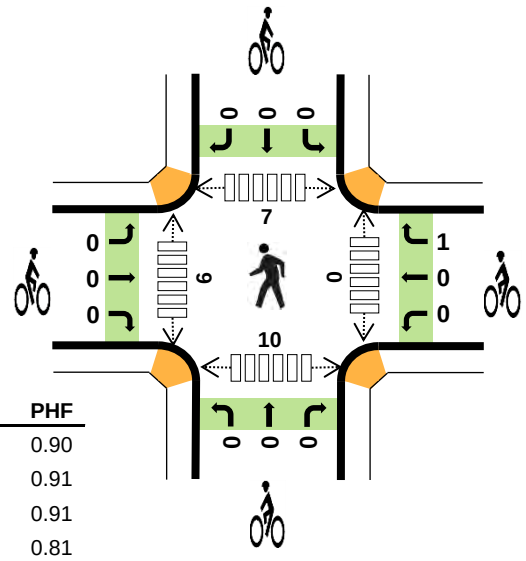
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	3	0	4	*7*	0	0	0	0	*0*	1	0	0	0	*1*
4:15 PM	1	1	0	3	*5*	0	0	0	0	*0*	0	0	0	0	*0*
4:30 PM	0	3	0	3	*6*	0	0	0	0	*0*	0	0	3	2	*5*
4:45 PM	0	1	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**1**	**2**	**0**	**4**	***7***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**1**	*2*
5:15 PM	**0**	**2**	**0**	**4**	***6***	**0**	**0**	**0**	**1**	***1***	**0**	**2**	**1**	**2**	*5*
5:30 PM	**0**	**2**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**1**	*2*
5:45 PM	**0**	**1**	**0**	**3**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***
Count Total	2	15	0	23	*40*	0	0	0	1	*1*	2	3	4	7	*16*
Peak Hour	**1**	**7**	**0**	**12**	***20***	**0**	**0**	**0**	**1**	***1***	**1**	**3**	**1**	**5**	***10***

CA-1 NB Ramps
Serramonte Blvd

Peak Hour

Date: 10-18-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	2.0%	0.90
WB	3.5%	0.91
NB	3.4%	0.91
SB	0.6%	0.81
TOTAL	2.2%	0.91

Two-Hour Count Summaries

Interval Start	Serramonte Blvd Eastbound				Serramonte Blvd Westbound				Driveway Northbound				CA-1 NB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	127	35	4	0	6	9	56	0	2	8	2	0	25	2	12	288	0
7:15 AM	0	120	30	3	0	7	14	64	0	0	9	3	0	20	4	8	282	0
7:30 AM	**0**	**91**	**46**	**6**	**0**	**9**	**26**	**70**	**0**	**3**	**8**	**7**	**0**	**35**	**12**	**18**	**331**	0
7:45 AM	**0**	**118**	**45**	**7**	**0**	**11**	**38**	**59**	**0**	**4**	**9**	**11**	**0**	**38**	**9**	**20**	**369**	1,270
8:00 AM	**0**	**98**	**76**	**10**	**0**	**15**	**37**	**46**	**0**	**6**	**7**	**10**	**0**	**63**	**10**	**27**	**405**	1,387
8:15 AM	**0**	**95**	**58**	**10**	**0**	**18**	**30**	**36**	**0**	**3**	**14**	**5**	**0**	**57**	**6**	**30**	**362**	**1,467**
8:30 AM	0	83	52	11	0	16	18	29	0	8	1	8	0	78	9	18	331	1,467
8:45 AM	0	61	23	13	0	30	17	34	0	5	5	15	0	69	11	20	303	1,401
Count Total	0	793	365	64	0	112	189	394	0	31	61	61	0	385	63	153	2,671	0
Peak Hour All	**0**	**402**	**225**	**33**	**0**	**53**	**131**	**211**	**0**	**16**	**38**	**33**	**0**	**193**	**37**	**95**	**1,467**	**0**
Peak Hour HV	**0**	**1**	**11**	**1**	**0**	**6**	**6**	**2**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**2**	**32**	**0**
Peak Hour HV%	**-**	**0%**	**5%**	**3%**	**-**	**11%**	**5%**	**1%**	**-**	**0%**	**5%**	**3%**	**-**	**0%**	**0%**	**2%**	**2%**	**0**

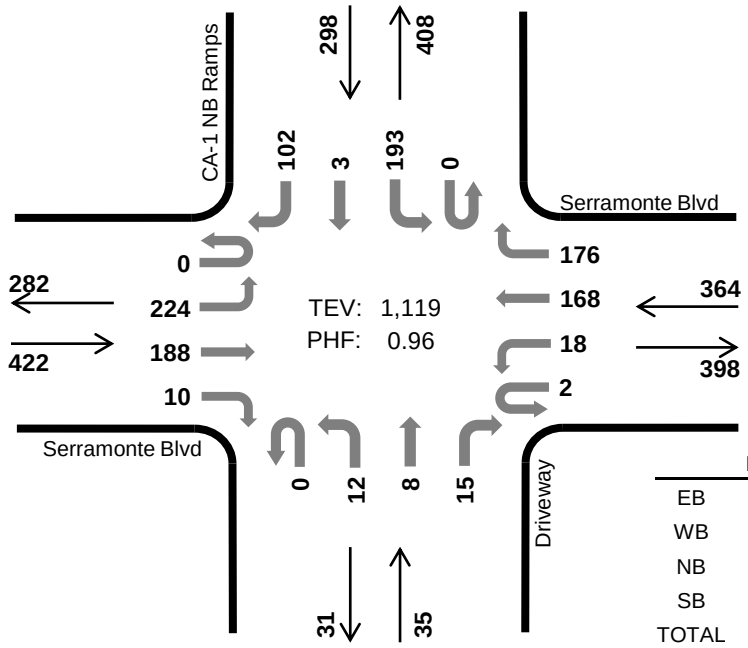
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

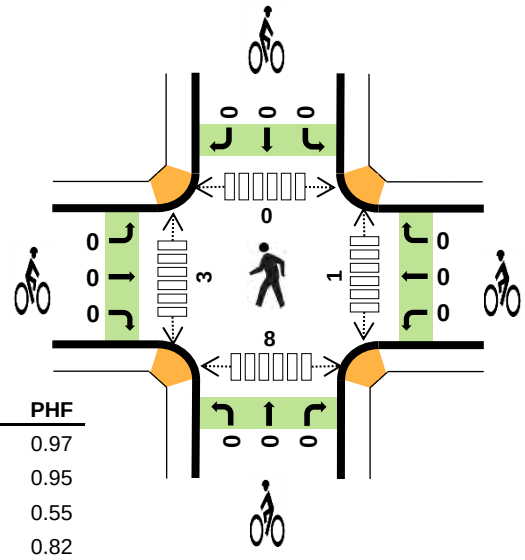
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	1	0	0	*2*	0	0	0	0	*0*	0	0	0	1	*1*
7:15 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	1	0	*1*
7:30 AM	**3**	**3**	**0**	**1**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**2**	*3*
7:45 AM	**1**	**1**	**0**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**2**	**5**	*10*
8:00 AM	**5**	**7**	**2**	**0**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**4**	**1**	*8*
8:15 AM	**4**	**3**	**1**	**0**	***8***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**2**	***2***
8:30 AM	2	4	2	1	*9*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	3	4	1	4	*12*	0	0	0	0	*0*	0	2	0	2	*4*
Count Total	19	25	6	7	*57*	0	1	0	0	*1*	0	8	8	13	*29*
Peak Hour	**13**	**14**	**3**	**2**	***32***	**0**	**1**	**0**	**0**	***1***	**0**	**6**	**7**	**10**	***23***

CA-1 NB Ramps
Serramonte Blvd

Peak Hour

Date: 10-18-2018
Count Period: 2:00 PM to 4:00 PM
Peak Hour: 3:00 PM to 4:00 PM





	HV %:	PHF
EB	3.3%	0.97
WB	2.7%	0.95
NB	2.9%	0.55
SB	0.3%	0.82
TOTAL	2.3%	0.96

Two-Hour Count Summaries

Interval Start	Serramonte Blvd Eastbound				Serramonte Blvd Westbound				Driveway Northbound				CA-1 NB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	60	30	3	0	8	28	48	0	0	1	2	0	43	0	15	238	0
2:15 PM	0	49	22	3	0	8	22	32	0	1	5	4	0	60	1	13	220	0
2:30 PM	0	54	30	1	0	1	23	44	0	4	11	4	0	47	3	20	242	0
2:45 PM	0	52	34	2	0	3	44	32	0	4	4	1	1	51	0	27	255	955
3:00 PM	**0**	**58**	**50**	**1**	**1**	**2**	**48**	**39**	**0**	**3**	**1**	**2**	**0**	**55**	**0**	**28**	**288**	1,005
3:15 PM	**0**	**54**	**50**	**3**	**0**	**4**	**42**	**45**	**0**	**0**	**0**	**1**	**0**	**57**	**1**	**33**	**290**	1,075
3:30 PM	**0**	**57**	**44**	**4**	**1**	**9**	**45**	**41**	**0**	**5**	**6**	**5**	**0**	**39**	**1**	**22**	**279**	1,112
3:45 PM	**0**	**55**	**44**	**2**	**0**	**3**	**33**	**51**	**0**	**4**	**1**	**7**	**0**	**42**	**1**	**19**	**262**	**1,119**
Count Total	0	439	304	19	2	38	285	332	0	21	29	26	1	394	7	177	2,074	0
Peak Hour All	**0**	**224**	**188**	**10**	**2**	**18**	**168**	**176**	**0**	**12**	**8**	**15**	**0**	**193**	**3**	**102**	**1,119**	**0**
Peak Hour HV	**0**	**4**	**8**	**2**	**0**	**2**	**6**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**26**	**0**
Peak Hour HV%	**-**	**2%**	**4%**	**20%**	**0%**	**11%**	**4%**	**1%**	**-**	**8%**	**0%**	**0%**	**-**	**0%**	**0%**	**1%**	**2%**	**0**

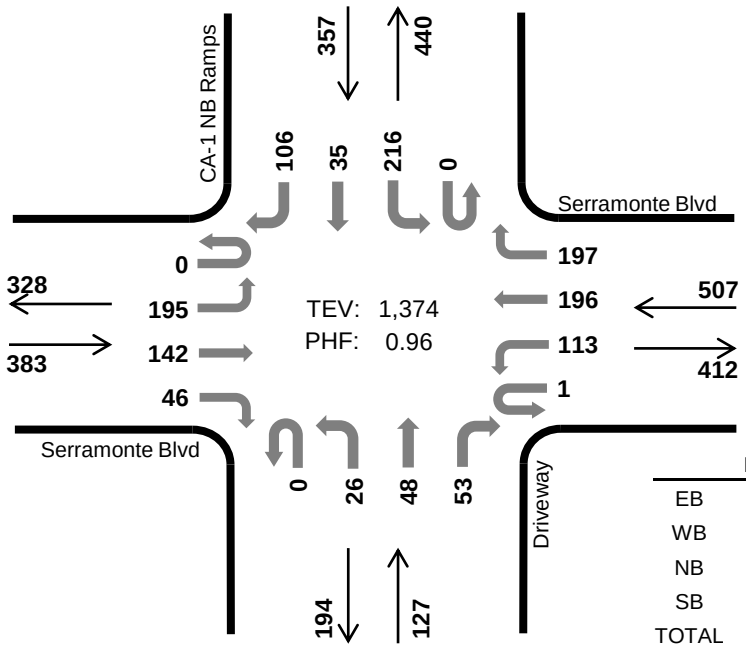
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

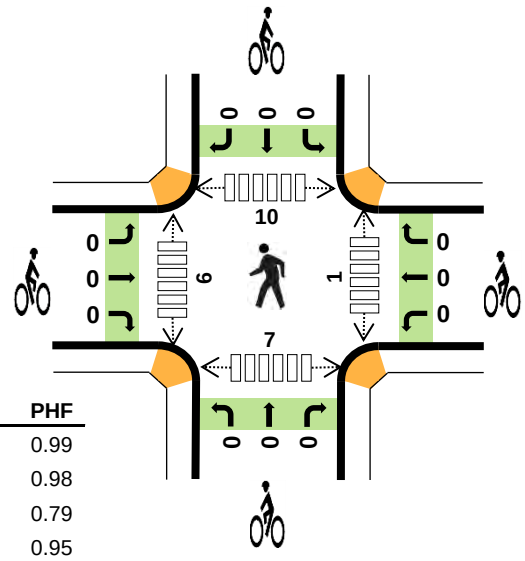
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	3	1	1	2	*7*	0	0	0	0	*0*	0	0	0	0	*0*
2:15 PM	3	3	2	1	*9*	0	0	0	0	*0*	0	0	0	1	*1*
2:30 PM	2	0	7	1	*10*	0	0	0	0	*0*	0	0	1	0	*1*
2:45 PM	4	3	2	1	*10*	0	0	0	0	*0*	0	0	2	0	*2*
3:00 PM	**2**	**3**	**1**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
3:15 PM	**9**	**2**	**0**	**0**	***11***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**0**	**1**	*3*
3:30 PM	**2**	**2**	**0**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**4**	*5*
3:45 PM	**1**	**3**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**3**	***4***
Count Total	26	17	13	6	*62*	0	0	0	0	*0*	1	3	3	9	*16*
Peak Hour	**14**	**10**	**1**	**1**	***26***	**0**	**0**	**0**	**0**	***0***	**1**	**3**	**0**	**8**	***12***

CA-1 NB Ramps
Serramonte Blvd

Peak Hour

Date: 10-18-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	3.7%	0.99
WB	2.0%	0.98
NB	0.0%	0.79
SB	0.0%	0.95
TOTAL	1.7%	0.96

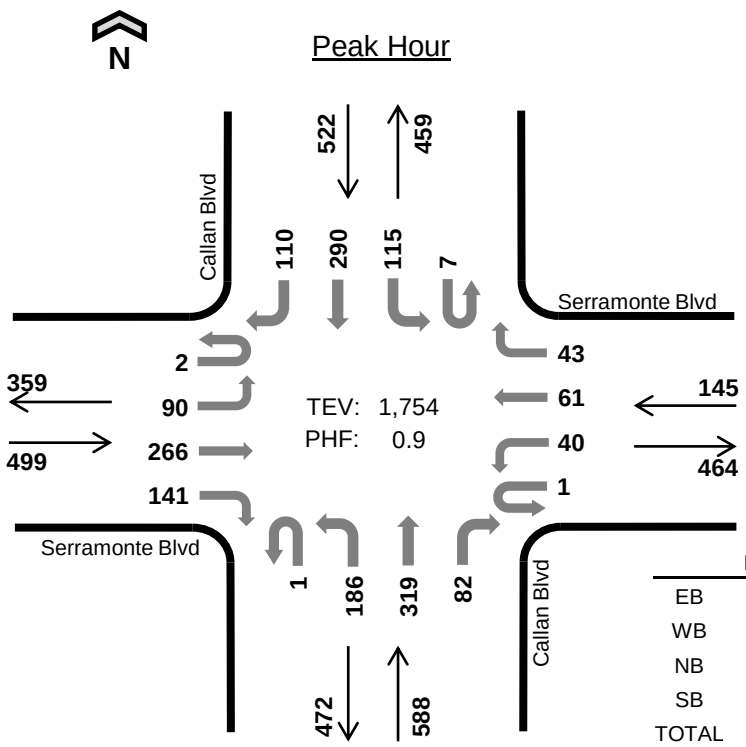
Two-Hour Count Summaries

Interval Start	Serramonte Blvd Eastbound				Serramonte Blvd Westbound				Driveway Northbound				CA-1 NB Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	41	35	1	0	4	39	40	0	0	2	5	0	53	3	16	239	0
4:15 PM	0	51	36	4	0	4	37	47	0	0	3	5	0	52	3	14	256	0
4:30 PM	0	65	36	5	0	8	58	50	0	2	8	6	0	43	3	18	302	0
4:45 PM	0	43	37	8	0	13	34	46	0	6	7	6	0	42	1	21	264	1,061
5:00 PM	**0**	**48**	**34**	**13**	**0**	**22**	**50**	**54**	**0**	**6**	**10**	**9**	**0**	**62**	**6**	**22**	**336**	1,158
5:15 PM	**0**	**44**	**40**	**13**	**0**	**41**	**39**	**49**	**0**	**7**	**8**	**16**	**0**	**53**	**9**	**27**	**346**	1,248
5:30 PM	**0**	**57**	**32**	**6**	**0**	**32**	**50**	**47**	**0**	**7**	**19**	**14**	**0**	**60**	**8**	**26**	**358**	1,304
5:45 PM	**0**	**46**	**36**	**14**	**1**	**18**	**57**	**47**	**0**	**6**	**11**	**14**	**0**	**41**	**12**	**31**	**334**	**1,374**
Count Total	0	395	286	64	1	142	364	380	0	34	68	75	0	406	45	175	2,435	0
Peak Hour All	**0**	**195**	**142**	**46**	**1**	**113**	**196**	**197**	**0**	**26**	**48**	**53**	**0**	**216**	**35**	**106**	**1,374**	**0**
Peak Hour HV	**0**	**1**	**7**	**6**	**0**	**3**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**
Peak Hour HV%	**-**	**1%**	**5%**	**13%**	**0%**	**3%**	**4%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**2%**	**0**

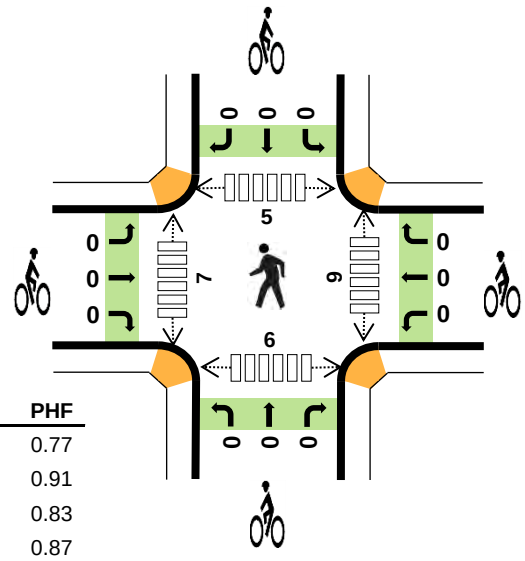
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	5	6	0	1	*12*	0	0	0	0	*0*	1	1	0	1	*3*
4:15 PM	7	6	0	1	*14*	0	0	0	0	*0*	0	1	1	1	*3*
4:30 PM	6	4	1	0	*11*	0	0	0	0	*0*	0	4	0	2	*6*
4:45 PM	1	3	0	0	*4*	0	0	0	0	*0*	0	1	1	2	*4*
5:00 PM	**4**	**2**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**6**	**3**	*11*
5:15 PM	**4**	**4**	**0**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**2**	**3**	*8*
5:30 PM	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**1**	**1**	*4*
5:45 PM	**4**	**2**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***
Count Total	33	29	1	2	*65*	0	0	0	0	*0*	2	13	12	13	*40*
Peak Hour	**14**	**10**	**0**	**0**	***24***	**0**	**0**	**0**	**0**	***0***	**1**	**6**	**10**	**7**	***24***

Callan Blvd
Serramonte Blvd



Date: 10-18-2018
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	2.2%	0.77
WB	6.9%	0.91
NB	1.2%	0.83
SB	3.8%	0.87
TOTAL	2.7%	0.90

Two-Hour Count Summaries

Interval Start	Serramonte Blvd Eastbound				Serramonte Blvd Westbound				Callan Blvd Northbound				Callan Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	12	34	15	1	6	9	6	0	38	37	9	1	24	28	25	245	0
7:15 AM	0	1	39	15	0	5	13	10	0	44	28	5	2	17	37	18	234	0
7:30 AM	0	13	54	18	1	7	16	8	0	58	52	7	4	15	42	24	319	0
7:45 AM	**1**	**19**	**42**	**26**	**0**	**8**	**17**	**5**	**0**	**68**	**89**	**21**	**2**	**24**	**56**	**27**	**405**	1,203
8:00 AM	**0**	**26**	**82**	**53**	**0**	**12**	**14**	**10**	**0**	**41**	**80**	**17**	**1**	**23**	**85**	**41**	**485**	1,443
8:15 AM	**1**	**17**	**64**	**38**	**1**	**11**	**14**	**14**	**1**	**40**	**76**	**25**	**4**	**37**	**68**	**27**	**438**	1,647
8:30 AM	**0**	**28**	**78**	**24**	**0**	**9**	**16**	**14**	**0**	**37**	**74**	**19**	**0**	**31**	**81**	**15**	**426**	**1,754**
8:45 AM	0	34	59	18	2	17	19	18	0	31	71	27	1	31	46	22	396	1,745
Count Total	2	150	452	207	5	75	118	85	1	357	507	130	15	202	443	199	2,948	0
Peak Hour All	**2**	**90**	**266**	**141**	**1**	**40**	**61**	**43**	**1**	**186**	**319**	**82**	**7**	**115**	**290**	**110**	**1,754**	**0**
Peak Hour HV	**0**	**0**	**9**	**2**	**0**	**0**	**6**	**4**	**0**	**1**	**4**	**2**	**0**	**5**	**7**	**8**	**48**	**0**
Peak Hour HV%	**0%**	**0%**	**3%**	**1%**	**0%**	**0%**	**10%**	**9%**	**0%**	**1%**	**1%**	**2%**	**0%**	**4%**	**2%**	**7%**	**3%**	**0**

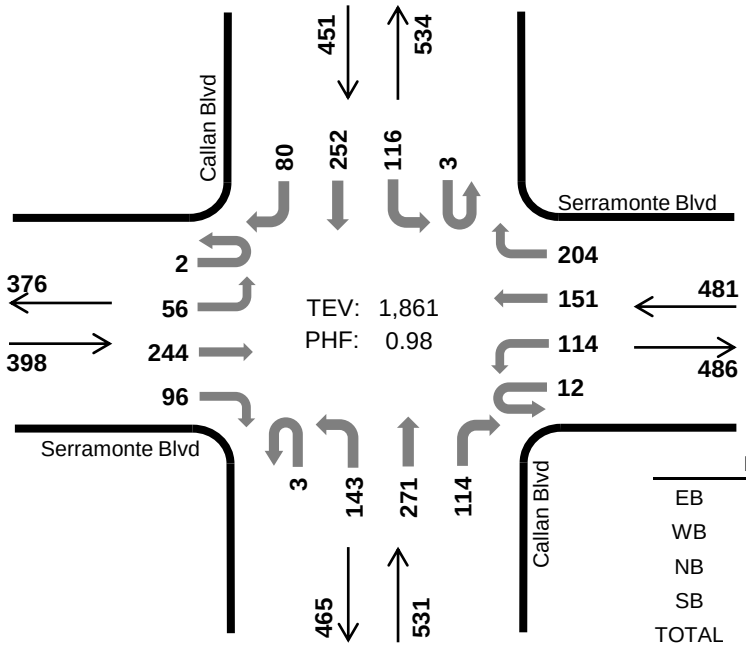
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	2	1	2	*6*	0	0	0	1	*1*	3	4	5	3	*15*
7:15 AM	0	2	0	2	*4*	0	0	0	1	*1*	3	2	5	0	*10*
7:30 AM	3	3	3	2	*11*	0	0	0	0	*0*	0	4	2	2	*8*
7:45 AM	**1**	**2**	**4**	**5**	***12***	**0**	**0**	**0**	**0**	***0***	**2**	**4**	**0**	**2**	*8*
8:00 AM	**5**	**4**	**1**	**7**	***17***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**1**	**1**	*4*
8:15 AM	**3**	**2**	**0**	**4**	***9***	**0**	**0**	**0**	**0**	***0***	**2**	**1**	**1**	**2**	*6*
8:30 AM	**2**	**2**	**2**	**4**	***10***	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**3**	**1**	***9***
8:45 AM	1	3	2	4	*10*	0	0	1	0	*1*	1	1	0	1	*3*
Count Total	16	20	13	30	*79*	0	0	1	2	*3*	16	18	17	12	*63*
Peak Hour	**11**	**10**	**7**	**20**	***48***	**0**	**0**	**0**	**0**	***0***	**9**	**7**	**5**	**6**	***27***

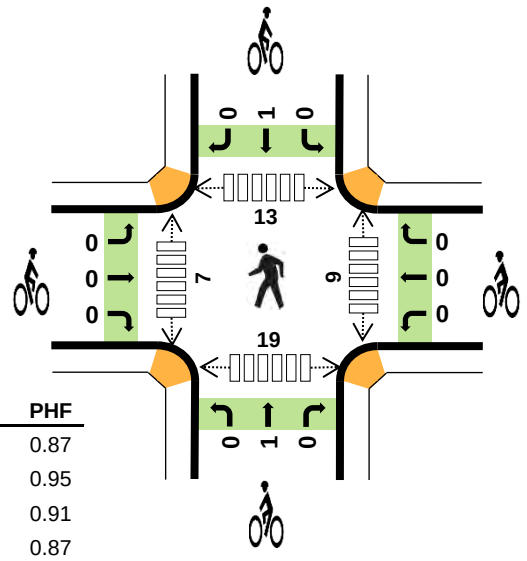
Callan Blvd
Serramonte Blvd

Peak Hour

Date: 10-18-2018
Count Period: 2:00 PM to 4:00 PM
Peak Hour: 3:00 PM to 4:00 PM



	HV %:	PHF
EB	2.0%	0.87
WB	2.3%	0.95
NB	1.1%	0.91
SB	2.4%	0.87
TOTAL	1.9%	0.98



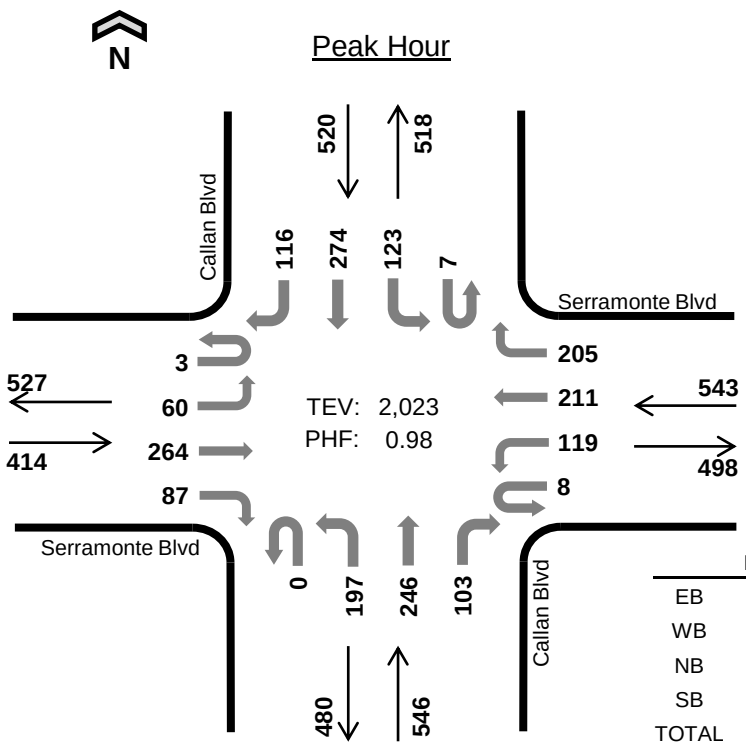
Two-Hour Count Summaries

Interval Start	Serramonte Blvd Eastbound				Serramonte Blvd Westbound				Callan Blvd Northbound				Callan Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	1	10	51	20	0	32	40	38	0	20	40	22	1	26	40	21	362	0
2:15 PM	1	14	53	15	3	29	21	35	1	23	57	24	1	39	57	15	388	0
2:30 PM	0	13	54	18	0	36	30	54	0	23	64	14	2	20	46	20	394	0
2:45 PM	2	14	53	15	2	23	30	46	0	28	77	26	7	18	42	16	399	1,543
3:00 PM	**0**	**18**	**68**	**29**	**3**	**27**	**40**	**54**	**1**	**29**	**68**	**32**	**0**	**27**	**53**	**21**	**470**	1,651
3:15 PM	**2**	**10**	**67**	**29**	**3**	**27**	**36**	**48**	**2**	**37**	**60**	**22**	**1**	**40**	**66**	**23**	**473**	1,736
3:30 PM	**0**	**10**	**57**	**21**	**3**	**26**	**37**	**51**	**0**	**37**	**70**	**27**	**1**	**23**	**67**	**20**	**450**	1,792
3:45 PM	**0**	**18**	**52**	**17**	**3**	**34**	**38**	**51**	**0**	**40**	**73**	**33**	**1**	**26**	**66**	**16**	**468**	**1,861**
Count Total	6	107	455	164	17	234	272	377	4	237	509	200	14	219	437	152	3,404	0
Peak Hour All	**2**	**56**	**244**	**96**	**12**	**114**	**151**	**204**	**3**	**143**	**271**	**114**	**3**	**116**	**252**	**80**	**1,861**	**0**
Peak Hour HV	**0**	**0**	**7**	**1**	**0**	**2**	**7**	**2**	**0**	**2**	**3**	**1**	**1**	**2**	**6**	**2**	**36**	**0**
Peak Hour HV%	**0%**	**0%**	**3%**	**1%**	**0%**	**2%**	**5%**	**1%**	**0%**	**1%**	**1%**	**1%**	**33%**	**2%**	**2%**	**3%**	**2%**	**0**

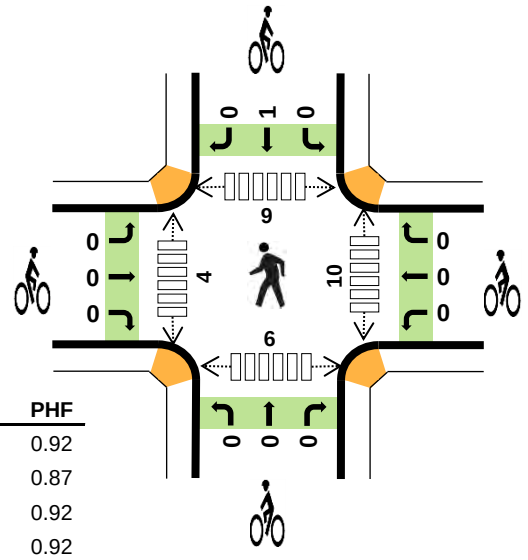
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	2	3	1	2	*8*	0	0	0	0	*0*	3	0	2	1	*6*
2:15 PM	2	1	0	2	*5*	0	0	0	0	*0*	1	0	4	0	*5*
2:30 PM	2	2	0	3	*7*	0	0	0	0	*0*	2	0	1	0	*3*
2:45 PM	3	1	2	1	*7*	0	0	0	0	*0*	2	0	0	1	*3*
3:00 PM	**2**	**3**	**0**	**3**	***8***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**1**	*1*
3:15 PM	**3**	**1**	**2**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**5**	**1**	*7*
3:30 PM	**2**	**3**	**1**	**5**	***11***	**0**	**0**	**0**	**0**	***0***	**4**	**6**	**7**	**9**	*26*
3:45 PM	**1**	**4**	**3**	**1**	***9***	**0**	**0**	**1**	**0**	***1***	**4**	**1**	**1**	**8**	***14***
Count Total	17	18	9	19	*63*	0	0	1	1	*2*	17	7	20	21	*65*
Peak Hour	**8**	**11**	**6**	**11**	***36***	**0**	**0**	**1**	**1**	***2***	**9**	**7**	**13**	**19**	***48***

Callan Blvd
Serramonte Blvd



Date: 10-18-2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	1.4%	0.92
WB	2.0%	0.87
NB	0.2%	0.92
SB	1.2%	0.92
TOTAL	1.2%	0.98

Two-Hour Count Summaries

Interval Start	Serramonte Blvd Eastbound				Serramonte Blvd Westbound				Callan Blvd Northbound				Callan Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	1	12	59	15	1	25	33	44	1	32	61	23	2	31	72	11	423	0
4:15 PM	0	16	68	16	3	35	37	55	0	27	58	25	1	29	64	25	459	0
4:30 PM	1	8	52	22	1	26	56	49	0	39	70	24	2	37	55	18	460	0
4:45 PM	0	13	52	18	3	30	41	61	1	43	61	31	1	33	64	25	477	1,819
5:00 PM	**0**	**17**	**67**	**19**	**4**	**26**	**55**	**55**	**0**	**40**	**61**	**32**	**1**	**37**	**69**	**25**	**508**	1,904
5:15 PM	**0**	**17**	**74**	**22**	**1**	**39**	**63**	**53**	**0**	**44**	**56**	**20**	**0**	**28**	**68**	**30**	**515**	1,960
5:30 PM	**3**	**11**	**62**	**21**	**1**	**25**	**47**	**53**	**0**	**56**	**61**	**31**	**4**	**26**	**83**	**29**	**513**	2,013
5:45 PM	**0**	**15**	**61**	**25**	**2**	**29**	**46**	**44**	**0**	**57**	**68**	**20**	**2**	**32**	**54**	**32**	**487**	**2,023**
Count Total	5	109	495	158	16	235	378	414	2	338	496	206	13	253	529	195	3,842	0
Peak Hour All	**3**	**60**	**264**	**87**	**8**	**119**	**211**	**205**	**0**	**197**	**246**	**103**	**7**	**123**	**274**	**116**	**2,023**	**0**
Peak Hour HV	**0**	**0**	**6**	**0**	**0**	**1**	**8**	**2**	**0**	**1**	**0**	**0**	**0**	**2**	**2**	**2**	**24**	**0**
Peak Hour HV%	**0%**	**0%**	**2%**	**0%**	**0%**	**1%**	**4%**	**1%**	**-**	**1%**	**0%**	**0%**	**0%**	**2%**	**1%**	**2%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	3	1	3	*10*	0	0	0	0	*0*	2	3	1	0	*6*
4:15 PM	6	3	4	3	*16*	0	0	0	0	*0*	0	2	8	0	*10*
4:30 PM	3	4	1	0	*8*	0	0	1	0	*1*	5	2	5	2	*14*
4:45 PM	1	1	3	3	*8*	0	0	0	0	*0*	1	1	1	0	*3*
5:00 PM	**2**	**3**	**0**	**1**	***6***	**0**	**0**	**0**	**0**	***0***	**4**	**2**	**1**	**2**	*9*
5:15 PM	**2**	**2**	**1**	**2**	***7***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**3**	**2**	*8*
5:30 PM	**1**	**3**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**1**	**2**	**2**	**1**	*6*
5:45 PM	**1**	**3**	**0**	**3**	***7***	**0**	**0**	**0**	**1**	***1***	**2**	**0**	**3**	**1**	***6***
Count Total	19	22	10	15	*66*	0	0	1	1	*2*	18	12	24	8	*62*
Peak Hour	**6**	**11**	**1**	**6**	***24***	**0**	**0**	**0**	**1**	***1***	**10**	**4**	**9**	**6**	***29***

Appendix B

Intersection Level of Service Calculations

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	85	57	82	141	202	13	117	50	91	204	3
Future Vol, veh/h	4	85	57	82	141	202	13	117	50	91	204	3
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	93	63	90	155	222	14	129	55	100	224	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11.8	13.2	12.5	16.4
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	7%	3%	37%	0%	31%
Vol Thru, %	65%	58%	63%	0%	68%
Vol Right, %	28%	39%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	146	223	202	298
LT Vol	13	4	82	0	91
Through Vol	117	85	141	0	204
RT Vol	50	57	0	202	3
Lane Flow Rate	198	160	245	222	327
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.343	0.282	0.449	0.351	0.55
Departure Headway (Hd)	6.235	6.321	6.697	5.796	6.152
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	580	571	542	624	589
Service Time	4.235	4.335	4.397	3.496	4.152
HCM Lane V/C Ratio	0.341	0.28	0.452	0.356	0.555
HCM Control Delay	12.5	11.8	14.7	11.6	16.4
HCM Lane LOS	B	B	B	B	C
HCM 95th-tile Q	1.5	1.2	2.3	1.6	3.3

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	114	133	70	93	292	257
Future Vol, veh/h	114	133	70	93	292	257
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	151	80	106	332	292
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12	10.6	15.8
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	22%	0%	100%	100%
Vol Right, %	0%	100%	0%	78%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	257	76	171	70	47	47
LT Vol	292	0	0	0	70	0	0
Through Vol	0	0	76	38	0	47	47
RT Vol	0	257	0	133	0	0	0
Lane Flow Rate	332	292	86	194	80	53	53
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.605	0.434	0.165	0.342	0.168	0.104	0.078
Departure Headway (Hd)	6.559	5.355	6.885	6.328	7.591	7.081	5.311
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	551	672	520	567	471	505	671
Service Time	4.303	3.099	4.645	4.088	5.358	4.847	3.076
HCM Lane V/C Ratio	0.603	0.435	0.165	0.342	0.17	0.105	0.079
HCM Control Delay	18.9	12.2	11	12.4	11.9	10.7	8.5
HCM Lane LOS	C	B	B	B	B	B	A
HCM 95th-tile Q	4	2.2	0.6	1.5	0.6	0.3	0.3

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	278	2	9	85	145	3	13	45	315	15	8
Future Vol, veh/h	12	278	2	9	85	145	3	13	45	315	15	8
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	305	2	10	93	159	3	14	49	346	16	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.6	12.1	9.7	17.4
HCM LOS	B	B	A	C

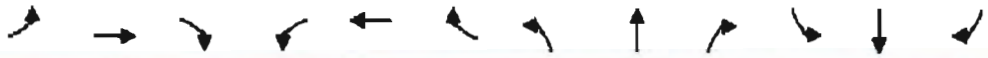
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	4%	4%	93%
Vol Thru, %	21%	95%	36%	4%
Vol Right, %	74%	1%	61%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	292	239	338
LT Vol	3	12	9	315
Through Vol	13	278	85	15
RT Vol	45	2	145	8
Lane Flow Rate	67	321	263	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.11	0.508	0.398	0.602
Departure Headway (Hd)	5.891	5.701	5.461	5.839
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	603	629	654	617
Service Time	3.984	3.769	3.534	3.902
HCM Lane V/C Ratio	0.111	0.51	0.402	0.601
HCM Control Delay	9.7	14.6	12.1	17.4
HCM Lane LOS	A	B	B	C
HCM 95th-tile Q	0.4	2.9	1.9	4

Intersection	
Intersection Delay, s/veh	28.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	402	225	33	53	131	211	16	38	33	193	37	95
Future Vol, veh/h	402	225	33	53	131	211	16	38	33	193	37	95
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	442	247	36	58	144	232	18	42	36	212	41	104
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	41.5	18.1	14.3	19.6
HCM LOS	E	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	18%	100%	0%	45%	0%	84%	0%
Vol Thru, %	44%	0%	87%	55%	24%	16%	0%
Vol Right, %	38%	0%	13%	0%	76%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	87	402	258	119	277	230	95
LT Vol	16	402	0	53	0	193	0
Through Vol	38	0	225	66	66	37	0
RT Vol	33	0	33	0	211	0	95
Lane Flow Rate	96	442	284	130	304	253	104
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.229	0.943	0.558	0.286	0.6	0.592	0.211
Departure Headway (Hd)	8.631	7.687	7.082	7.893	7.113	8.436	7.285
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	415	473	510	454	507	427	493
Service Time	6.699	5.438	4.833	5.649	4.868	6.188	5.036
HCM Lane V/C Ratio	0.231	0.934	0.557	0.286	0.6	0.593	0.211
HCM Control Delay	14.3	56.3	18.5	13.8	20	22.8	12
HCM Lane LOS	B	F	C	B	C	C	B
HCM 95th-tile Q	0.9	11.3	3.4	1.2	3.9	3.7	0.8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	266	141	41	61	43	187	319	82	122	290	110
Future Volume (vph)	92	266	141	41	61	43	187	319	82	122	290	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.94		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3321		1770	3296		1770	1798		1770	1863	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3321		1770	3296		1770	1798		1770	1863	1553
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	102	296	157	46	68	48	208	354	91	136	322	122
RTOR Reduction (vph)	0	120	0	0	40	0	0	14	0	0	0	87
Lane Group Flow (vph)	102	333	0	46	76	0	208	431	0	136	322	35
Confl. Peds. (#/hr)	5		6	6		5	7		9	9		7
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	4.8	12.5		1.4	9.1		8.3	18.2		5.2	15.1	15.1
Effective Green, g (s)	4.8	12.5		1.4	9.1		8.3	18.2		5.2	15.1	15.1
Actuated g/C Ratio	0.09	0.23		0.03	0.17		0.16	0.34		0.10	0.28	0.28
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	159	778		46	562		275	613		172	527	439
v/s Ratio Prot	c0.06	c0.10		0.03	0.02		c0.12	c0.24		0.08	0.17	
v/s Ratio Perm												0.02
v/c Ratio	0.64	0.43		1.00	0.14		0.76	0.70		0.79	0.61	0.08
Uniform Delay, d1	23.4	17.4		25.9	18.8		21.5	15.2		23.5	16.6	14.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.5	0.4		132.7	0.1		11.2	3.6		21.4	2.1	0.1
Delay (s)	32.0	17.7		158.6	18.9		32.8	18.8		45.0	18.7	14.1
Level of Service	C	B		F	B		C	B		D	B	B
Approach Delay (s)		20.4			58.6			23.3			23.9	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	67	26	76	170	249	11	124	42	99	176	3
Future Vol, veh/h	1	67	26	76	170	249	11	124	42	99	176	3
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	74	29	84	187	274	12	136	46	109	193	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.7	13.5	12	15.1
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	6%	1%	31%	0%	36%
Vol Thru, %	70%	71%	69%	0%	63%
Vol Right, %	24%	28%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	94	246	249	278
LT Vol	11	1	76	0	99
Through Vol	124	67	170	0	176
RT Vol	42	26	0	249	3
Lane Flow Rate	195	103	270	274	305
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.326	0.18	0.478	0.418	0.508
Departure Headway (Hd)	6.03	6.257	6.372	5.504	5.991
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	593	569	565	651	599
Service Time	4.103	4.343	4.133	3.264	4.056
HCM Lane V/C Ratio	0.329	0.181	0.478	0.421	0.509
HCM Control Delay	12	10.7	14.9	12.2	15.1
HCM Lane LOS	B	B	B	B	C
HCM 95th-tile Q	1.4	0.7	2.6	2.1	2.9

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	99	116	220	120	377	241
Future Vol, veh/h	99	116	220	120	377	241
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	123	234	128	401	256
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12.8	15.5	24.2
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	22%	0%	100%	100%
Vol Right, %	0%	100%	0%	78%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	377	241	66	149	220	60	60
LT Vol	377	0	0	0	220	0	0
Through Vol	0	0	66	33	0	60	60
RT Vol	0	241	0	116	0	0	0
Lane Flow Rate	401	256	70	159	234	64	64
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.787	0.417	0.151	0.316	0.511	0.13	0.099
Departure Headway (Hd)	7.169	5.961	7.737	7.175	7.866	7.355	5.581
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	608	466	504	461	490	646
Service Time	4.869	3.661	5.449	4.887	5.566	5.055	3.281
HCM Lane V/C Ratio	0.788	0.421	0.15	0.315	0.508	0.131	0.099
HCM Control Delay	31.5	12.9	11.8	13.2	18.5	11.2	8.9
HCM Lane LOS	D	B	B	B	C	B	A
HCM 95th-tile Q	7.2	2.1	0.5	1.3	2.8	0.4	0.3

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	141	3	11	98	169	2	6	19	239	19	16
Future Vol, veh/h	4	141	3	11	98	169	2	6	19	239	19	16
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	155	3	12	108	186	2	7	21	263	21	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	10.8	8.4	12.3
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	3%	4%	87%
Vol Thru, %	22%	95%	35%	7%
Vol Right, %	70%	2%	61%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	148	278	274
LT Vol	2	4	11	239
Through Vol	6	141	98	19
RT Vol	19	3	169	16
Lane Flow Rate	30	163	305	301
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.234	0.396	0.435
Departure Headway (Hd)	5.212	5.173	4.663	5.2
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	691	685	764	683
Service Time	3.212	3.271	2.745	3.298
HCM Lane V/C Ratio	0.043	0.238	0.399	0.441
HCM Control Delay	8.4	9.9	10.8	12.3
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.1	0.9	1.9	2.2

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	224	188	10	20	168	176	12	8	15	193	3	102
Future Vol, veh/h	224	188	10	20	168	176	12	8	15	193	3	102
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	233	196	10	21	175	183	13	8	16	201	3	106
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	13.6	12.6	10.9	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	34%	100%	0%	19%	0%	98%	0%
Vol Thru, %	23%	0%	95%	81%	32%	2%	0%
Vol Right, %	43%	0%	5%	0%	68%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	224	198	104	260	196	102
LT Vol	12	224	0	20	0	193	0
Through Vol	8	0	188	84	84	3	0
RT Vol	15	0	10	0	176	0	102
Lane Flow Rate	36	233	206	108	271	204	106
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.073	0.437	0.355	0.195	0.443	0.412	0.179
Departure Headway (Hd)	7.208	6.747	6.203	6.465	5.885	7.262	6.05
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	532	578	554	609	494	591
Service Time	5.299	4.51	3.965	4.228	3.648	5.024	3.812
HCM Lane V/C Ratio	0.073	0.438	0.356	0.195	0.445	0.413	0.179
HCM Control Delay	10.9	14.7	12.4	10.8	13.3	15.1	10.1
HCM Lane LOS	B	B	B	B	B	C	B
HCM 95th-tile Q	0.2	2.2	1.6	0.7	2.3	2	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	244	96	126	151	204	146	271	114	119	252	80
Future Volume (vph)	58	244	96	126	151	204	146	271	114	119	252	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.91		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3341		1770	3189		1770	1769		1770	1863	1554
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3341		1770	3189		1770	1769		1770	1863	1554
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	59	249	98	129	154	208	149	277	116	121	257	82
RTOR Reduction (vph)	0	75	0	0	160	0	0	23	0	0	0	59
Lane Group Flow (vph)	59	272	0	129	202	0	149	370	0	121	257	23
Confl. Peds. (#/hr)	13		19	19		13	7		9	9		7
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	2.7	10.4		4.4	12.1		6.3	16.7		4.4	14.8	14.8
Effective Green, g (s)	2.7	10.4		4.4	12.1		6.3	16.7		4.4	14.8	14.8
Actuated g/C Ratio	0.05	0.20		0.08	0.23		0.12	0.32		0.08	0.29	0.29
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	92	669		150	743		214	569		150	531	443
v/s Ratio Prot	0.03	c0.08		c0.07	0.06		c0.08	c0.21		0.07	0.14	
v/s Ratio Perm												0.02
v/c Ratio	0.64	0.41		0.86	0.27		0.70	0.65		0.81	0.48	0.05
Uniform Delay, d1	24.1	18.1		23.4	16.3		21.9	15.1		23.3	15.4	13.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	14.3	0.4		35.7	0.2		9.4	2.7		26.2	0.7	0.0
Delay (s)	38.4	18.5		59.2	16.5		31.3	17.8		49.5	16.1	13.5
Level of Service	D	B		E	B		C	B		D	B	B
Approach Delay (s)		21.4			27.7			21.5			24.4	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	60.1%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

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	4	48	23	107	209	322	23	135	37	64	145	7
Future Vol, veh/h	4	48	23	107	209	322	23	135	37	64	145	7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	56	27	124	243	374	27	157	43	74	169	8
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.7	17.7	13.4	14.3
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	12%	5%	34%	0%	30%
Vol Thru, %	69%	64%	66%	0%	67%
Vol Right, %	19%	31%	0%	100%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	75	316	322	216
LT Vol	23	4	107	0	64
Through Vol	135	48	209	0	145
RT Vol	37	23	0	322	7
Lane Flow Rate	227	87	367	374	251
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.394	0.156	0.649	0.569	0.441
Departure Headway (Hd)	6.257	6.451	6.355	5.472	6.326
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	571	551	566	655	568
Service Time	4.326	4.543	4.116	3.233	4.393
HCM Lane V/C Ratio	0.398	0.158	0.648	0.571	0.442
HCM Control Delay	13.4	10.7	20.2	15.3	14.3
HCM Lane LOS	B	B	C	C	B
HCM 95th-tile Q	1.9	0.5	4.7	3.6	2.2

Intersection	
Intersection Delay, s/veh	45.4
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	89	203	125	505	315
Future Vol, veh/h	73	89	203	125	505	315
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	99	226	139	561	350
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12.9	15.9	63.7
HCM LOS	B	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	21%	0%	100%	100%
Vol Right, %	0%	100%	0%	79%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	505	315	49	113	203	63	63
LT Vol	505	0	0	0	203	0	0
Through Vol	0	0	49	24	0	63	63
RT Vol	0	315	0	89	0	0	0
Lane Flow Rate	561	350	54	126	226	69	69
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.094	0.565	0.12	0.26	0.502	0.145	0.111
Departure Headway (Hd)	7.021	5.814	8.34	7.77	8.304	7.791	6.013
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	623	433	465	438	463	600
Service Time	4.748	3.541	6.04	5.47	6.004	5.491	3.713
HCM Lane V/C Ratio	1.075	0.562	0.125	0.271	0.516	0.149	0.115
HCM Control Delay	93.5	15.9	12.2	13.2	19.1	11.8	9.5
HCM Lane LOS	F	C	B	B	C	B	A
HCM 95th-tile Q	17.8	3.5	0.4	1	2.7	0.5	0.4

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	129	0	21	81	175	1	9	17	225	29	24
Future Vol, veh/h	9	129	0	21	81	175	1	9	17	225	29	24
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	137	0	22	86	186	1	10	18	239	31	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.6	10.5	8.4	11.9
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	7%	8%	81%
Vol Thru, %	33%	93%	29%	10%
Vol Right, %	63%	0%	63%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	138	277	278
LT Vol	1	9	21	225
Through Vol	9	129	81	29
RT Vol	17	0	175	24
Lane Flow Rate	29	147	295	296
Geometry Grp	1	1	1	1
Degree of Util (X)	0.041	0.21	0.377	0.419
Departure Headway (Hd)	5.142	5.147	4.606	5.103
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	701	690	775	698
Service Time	3.142	3.233	2.677	3.189
HCM Lane V/C Ratio	0.041	0.213	0.381	0.424
HCM Control Delay	8.4	9.6	10.5	11.9
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.1	0.8	1.8	2.1

Intersection	
Intersection Delay, s/veh	17
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	195	142	46	114	196	197	26	48	53	216	35	106
Future Vol, veh/h	195	142	46	114	196	197	26	48	53	216	35	106
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	203	148	48	119	204	205	27	50	55	225	36	110
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	15.8	17.5	14.4	18.5
HCM LOS	C	C	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	20%	100%	0%	54%	0%	86%	0%
Vol Thru, %	38%	0%	76%	46%	33%	14%	0%
Vol Right, %	42%	0%	24%	0%	67%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	127	195	188	212	295	251	106
LT Vol	26	195	0	114	0	216	0
Through Vol	48	0	142	98	98	35	0
RT Vol	53	0	46	0	197	0	106
Lane Flow Rate	132	203	196	221	307	261	110
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.295	0.447	0.393	0.46	0.576	0.583	0.211
Departure Headway (Hd)	8.031	7.918	7.228	7.506	6.75	8.034	6.875
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	447	455	497	479	535	450	521
Service Time	6.095	5.671	4.98	5.256	4.5	5.784	4.625
HCM Lane V/C Ratio	0.295	0.446	0.394	0.461	0.574	0.58	0.211
HCM Control Delay	14.4	17	14.6	16.5	18.3	21.5	11.5
HCM Lane LOS	B	C	B	C	C	C	B
HCM 95th-tile Q	1.2	2.3	1.9	2.4	3.6	3.6	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	264	87	127	211	205	197	246	103	130	274	116
Future Volume (vph)	63	264	87	127	211	205	197	246	103	130	274	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3382		1770	3244		1770	1769		1770	1863	1558
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3382		1770	3244		1770	1769		1770	1863	1558
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	269	89	130	215	209	201	251	105	133	280	118
RTOR Reduction (vph)	0	58	0	0	155	0	0	24	0	0	0	87
Lane Group Flow (vph)	64	300	0	130	269	0	201	332	0	133	280	31
Confl. Peds. (#/hr)	9		6	6		9	4		10	10		4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	2.8	11.7		5.1	14.0		7.1	16.0		5.4	14.3	14.3
Effective Green, g (s)	2.8	11.7		5.1	14.0		7.1	16.0		5.4	14.3	14.3
Actuated g/C Ratio	0.05	0.22		0.09	0.26		0.13	0.30		0.10	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	91	730		166	837		231	522		176	491	411
v/s Ratio Prot	0.04	c0.09		c0.07	0.08		c0.11	c0.19		0.08	0.15	
v/s Ratio Perm												0.02
v/c Ratio	0.70	0.41		0.78	0.32		0.87	0.64		0.76	0.57	0.08
Uniform Delay, d1	25.3	18.3		24.0	16.3		23.1	16.6		23.8	17.3	15.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.8	0.4		21.0	0.2		28.0	2.5		16.7	1.6	0.1
Delay (s)	47.1	18.7		45.0	16.5		51.1	19.1		40.5	18.9	15.1
Level of Service	D	B		D	B		D	B		D	B	B
Approach Delay (s)		23.0			23.2			30.6			23.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	85	57	84	141	202	13	136	66	91	206	3
Future Vol, veh/h	4	85	57	84	141	202	13	136	66	91	206	3
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	93	63	92	155	222	14	149	73	100	226	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	12.3	13.9	13.7	17.6
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	6%	3%	37%	0%	30%
Vol Thru, %	63%	58%	63%	0%	69%
Vol Right, %	31%	39%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	146	225	202	300
LT Vol	13	4	84	0	91
Through Vol	136	85	141	0	206
RT Vol	66	57	0	202	3
Lane Flow Rate	236	160	247	222	330
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.412	0.291	0.472	0.368	0.577
Departure Headway (Hd)	6.272	6.524	6.866	5.962	6.296
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	572	549	527	606	574
Service Time	4.324	4.583	4.589	3.684	4.316
HCM Lane V/C Ratio	0.413	0.291	0.469	0.366	0.575
HCM Control Delay	13.7	12.3	15.6	12.1	17.6
HCM Lane LOS	B	B	C	B	C
HCM 95th-tile Q	2	1.2	2.5	1.7	3.7

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	114	149	86	93	294	258
Future Vol, veh/h	114	149	86	93	294	258
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	169	98	106	334	293
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12.6	11	16.4
HCM LOS	B	B	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	20%	0%	100%	100%
Vol Right, %	0%	100%	0%	80%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	294	258	76	187	86	47	47
LT Vol	294	0	0	0	86	0	0
Through Vol	0	0	76	38	0	47	47
RT Vol	0	258	0	149	0	0	0
Lane Flow Rate	334	293	86	212	98	53	53
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.621	0.447	0.167	0.378	0.208	0.105	0.079
Departure Headway (Hd)	6.689	5.484	6.981	6.41	7.68	7.169	5.398
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	538	654	512	559	466	498	659
Service Time	4.438	3.233	4.746	4.175	5.452	4.941	3.169
HCM Lane V/C Ratio	0.621	0.448	0.168	0.379	0.21	0.106	0.08
HCM Control Delay	19.8	12.6	11.2	13.1	12.5	10.8	8.6
HCM Lane LOS	C	B	B	B	B	B	A
HCM 95th-tile Q	4.2	2.3	0.6	1.8	0.8	0.3	0.3

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	278	2	9	85	180	3	13	45	319	15	8
Future Vol, veh/h	12	278	2	9	85	180	3	13	45	319	15	8
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	305	2	10	93	198	3	14	49	351	16	9
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.1	13.2	10	18.4
HCM LOS	C	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	4%	3%	93%
Vol Thru, %	21%	95%	31%	4%
Vol Right, %	74%	1%	66%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	61	292	274	342
LT Vol	3	12	9	319
Through Vol	13	278	85	15
RT Vol	45	2	180	8
Lane Flow Rate	67	321	301	376
Geometry Grp	1	1	1	1
Degree of Util (X)	0.115	0.518	0.458	0.622
Departure Headway (Hd)	6.165	5.807	5.479	5.954
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	585	616	650	601
Service Time	4.165	3.894	3.568	4.03
HCM Lane V/C Ratio	0.115	0.521	0.463	0.626
HCM Control Delay	10	15.1	13.2	18.4
HCM Lane LOS	A	C	B	C
HCM 95th-tile Q	0.4	3	2.4	4.3

Intersection	
Intersection Delay, s/veh	35.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	402	225	37	56	131	211	51	61	55	193	42	95
Future Vol, veh/h	402	225	37	56	131	211	51	61	55	193	42	95
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	442	247	41	62	144	232	56	67	60	212	46	104
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	55.4	21.2	19.2	22.3
HCM LOS	F	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	31%	100%	0%	46%	0%	82%	0%
Vol Thru, %	37%	0%	86%	54%	24%	18%	0%
Vol Right, %	33%	0%	14%	0%	76%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	402	262	122	277	235	95
LT Vol	51	402	0	56	0	193	0
Through Vol	61	0	225	66	66	42	0
RT Vol	55	0	37	0	211	0	95
Lane Flow Rate	184	442	288	134	304	258	104
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.45	1.018	0.614	0.312	0.652	0.634	0.226
Departure Headway (Hd)	9.024	8.292	7.674	8.586	7.73	9.027	7.806
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	402	437	469	422	468	403	458
Service Time	7.024	6.051	5.432	6.286	5.492	6.727	5.577
HCM Lane V/C Ratio	0.458	1.011	0.614	0.318	0.65	0.64	0.227
HCM Control Delay	19.2	77.1	22	15.1	23.9	26.1	12.9
HCM Lane LOS	C	F	C	C	C	D	B
HCM 95th-tile Q	2.3	13.3	4	1.3	4.6	4.2	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	269	144	41	62	43	188	319	82	122	290	111
Future Volume (vph)	108	269	144	41	62	43	188	319	82	122	290	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.94		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3320		1770	3299		1770	1798		1770	1863	1554
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3320		1770	3299		1770	1798		1770	1863	1554
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	299	160	46	69	48	209	354	91	136	322	123
RTOR Reduction (vph)	0	120	0	0	40	0	0	16	0	0	0	90
Lane Group Flow (vph)	120	339	0	46	77	0	209	429	0	136	322	33
Confl. Peds. (#/hr)	5		6	6		5	7		9	9		7
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	4.9	12.6		1.3	9.0		7.3	15.9		5.2	13.8	13.8
Effective Green, g (s)	4.9	12.6		1.3	9.0		7.3	15.9		5.2	13.8	13.8
Actuated g/C Ratio	0.10	0.25		0.03	0.18		0.14	0.31		0.10	0.27	0.27
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	170	820		45	582		253	560		180	504	420
v/s Ratio Prot	c0.07	c0.10		0.03	0.02		c0.12	c0.24		0.08	0.17	
v/s Ratio Perm												0.02
v/c Ratio	0.71	0.41		1.02	0.13		0.83	0.77		0.76	0.64	0.08
Uniform Delay, d1	22.4	16.1		24.9	17.7		21.2	15.9		22.3	16.4	13.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	12.5	0.3		140.7	0.1		19.3	6.2		16.4	2.7	0.1
Delay (s)	34.9	16.4		165.6	17.8		40.5	22.1		38.7	19.1	13.9
Level of Service	C	B		F	B		D	C		D	B	B
Approach Delay (s)		20.3			59.5			28.0			22.6	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	67	26	85	170	249	11	128	45	99	189	3
Future Vol, veh/h	1	67	26	85	170	249	11	128	45	99	189	3
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	74	29	93	187	274	12	141	49	109	208	3
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.9	14.1	12.4	16
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	6%	1%	33%	0%	34%
Vol Thru, %	70%	71%	67%	0%	65%
Vol Right, %	24%	28%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	184	94	255	249	291
LT Vol	11	1	85	0	99
Through Vol	128	67	170	0	189
RT Vol	45	26	0	249	3
Lane Flow Rate	202	103	280	274	320
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.343	0.183	0.503	0.424	0.537
Departure Headway (Hd)	6.101	6.375	6.464	5.583	6.046
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	586	558	555	640	595
Service Time	4.181	4.472	4.233	3.352	4.117
HCM Lane V/C Ratio	0.345	0.185	0.505	0.428	0.538
HCM Control Delay	12.4	10.9	15.7	12.4	16
HCM Lane LOS	B	B	C	B	C
HCM 95th-tile Q	1.5	0.7	2.8	2.1	3.2

Intersection	
Intersection Delay, s/veh	20.5
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	99	119	222	120	386	249
Future Vol, veh/h	99	119	222	120	386	249
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	127	236	128	411	265
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12.9	15.8	25.7
HCM LOS	B	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	22%	0%	100%	100%
Vol Right, %	0%	100%	0%	78%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	386	249	66	152	222	60	60
LT Vol	386	0	0	0	222	0	0
Through Vol	0	0	66	33	0	60	60
RT Vol	0	249	0	119	0	0	0
Lane Flow Rate	411	265	70	162	236	64	64
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.809	0.433	0.152	0.325	0.52	0.132	0.1
Departure Headway (Hd)	7.203	5.995	7.802	7.236	7.93	7.419	5.644
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	505	604	461	500	458	486	639
Service Time	4.903	3.695	5.516	4.95	5.63	5.119	3.344
HCM Lane V/C Ratio	0.814	0.439	0.152	0.324	0.515	0.132	0.1
HCM Control Delay	33.8	13.2	11.9	13.4	18.9	11.2	9
HCM Lane LOS	D	B	B	B	C	B	A
HCM 95th-tile Q	7.7	2.2	0.5	1.4	2.9	0.5	0.3

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	141	3	11	98	176	2	6	19	261	19	16
Future Vol, veh/h	4	141	3	11	98	176	2	6	19	261	19	16
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	155	3	12	108	193	2	7	21	287	21	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.1	11.3	8.6	13.3
HCM LOS	B	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	3%	4%	88%
Vol Thru, %	22%	95%	34%	6%
Vol Right, %	70%	2%	62%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	148	285	296
LT Vol	2	4	11	261
Through Vol	6	141	98	19
RT Vol	19	3	176	16
Lane Flow Rate	30	163	313	325
Geometry Grp	1	1	1	1
Degree of Util (X)	0.044	0.242	0.422	0.482
Departure Headway (Hd)	5.295	5.366	4.846	5.334
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	675	668	749	677
Service Time	3.339	3.401	2.846	3.365
HCM Lane V/C Ratio	0.044	0.244	0.418	0.48
HCM Control Delay	8.6	10.1	11.3	13.3
HCM Lane LOS	A	B	B	B
HCM 95th-tile Q	0.1	0.9	2.1	2.6

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	224	188	32	32	168	176	19	11	18	193	24	102
Future Vol, veh/h	224	188	32	32	168	176	19	11	18	193	24	102
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	233	196	33	33	175	183	20	11	19	201	25	106
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	14.4	13.2	11.4	14.5
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	40%	100%	0%	28%	0%	89%	0%
Vol Thru, %	23%	0%	85%	72%	32%	11%	0%
Vol Right, %	38%	0%	15%	0%	68%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	224	220	116	260	217	102
LT Vol	19	224	0	32	0	193	0
Through Vol	11	0	188	84	84	24	0
RT Vol	18	0	32	0	176	0	102
Lane Flow Rate	50	233	229	121	271	226	106
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.105	0.45	0.403	0.225	0.458	0.462	0.183
Departure Headway (Hd)	7.551	6.937	6.324	6.708	6.084	7.362	6.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	478	516	566	532	588	488	575
Service Time	5.551	4.717	4.103	4.491	3.867	5.142	3.977
HCM Lane V/C Ratio	0.105	0.452	0.405	0.227	0.461	0.463	0.184
HCM Control Delay	11.4	15.3	13.4	11.5	14	16.4	10.4
HCM Lane LOS	B	C	B	B	B	C	B
HCM 95th-tile Q	0.3	2.3	1.9	0.9	2.4	2.4	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	245	96	126	153	204	148	271	114	119	252	88
Future Volume (vph)	60	245	96	126	153	204	148	271	114	119	252	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.91		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3341		1770	3190		1770	1769		1770	1863	1553
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3341		1770	3190		1770	1769		1770	1863	1553
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	250	98	129	156	208	151	277	116	121	257	90
RTOR Reduction (vph)	0	74	0	0	155	0	0	24	0	0	0	65
Lane Group Flow (vph)	61	274	0	129	209	0	151	369	0	121	257	25
Confl. Peds. (#/hr)	13		19	19		13	7		9	9		7
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	2.8	11.3		5.1	13.6		6.1	16.4		4.6	14.9	14.9
Effective Green, g (s)	2.8	11.3		5.1	13.6		6.1	16.4		4.6	14.9	14.9
Actuated g/C Ratio	0.05	0.21		0.10	0.25		0.11	0.31		0.09	0.28	0.28
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	92	706		169	812		202	543		152	519	433
v/s Ratio Prot	0.03	c0.08		c0.07	0.07		c0.09	c0.21		0.07	0.14	
v/s Ratio Perm												0.02
v/c Ratio	0.66	0.39		0.76	0.26		0.75	0.68		0.80	0.50	0.06
Uniform Delay, d1	24.8	18.1		23.6	15.9		22.9	16.2		23.9	16.1	14.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	0.4		18.3	0.2		14.0	3.4		24.3	0.7	0.1
Delay (s)	41.4	18.4		41.9	16.0		36.9	19.6		48.3	16.8	14.2
Level of Service	D	B		D	B		D	B		D	B	B
Approach Delay (s)		21.9			22.8			24.4			24.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	48	23	116	209	322	23	139	40	64	158	7
Future Vol, veh/h	4	48	23	116	209	322	23	139	40	64	158	7
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	56	27	135	243	374	27	162	47	74	184	8
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11	18.8	13.8	15.1
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	11%	5%	36%	0%	28%
Vol Thru, %	69%	64%	64%	0%	69%
Vol Right, %	20%	31%	0%	100%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	75	325	322	229
LT Vol	23	4	116	0	64
Through Vol	139	48	209	0	158
RT Vol	40	23	0	322	7
Lane Flow Rate	235	87	378	374	266
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.413	0.162	0.677	0.578	0.472
Departure Headway (Hd)	6.328	6.684	6.453	5.56	6.384
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	566	540	559	644	562
Service Time	4.408	4.684	4.223	3.329	4.46
HCM Lane V/C Ratio	0.415	0.161	0.676	0.581	0.473
HCM Control Delay	13.8	11	21.8	15.7	15.1
HCM Lane LOS	B	B	C	C	C
HCM 95th-tile Q	2	0.6	5.1	3.7	2.5

Intersection	
Intersection Delay, s/veh	48.8
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	92	205	125	514	323
Future Vol, veh/h	73	92	205	125	514	323
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	81	102	228	139	571	359
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	13	16.1	68.7
HCM LOS	B	C	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	21%	0%	100%	100%
Vol Right, %	0%	100%	0%	79%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	514	323	49	116	205	63	63
LT Vol	514	0	0	0	205	0	0
Through Vol	0	0	49	24	0	63	63
RT Vol	0	323	0	92	0	0	0
Lane Flow Rate	571	359	54	129	228	69	69
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.118	0.582	0.119	0.268	0.509	0.146	0.112
Departure Headway (Hd)	7.05	5.843	8.394	7.819	8.355	7.842	6.063
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	520	617	430	463	435	460	595
Service Time	4.773	3.567	6.094	5.519	6.055	5.542	3.763
HCM Lane V/C Ratio	1.098	0.582	0.126	0.279	0.524	0.15	0.116
HCM Control Delay	101.6	16.4	12.2	13.4	19.4	11.9	9.5
HCM Lane LOS	F	C	B	B	C	B	A
HCM 95th-tile Q	18.8	3.7	0.4	1.1	2.8	0.5	0.4

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	129	0	21	81	182	1	9	17	247	29	24
Future Vol, veh/h	9	129	0	21	81	182	1	9	17	247	29	24
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	137	0	22	86	194	1	10	18	263	31	26
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	10.8	8.5	12.5
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	7%	7%	82%
Vol Thru, %	33%	93%	29%	10%
Vol Right, %	63%	0%	64%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	27	138	284	300
LT Vol	1	9	21	247
Through Vol	9	129	81	29
RT Vol	17	0	182	24
Lane Flow Rate	29	147	302	319
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.213	0.392	0.455
Departure Headway (Hd)	5.222	5.229	4.669	5.135
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	690	678	761	693
Service Time	3.222	3.327	2.749	3.23
HCM Lane V/C Ratio	0.042	0.217	0.397	0.46
HCM Control Delay	8.5	9.8	10.8	12.5
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.1	0.8	1.9	2.4

Intersection	
Intersection Delay, s/veh	18.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	195	142	68	126	196	197	33	51	56	216	56	106
Future Vol, veh/h	195	142	68	126	196	197	33	51	56	216	56	106
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	203	148	71	131	204	205	34	53	58	225	58	110
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	16.9	19.1	15.5	21.2
HCM LOS	C	C	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	24%	100%	0%	56%	0%	79%	0%
Vol Thru, %	36%	0%	68%	44%	33%	21%	0%
Vol Right, %	40%	0%	32%	0%	67%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	195	210	224	295	272	106
LT Vol	33	195	0	126	0	216	0
Through Vol	51	0	142	98	98	56	0
RT Vol	56	0	68	0	197	0	106
Lane Flow Rate	146	203	219	233	307	283	110
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.336	0.46	0.45	0.503	0.597	0.645	0.217
Departure Headway (Hd)	8.29	8.158	7.409	7.766	6.996	8.191	7.065
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	433	441	486	462	513	439	507
Service Time	6.368	5.926	5.177	5.532	4.761	5.954	4.827
HCM Lane V/C Ratio	0.337	0.46	0.451	0.504	0.598	0.645	0.217
HCM Control Delay	15.5	17.7	16.2	18.2	19.7	24.8	11.8
HCM Lane LOS	C	C	C	C	C	C	B
HCM 95th-tile Q	1.5	2.4	2.3	2.8	3.9	4.4	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	265	87	127	213	205	199	246	103	130	274	124
Future Volume (vph)	65	265	87	127	213	205	199	246	103	130	274	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.93		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3382		1770	3245		1770	1769		1770	1863	1558
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3382		1770	3245		1770	1769		1770	1863	1558
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	66	270	89	130	217	209	203	251	105	133	280	127
RTOR Reduction (vph)	0	57	0	0	155	0	0	24	0	0	0	94
Lane Group Flow (vph)	66	302	0	130	271	0	203	332	0	133	280	33
Confl. Peds. (#/hr)	9		6	6		9	4		10	10		4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	2.8	11.8		5.1	14.1		7.1	16.0		5.4	14.3	14.3
Effective Green, g (s)	2.8	11.8		5.1	14.1		7.1	16.0		5.4	14.3	14.3
Actuated g/C Ratio	0.05	0.22		0.09	0.26		0.13	0.29		0.10	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	91	734		166	842		231	521		176	490	410
v/s Ratio Prot	0.04	c0.09		c0.07	0.08		c0.11	c0.19		0.08	0.15	
v/s Ratio Perm												0.02
v/c Ratio	0.73	0.41		0.78	0.32		0.88	0.64		0.76	0.57	0.08
Uniform Delay, d1	25.4	18.3		24.1	16.2		23.2	16.6		23.8	17.3	15.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	24.7	0.4		21.0	0.2		29.2	2.6		16.7	1.6	0.1
Delay (s)	50.1	18.6		45.1	16.5		52.3	19.2		40.6	19.0	15.1
Level of Service	D	B		D	B		D	B		D	B	B
Approach Delay (s)		23.5			23.2			31.2			23.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	54.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	21.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	102	34	93	248	236	110	154	56	58	208	2
Future Vol, veh/h	3	102	34	93	248	236	110	154	56	58	208	2
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	112	37	102	273	259	121	169	62	64	229	2
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	14.2	23.6	23.3	19.8
HCM LOS	B	C	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	34%	2%	27%	0%	22%
Vol Thru, %	48%	73%	73%	0%	78%
Vol Right, %	17%	24%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	320	139	341	236	268
LT Vol	110	3	93	0	58
Through Vol	154	102	248	0	208
RT Vol	56	34	0	236	2
Lane Flow Rate	352	153	375	259	295
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.675	0.32	0.76	0.464	0.583
Departure Headway (Hd)	6.907	7.537	7.297	6.44	7.129
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	520	474	495	558	504
Service Time	4.979	5.636	5.07	4.213	5.207
HCM Lane V/C Ratio	0.677	0.323	0.758	0.464	0.585
HCM Control Delay	23.3	14.2	29.8	14.7	19.8
HCM Lane LOS	C	B	D	B	C
HCM 95th-tile Q	5	1.4	6.6	2.4	3.7

Intersection	
Intersection Delay, s/veh	148.5
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	118	544	29	546	326
Future Vol, veh/h	87	118	544	29	546	326
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	134	618	33	620	370
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	16.4	217.6	134.1
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	20%	0%	100%	100%
Vol Right, %	0%	100%	0%	80%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	546	326	58	147	544	15	15
LT Vol	546	0	0	0	544	0	0
Through Vol	0	0	58	29	0	15	15
RT Vol	0	326	0	118	0	0	0
Lane Flow Rate	620	370	66	167	618	16	16
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.355	0.686	0.155	0.367	1.424	0.036	0.028
Departure Headway (Hd)	8.694	7.473	9.838	9.244	8.869	8.354	6.569
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	422	489	367	393	414	431	548
Service Time	6.394	5.173	7.538	6.944	6.569	6.054	4.269
HCM Lane V/C Ratio	1.469	0.757	0.18	0.425	1.493	0.037	0.029
HCM Control Delay	199.3	25	14.3	17.2	228.6	11.4	9.5
HCM Lane LOS	F	C	B	C	F	B	A
HCM 95th-tile Q	26.4	5.2	0.5	1.7	29	0.1	0.1

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	262	12	16	83	254	2	38	42	304	6	23
Future Vol, veh/h	6	262	12	16	83	254	2	38	42	304	6	23
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	288	13	18	91	279	2	42	46	334	7	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.9	17.1	11	20
HCM LOS	C	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	2%	5%	91%
Vol Thru, %	46%	94%	24%	2%
Vol Right, %	51%	4%	72%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	280	353	333
LT Vol	2	6	16	304
Through Vol	38	262	83	6
RT Vol	42	12	254	23
Lane Flow Rate	90	308	388	366
Geometry Grp	1	1	1	1
Degree of Util (X)	0.165	0.526	0.608	0.641
Departure Headway (Hd)	6.609	6.158	5.646	6.307
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	541	585	640	571
Service Time	4.673	4.202	3.686	4.35
HCM Lane V/C Ratio	0.166	0.526	0.606	0.641
HCM Control Delay	11	15.9	17.1	20
HCM Lane LOS	B	C	C	C
HCM 95th-tile Q	0.6	3.1	4.1	4.5

Intersection	
Intersection Delay, s/veh	122.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	446	112	51	157	274	378	31	111	161	191	95	106
Future Vol, veh/h	446	112	51	157	274	378	31	111	161	191	95	106
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	490	123	56	173	301	415	34	122	177	210	104	116
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	156	158.5	57.7	44.6
HCM LOS	F	F	F	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	10%	100%	0%	53%	0%	67%	0%
Vol Thru, %	37%	0%	69%	47%	27%	33%	0%
Vol Right, %	53%	0%	31%	0%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	303	446	163	294	515	286	106
LT Vol	31	446	0	157	0	191	0
Through Vol	111	0	112	137	137	95	0
RT Vol	161	0	51	0	378	0	106
Lane Flow Rate	333	490	179	323	566	314	116
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.887	1.355	0.459	0.867	1.395	0.866	0.288
Departure Headway (Hd)	10.531	10.349	9.591	10.293	9.468	10.852	9.762
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	346	353	378	355	390	336	370
Service Time	8.531	8.049	7.291	7.993	7.168	8.552	7.462
HCM Lane V/C Ratio	0.962	1.388	0.474	0.91	1.451	0.935	0.314
HCM Control Delay	57.7	205.6	20.2	53.1	218.7	55.1	16.4
HCM Lane LOS	F	F	C	F	F	F	C
HCM 95th-tile Q	8.5	23.1	2.3	8.1	26.3	8	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	353	102	142	518	481	244	106	130	222	298	134
Future Volume (vph)	4	353	102	142	518	481	244	106	130	222	298	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.93		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1767	3396		1770	3255		1770	1687		1770	1863	1550
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1767	3396		1770	3255		1770	1687		1770	1863	1550
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	392	113	158	576	534	271	118	144	247	331	149
RTOR Reduction (vph)	0	37	0	0	219	0	0	64	0	0	0	116
Lane Group Flow (vph)	4	468	0	158	891	0	271	198	0	247	331	33
Confl. Peds. (#/hr)	5		6	6		5	7		9	9		7
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	0.7	17.2		8.0	24.5		12.0	15.5		11.6	15.1	15.1
Effective Green, g (s)	0.7	17.2		8.0	24.5		12.0	15.5		11.6	15.1	15.1
Actuated g/C Ratio	0.01	0.25		0.12	0.36		0.18	0.23		0.17	0.22	0.22
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	18	855		207	1167		310	382		300	411	342
v/s Ratio Prot	0.00	0.14		c0.09	c0.27		c0.15	0.12		0.14	c0.18	
v/s Ratio Perm												0.02
v/c Ratio	0.22	0.55		0.76	0.76		0.87	0.52		0.82	0.81	0.10
Uniform Delay, d1	33.5	22.2		29.2	19.3		27.4	23.1		27.4	25.2	21.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.2	0.7		15.3	3.0		22.8	1.2		16.5	11.0	0.1
Delay (s)	39.7	22.9		44.5	22.4		50.2	24.3		43.9	36.2	21.3
Level of Service	D	C		D	C		D	C		D	D	C
Approach Delay (s)		23.0			25.1			37.5			35.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	68.3	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	28	42	78	183	288	41	124	47	30	199	5
Future Vol, veh/h	5	28	42	78	183	288	41	124	47	30	199	5
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	31	46	86	201	316	45	136	52	33	219	5
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.2	14.1	12.8	13.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	19%	7%	30%	0%	13%
Vol Thru, %	58%	37%	70%	0%	85%
Vol Right, %	22%	56%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	212	75	261	288	234
LT Vol	41	5	78	0	30
Through Vol	124	28	183	0	199
RT Vol	47	42	0	288	5
Lane Flow Rate	233	82	287	316	257
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.387	0.14	0.501	0.477	0.431
Departure Headway (Hd)	5.986	6.12	6.292	5.43	6.037
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	599	582	571	661	594
Service Time	4.047	4.201	4.046	3.183	4.098
HCM Lane V/C Ratio	0.389	0.141	0.503	0.478	0.433
HCM Control Delay	12.8	10.2	15.2	13.1	13.6
HCM Lane LOS	B	B	C	B	B
HCM 95th-tile Q	1.8	0.5	2.8	2.6	2.2

Intersection	
Intersection Delay, s/veh	39.5
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	39	77	361	87	461	307
Future Vol, veh/h	39	77	361	87	461	307
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	82	384	93	490	327
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12.6	36	45.6
HCM LOS	B	E	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	14%	0%	100%	100%
Vol Right, %	0%	100%	0%	86%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	461	307	26	90	361	44	44
LT Vol	461	0	0	0	361	0	0
Through Vol	0	0	26	13	0	44	44
RT Vol	0	307	0	77	0	0	0
Lane Flow Rate	490	327	28	96	384	46	46
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.99	0.55	0.066	0.211	0.854	0.096	0.074
Departure Headway (Hd)	7.386	6.179	8.568	7.945	8.007	7.496	5.722
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	495	588	420	454	457	481	630
Service Time	5.086	3.879	6.286	5.663	5.707	5.196	3.422
HCM Lane V/C Ratio	0.99	0.556	0.067	0.211	0.84	0.096	0.073
HCM Control Delay	65.2	16.2	11.9	12.8	42.3	11	8.9
HCM Lane LOS	F	C	B	B	E	B	A
HCM 95th-tile Q	13.2	3.3	0.2	0.8	8.6	0.3	0.2

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	138	2	29	96	211	3	29	24	285	11	72
Future Vol, veh/h	10	138	2	29	96	211	3	29	24	285	11	72
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	152	2	32	105	232	3	32	26	313	12	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.1	14.2	9.7	17.3
HCM LOS	B	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	7%	9%	77%
Vol Thru, %	52%	92%	29%	3%
Vol Right, %	43%	1%	63%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	150	336	368
LT Vol	3	10	29	285
Through Vol	29	138	96	11
RT Vol	24	2	211	72
Lane Flow Rate	62	165	369	404
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.27	0.535	0.622
Departure Headway (Hd)	5.904	5.892	5.213	5.534
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	602	607	690	651
Service Time	3.984	3.96	3.269	3.584
HCM Lane V/C Ratio	0.103	0.272	0.535	0.621
HCM Control Delay	9.7	11.1	14.2	17.3
HCM Lane LOS	A	B	B	C
HCM 95th-tile Q	0.3	1.1	3.2	4.3

Intersection	
Intersection Delay, s/veh	20.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	208	106	38	95	190	296	33	57	108	212	15	73
Future Vol, veh/h	208	106	38	95	190	296	33	57	108	212	15	73
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	217	110	40	99	198	308	34	59	113	221	16	76
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	16.9	25.2	17.8	19
HCM LOS	C	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	17%	100%	0%	50%	0%	93%	0%
Vol Thru, %	29%	0%	74%	50%	24%	7%	0%
Vol Right, %	55%	0%	26%	0%	76%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	208	144	190	391	227	73
LT Vol	33	208	0	95	0	212	0
Through Vol	57	0	106	95	95	15	0
RT Vol	108	0	38	0	296	0	73
Lane Flow Rate	206	217	150	198	407	236	76
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.46	0.498	0.315	0.421	0.776	0.557	0.154
Departure Headway (Hd)	8.033	8.273	7.566	7.661	6.859	8.487	7.285
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	433	473	469	525	423	490
Service Time	6.116	6.053	5.345	5.432	4.629	6.263	5.06
HCM Lane V/C Ratio	0.46	0.501	0.317	0.422	0.775	0.558	0.155
HCM Control Delay	17.8	19.1	13.8	15.9	29.7	21.5	11.4
HCM Lane LOS	C	C	B	C	D	C	B
HCM 95th-tile Q	2.4	2.7	1.3	2.1	7	3.3	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	329	66	212	381	288	157	188	72	162	255	121
Future Volume (vph)	93	329	66	212	381	288	157	188	72	162	255	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3433		1770	3280		1770	1775		1770	1863	1558
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3433		1770	3280		1770	1775		1770	1863	1558
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	95	336	67	216	389	294	160	192	73	165	260	123
RTOR Reduction (vph)	0	26	0	0	203	0	0	23	0	0	0	94
Lane Group Flow (vph)	95	377	0	216	480	0	160	242	0	165	260	29
Confl. Peds. (#/hr)	9		6	6		9	4		10	10		4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	6.4	13.5		9.1	16.2		6.1	12.6		7.1	13.6	13.6
Effective Green, g (s)	6.4	13.5		9.1	16.2		6.1	12.6		7.1	13.6	13.6
Actuated g/C Ratio	0.11	0.23		0.16	0.28		0.10	0.22		0.12	0.23	0.23
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	194	794		276	911		185	383		215	434	363
v/s Ratio Prot	0.05	0.11		c0.12	c0.15		0.09	0.14		c0.09	c0.14	
v/s Ratio Perm												0.02
v/c Ratio	0.49	0.47		0.78	0.53		0.86	0.63		0.77	0.60	0.08
Uniform Delay, d1	24.4	19.3		23.6	17.8		25.7	20.7		24.8	19.9	17.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.9	0.4		13.5	0.6		31.7	3.4		15.1	2.2	0.1
Delay (s)	26.4	19.8		37.1	18.4		57.4	24.1		39.9	22.1	17.6
Level of Service	C	B		D	B		E	C		D	C	B
Approach Delay (s)		21.0			22.9			36.7			26.5	
Approach LOS		C			C			D			C	

Intersection Summary				
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	62.2%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

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	5	31	45	84	197	310	44	133	51	32	214	5
Future Vol, veh/h	5	31	45	84	197	310	44	133	51	32	214	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	36	52	98	229	360	51	155	59	37	249	6
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11.1	17.4	14.9	16.2
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	19%	6%	30%	0%	13%
Vol Thru, %	58%	38%	70%	0%	85%
Vol Right, %	22%	56%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	228	81	281	310	251
LT Vol	44	5	84	0	32
Through Vol	133	31	197	0	214
RT Vol	51	45	0	310	5
Lane Flow Rate	265	94	327	360	292
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.466	0.176	0.599	0.574	0.516
Departure Headway (Hd)	6.328	6.715	6.598	5.733	6.37
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	565	538	542	624	560
Service Time	4.426	4.715	4.384	3.519	4.466
HCM Lane V/C Ratio	0.469	0.175	0.603	0.577	0.521
HCM Control Delay	14.9	11.1	18.9	16.1	16.2
HCM Lane LOS	B	B	C	C	C
HCM 95th-tile Q	2.5	0.6	3.9	3.6	2.9

Intersection	
Intersection Delay, s/veh	76
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	86	403	97	515	343
Future Vol, veh/h	44	86	403	97	515	343
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	96	448	108	572	381
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	13.8	58.9	95.4
HCM LOS	B	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	15%	0%	100%	100%
Vol Right, %	0%	100%	0%	85%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	515	343	29	101	403	49	49
LT Vol	515	0	0	0	403	0	0
Through Vol	0	0	29	15	0	49	49
RT Vol	0	343	0	86	0	0	0
Lane Flow Rate	572	381	33	112	448	54	54
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.226	0.689	0.078	0.25	0.991	0.112	0.087
Departure Headway (Hd)	7.716	6.507	9.18	8.554	8.45	7.937	6.159
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	475	560	393	423	434	454	585
Service Time	5.424	4.214	6.88	6.254	6.15	5.637	3.859
HCM Lane V/C Ratio	1.204	0.68	0.084	0.265	1.032	0.119	0.092
HCM Control Delay	144	22.4	12.7	14.1	70.5	11.6	9.4
HCM Lane LOS	F	C	B	B	F	B	A
HCM 95th-tile Q	22.6	5.3	0.3	1	12.3	0.4	0.3

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	137	2	29	95	209	3	28	24	282	11	71
Future Vol, veh/h	10	137	2	29	95	209	3	28	24	282	11	71
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	146	2	31	101	222	3	30	26	300	12	76
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.8	13.3	9.4	16
HCM LOS	B	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	7%	9%	77%
Vol Thru, %	51%	92%	29%	3%
Vol Right, %	44%	1%	63%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	149	333	364
LT Vol	3	10	29	282
Through Vol	28	137	95	11
RT Vol	24	2	209	71
Lane Flow Rate	59	159	354	387
Geometry Grp	1	1	1	1
Degree of Util (X)	0.094	0.254	0.504	0.586
Departure Headway (Hd)	5.764	5.772	5.117	5.448
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	618	620	701	662
Service Time	3.83	3.831	3.165	3.491
HCM Lane V/C Ratio	0.095	0.256	0.505	0.585
HCM Control Delay	9.4	10.8	13.3	16
HCM Lane LOS	A	B	B	C
HCM 95th-tile Q	0.3	1	2.9	3.8

Intersection	
Intersection Delay, s/veh	46.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	255	130	47	117	233	363	40	70	133	260	19	90
Future Vol, veh/h	255	130	47	117	233	363	40	70	133	260	19	90
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	266	135	49	122	243	378	42	73	139	271	20	94
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	24.7	74	26.4	30
HCM LOS	C	F	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	16%	100%	0%	50%	0%	93%	0%
Vol Thru, %	29%	0%	73%	50%	24%	7%	0%
Vol Right, %	55%	0%	27%	0%	76%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	243	255	177	234	480	279	90
LT Vol	40	255	0	117	0	260	0
Through Vol	70	0	130	117	117	19	0
RT Vol	133	0	47	0	363	0	90
Lane Flow Rate	253	266	184	243	499	291	94
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.624	0.67	0.434	0.589	1.097	0.744	0.211
Departure Headway (Hd)	9.258	9.455	8.739	8.721	7.909	9.573	8.36
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	392	385	415	416	465	381	432
Service Time	7.258	7.155	6.439	6.427	5.616	7.273	6.06
HCM Lane V/C Ratio	0.645	0.691	0.443	0.584	1.073	0.764	0.218
HCM Control Delay	26.4	29.4	18	23.2	98.7	35.4	13.3
HCM Lane LOS	D	D	C	C	F	E	B
HCM 95th-tile Q	4.1	4.7	2.1	3.7	16.7	5.9	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	358	72	230	414	313	171	204	78	176	277	131
Future Volume (vph)	101	358	72	230	414	313	171	204	78	176	277	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3433		1770	3280		1770	1774		1770	1863	1557
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3433		1770	3280		1770	1774		1770	1863	1557
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	103	365	73	235	422	319	174	208	80	180	283	134
RTOR Reduction (vph)	0	26	0	0	207	0	0	22	0	0	0	104
Lane Group Flow (vph)	103	412	0	235	534	0	174	266	0	180	283	30
Confl. Peds. (#/hr)	9		6	6		9	4		10	10		4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	4.6	13.3		9.1	17.8		7.1	13.4		7.1	13.4	13.4
Effective Green, g (s)	4.6	13.3		9.1	17.8		7.1	13.4		7.1	13.4	13.4
Actuated g/C Ratio	0.08	0.23		0.15	0.30		0.12	0.23		0.12	0.23	0.23
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	138	775		273	991		213	403		213	423	354
v/s Ratio Prot	0.06	0.12		c0.13	c0.16		0.10	0.15		c0.10	c0.15	
v/s Ratio Perm												0.02
v/c Ratio	0.75	0.53		0.86	0.54		0.82	0.66		0.85	0.67	0.09
Uniform Delay, d1	26.6	20.1		24.3	17.1		25.3	20.7		25.4	20.7	17.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	19.5	0.7		23.1	0.6		20.9	3.9		25.2	4.0	0.1
Delay (s)	46.1	20.8		47.4	17.7		46.2	24.5		50.6	24.7	18.0
Level of Service	D	C		D	B		D	C		D	C	B
Approach Delay (s)		25.6			24.8			32.7			31.0	
Approach LOS		C			C			C			C	

Intersection Summary					
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service		C	
HCM 2000 Volume to Capacity ratio	0.73				
Actuated Cycle Length (s)	58.9	Sum of lost time (s)		16.0	
Intersection Capacity Utilization	66.3%	ICU Level of Service		C	
Analysis Period (min)	15				
c Critical Lane Group					

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	3	102	34	95	248	236	110	173	72	58	210	2
Future Vol, veh/h	3	102	34	95	248	236	110	173	72	58	210	2
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	112	37	104	273	259	121	190	79	64	231	2
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	14.8	25.5	28.6	21
HCM LOS	B	D	D	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	31%	2%	28%	0%	21%
Vol Thru, %	49%	73%	72%	0%	78%
Vol Right, %	20%	24%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	355	139	343	236	270
LT Vol	110	3	95	0	58
Through Vol	173	102	248	0	210
RT Vol	72	34	0	236	2
Lane Flow Rate	390	153	377	259	297
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.754	0.335	0.783	0.477	0.602
Departure Headway (Hd)	6.96	7.905	7.483	6.622	7.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	515	458	482	539	490
Service Time	5.051	5.905	5.274	4.413	5.406
HCM Lane V/C Ratio	0.757	0.334	0.782	0.481	0.606
HCM Control Delay	28.6	14.8	32.5	15.4	21
HCM Lane LOS	D	B	D	C	C
HCM 95th-tile Q	6.5	1.5	7	2.6	3.9

Intersection	
Intersection Delay, s/veh	157.8
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	87	134	560	29	548	327
Future Vol, veh/h	87	134	560	29	548	327
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	99	152	636	33	623	372
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	17.3	239.3	138.5
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	18%	0%	100%	100%
Vol Right, %	0%	100%	0%	82%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	548	327	58	163	560	15	15
LT Vol	548	0	0	0	560	0	0
Through Vol	0	0	58	29	0	15	15
RT Vol	0	327	0	134	0	0	0
Lane Flow Rate	623	372	66	185	636	16	16
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.369	0.694	0.155	0.407	1.477	0.036	0.028
Departure Headway (Hd)	8.844	7.62	9.931	9.322	8.943	8.428	6.641
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	479	364	389	414	427	542
Service Time	6.544	5.32	7.631	7.022	6.643	6.128	4.341
HCM Lane V/C Ratio	1.494	0.777	0.181	0.476	1.536	0.037	0.03
HCM Control Delay	205.7	25.9	14.4	18.3	251.1	11.4	9.5
HCM Lane LOS	F	D	B	C	F	B	A
HCM 95th-tile Q	26.6	5.3	0.5	1.9	31.2	0.1	0.1

Intersection	
Intersection Delay, s/veh	18.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	262	12	16	83	289	2	38	42	308	6	23
Future Vol, veh/h	6	262	12	16	83	289	2	38	42	308	6	23
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	288	13	18	91	318	2	42	46	338	7	25
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.5	19.8	11.3	21.3
HCM LOS	C	C	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	2%	4%	91%
Vol Thru, %	46%	94%	21%	2%
Vol Right, %	51%	4%	74%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	280	388	337
LT Vol	2	6	16	308
Through Vol	38	262	83	6
RT Vol	42	12	289	23
Lane Flow Rate	90	308	426	370
Geometry Grp	1	1	1	1
Degree of Util (X)	0.17	0.538	0.674	0.663
Departure Headway (Hd)	6.804	6.293	5.694	6.444
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	524	572	635	559
Service Time	4.882	4.347	3.743	4.496
HCM Lane V/C Ratio	0.172	0.538	0.671	0.662
HCM Control Delay	11.3	16.5	19.8	21.3
HCM Lane LOS	B	C	C	C
HCM 95th-tile Q	0.6	3.2	5.2	4.9

Intersection	
Intersection Delay, s/veh	139
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	446	112	55	160	274	378	66	134	183	191	100	106
Future Vol, veh/h	446	112	55	160	274	378	66	134	183	191	100	106
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	490	123	60	176	301	415	73	147	201	210	110	116
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	163.6	170.2	124.8	50.9
HCM LOS	F	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	17%	100%	0%	54%	0%	66%	0%
Vol Thru, %	35%	0%	67%	46%	27%	34%	0%
Vol Right, %	48%	0%	33%	0%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	383	446	167	297	515	291	106
LT Vol	66	446	0	160	0	191	0
Through Vol	134	0	112	137	137	100	0
RT Vol	183	0	55	0	378	0	106
Lane Flow Rate	421	490	184	326	566	320	116
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	1.138	1.378	0.479	0.894	1.426	0.903	0.296
Departure Headway (Hd)	10.656	10.83	10.056	10.907	10.075	11.267	10.179
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	345	338	362	336	368	323	355
Service Time	8.656	8.53	7.756	8.607	7.775	8.967	7.879
HCM Lane V/C Ratio	1.22	1.45	0.508	0.97	1.538	0.991	0.327
HCM Control Delay	124.8	216.7	21.7	60.2	233.7	63.2	17.1
HCM Lane LOS	F	F	C	F	F	F	C
HCM 95th-tile Q	15.3	23.1	2.5	8.6	26.3	8.6	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	356	105	142	519	481	245	106	130	222	298	135
Future Volume (vph)	20	356	105	142	519	481	245	106	130	222	298	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.93		1.00	0.92		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3393		1770	3255		1770	1687		1770	1863	1551
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3393		1770	3255		1770	1687		1770	1863	1551
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	396	117	158	577	534	272	118	144	247	331	150
RTOR Reduction (vph)	0	39	0	0	225	0	0	64	0	0	0	117
Lane Group Flow (vph)	22	474	0	158	886	0	272	198	0	247	331	33
Confl. Peds. (#/hr)	5		6	6		5	7		9	9		7
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	1.5	16.6		8.0	23.1		12.0	15.5		11.6	15.1	15.1
Effective Green, g (s)	1.5	16.6		8.0	23.1		12.0	15.5		11.6	15.1	15.1
Actuated g/C Ratio	0.02	0.25		0.12	0.34		0.18	0.23		0.17	0.22	0.22
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	39	831		209	1110		313	386		303	415	345
v/s Ratio Prot	0.01	0.14		c0.09	c0.27		c0.15	0.12		0.14	c0.18	
v/s Ratio Perm												0.02
v/c Ratio	0.56	0.57		0.76	0.80		0.87	0.51		0.82	0.80	0.10
Uniform Delay, d1	32.8	22.4		28.9	20.2		27.1	22.8		27.0	24.9	20.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.3	0.9		14.4	4.1		21.7	1.2		15.4	10.2	0.1
Delay (s)	50.1	23.4		43.3	24.3		48.7	24.0		42.4	35.1	21.0
Level of Service	D	C		D	C		D	C		D	D	C
Approach Delay (s)		24.5			26.7			36.6			34.7	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	28	42	87	183	288	41	128	50	30	212	5
Future Vol, veh/h	5	28	42	87	183	288	41	128	50	30	212	5
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	31	46	96	201	316	45	141	55	33	233	5
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	10.4	14.7	13.2	14.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	19%	7%	32%	0%	12%
Vol Thru, %	58%	37%	68%	0%	86%
Vol Right, %	23%	56%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	75	270	288	247
LT Vol	41	5	87	0	30
Through Vol	128	28	183	0	212
RT Vol	50	42	0	288	5
Lane Flow Rate	241	82	297	316	271
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.405	0.143	0.526	0.484	0.459
Departure Headway (Hd)	6.051	6.238	6.382	5.507	6.093
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	592	570	564	652	589
Service Time	4.12	4.33	4.144	3.269	4.161
HCM Lane V/C Ratio	0.407	0.144	0.527	0.485	0.46
HCM Control Delay	13.2	10.4	16.1	13.4	14.3
HCM Lane LOS	B	B	C	B	B
HCM 95th-tile Q	2	0.5	3	2.6	2.4

Intersection	
Intersection Delay, s/veh	41.7
Intersection LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	39	80	363	87	470	315
Future Vol, veh/h	39	80	363	87	470	315
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	85	386	93	500	335
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	12.7	36.2	49.3
HCM LOS	B	E	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	14%	0%	100%	100%
Vol Right, %	0%	100%	0%	86%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	470	315	26	93	363	44	44
LT Vol	470	0	0	0	363	0	0
Through Vol	0	0	26	13	0	44	44
RT Vol	0	315	0	80	0	0	0
Lane Flow Rate	500	335	28	99	386	46	46
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.013	0.567	0.064	0.216	0.854	0.096	0.073
Departure Headway (Hd)	7.297	6.091	8.628	8.001	7.96	7.448	5.675
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	495	586	418	451	452	478	625
Service Time	5.09	3.884	6.328	5.701	5.755	5.243	3.469
HCM Lane V/C Ratio	1.01	0.572	0.067	0.22	0.854	0.096	0.074
HCM Control Delay	71.1	16.7	11.9	12.9	42.5	11	8.9
HCM Lane LOS	F	C	B	B	E	B	A
HCM 95th-tile Q	14	3.5	0.2	0.8	8.6	0.3	0.2

Intersection	
Intersection Delay, s/veh	15.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	138	2	29	96	218	3	29	24	307	11	72
Future Vol, veh/h	10	138	2	29	96	218	3	29	24	307	11	72
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	152	2	32	105	240	3	32	26	337	12	79
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.4	14.8	9.8	19.1
HCM LOS	B	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	7%	8%	79%
Vol Thru, %	52%	92%	28%	3%
Vol Right, %	43%	1%	64%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	150	343	390
LT Vol	3	10	29	307
Through Vol	29	138	96	11
RT Vol	24	2	218	72
Lane Flow Rate	62	165	377	429
Geometry Grp	1	1	1	1
Degree of Util (X)	0.103	0.275	0.555	0.665
Departure Headway (Hd)	6.006	6.005	5.298	5.585
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	591	595	678	643
Service Time	4.096	4.083	3.361	3.641
HCM Lane V/C Ratio	0.105	0.277	0.556	0.667
HCM Control Delay	9.8	11.4	14.8	19.1
HCM Lane LOS	A	B	B	C
HCM 95th-tile Q	0.3	1.1	3.4	5

Intersection	
Intersection Delay, s/veh	23.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	208	106	60	107	190	296	40	60	111	212	36	73
Future Vol, veh/h	208	106	60	107	190	296	40	60	111	212	36	73
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	217	110	63	111	198	308	42	63	116	221	38	76
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	18.1	28.2	19.9	22.1
HCM LOS	C	D	C	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	19%	100%	0%	53%	0%	85%	0%
Vol Thru, %	28%	0%	64%	47%	24%	15%	0%
Vol Right, %	53%	0%	36%	0%	76%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	211	208	166	202	391	248	73
LT Vol	40	208	0	107	0	212	0
Through Vol	60	0	106	95	95	36	0
RT Vol	111	0	60	0	296	0	73
Lane Flow Rate	220	217	173	210	407	258	76
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.512	0.52	0.378	0.47	0.806	0.628	0.16
Departure Headway (Hd)	8.393	8.642	7.862	8.04	7.246	8.749	7.585
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	418	460	450	501	413	475
Service Time	6.425	6.361	5.58	5.767	4.946	6.466	5.302
HCM Lane V/C Ratio	0.51	0.519	0.376	0.467	0.812	0.625	0.16
HCM Control Delay	19.9	20.4	15.3	17.7	33.6	25.1	11.7
HCM Lane LOS	C	C	C	C	D	D	B
HCM 95th-tile Q	2.8	2.9	1.7	2.5	7.6	4.2	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	330	66	212	383	288	159	188	72	162	255	129
Future Volume (vph)	95	330	66	212	383	288	159	188	72	162	255	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3434		1770	3281		1770	1775		1770	1863	1558
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3434		1770	3281		1770	1775		1770	1863	1558
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	97	337	67	216	391	294	162	192	73	165	260	132
RTOR Reduction (vph)	0	26	0	0	201	0	0	23	0	0	0	103
Lane Group Flow (vph)	97	378	0	216	484	0	162	242	0	165	260	29
Confl. Peds. (#/hr)	9		6	6		9	4		10	10		4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	6.4	13.5		9.1	16.2		7.1	13.0		7.1	13.0	13.0
Effective Green, g (s)	6.4	13.5		9.1	16.2		7.1	13.0		7.1	13.0	13.0
Actuated g/C Ratio	0.11	0.23		0.16	0.28		0.12	0.22		0.12	0.22	0.22
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	192	789		274	905		214	393		214	412	345
v/s Ratio Prot	0.05	0.11		c0.12	c0.15		0.09	0.14		c0.09	c0.14	
v/s Ratio Perm												0.02
v/c Ratio	0.51	0.48		0.79	0.54		0.76	0.62		0.77	0.63	0.08
Uniform Delay, d1	24.7	19.6		23.9	18.1		25.0	20.6		25.0	20.7	18.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.1	0.5		13.9	0.6		14.2	2.9		15.7	3.1	0.1
Delay (s)	26.7	20.0		37.8	18.7		39.1	23.5		40.7	23.8	18.2
Level of Service	C	C		D	B		D	C		D	C	B
Approach Delay (s)		21.3			23.2			29.4			27.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	31	45	93	197	310	44	137	54	32	227	5
Future Vol, veh/h	5	31	45	93	197	310	44	137	54	32	227	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	36	52	108	229	360	51	159	63	37	264	6
Number of Lanes	0	1	0	0	1	1	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	11.4	18.4	15.7	17.5
HCM LOS	B	C	C	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	19%	6%	32%	0%	12%
Vol Thru, %	58%	38%	68%	0%	86%
Vol Right, %	23%	56%	0%	100%	2%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	235	81	290	310	264
LT Vol	44	5	93	0	32
Through Vol	137	31	197	0	227
RT Vol	54	45	0	310	5
Lane Flow Rate	273	94	337	360	307
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.494	0.18	0.627	0.583	0.557
Departure Headway (Hd)	6.508	6.863	6.823	5.945	6.534
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	557	523	533	609	556
Service Time	4.521	4.904	4.523	3.645	4.546
HCM Lane V/C Ratio	0.49	0.18	0.632	0.591	0.552
HCM Control Delay	15.7	11.4	20.3	16.6	17.5
HCM Lane LOS	C	B	C	C	C
HCM 95th-tile Q	2.7	0.7	4.3	3.7	3.4

Intersection	
Intersection Delay, s/veh	79.7
Intersection LOS	F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	89	405	97	524	351
Future Vol, veh/h	44	89	405	97	524	351
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	99	450	108	582	390
Number of Lanes	2	0	1	2	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	13.9	61.6	100.1
HCM LOS	B	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	0%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	14%	0%	100%	100%
Vol Right, %	0%	100%	0%	86%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	524	351	29	104	405	49	49
LT Vol	524	0	0	0	405	0	0
Through Vol	0	0	29	15	0	49	49
RT Vol	0	351	0	89	0	0	0
Lane Flow Rate	582	390	33	115	450	54	54
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	1.245	0.703	0.078	0.257	1.003	0.113	0.087
Departure Headway (Hd)	7.701	6.491	9.224	8.595	8.486	7.973	6.195
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	472	558	391	420	432	452	582
Service Time	5.456	4.246	6.924	6.295	6.186	5.673	3.895
HCM Lane V/C Ratio	1.233	0.699	0.084	0.274	1.042	0.119	0.093
HCM Control Delay	151.5	23.3	12.7	14.2	73.8	11.7	9.5
HCM Lane LOS	F	C	B	B	F	B	A
HCM 95th-tile Q	23.5	5.6	0.3	1	12.7	0.4	0.3

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	137	2	29	95	216	3	28	24	304	11	71
Future Vol, veh/h	10	137	2	29	95	216	3	28	24	304	11	71
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	146	2	31	101	230	3	30	26	323	12	76
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11	13.8	9.6	17.4
HCM LOS	B	B	A	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	7%	9%	79%
Vol Thru, %	51%	92%	28%	3%
Vol Right, %	44%	1%	64%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	149	340	386
LT Vol	3	10	29	304
Through Vol	28	137	95	11
RT Vol	24	2	216	71
Lane Flow Rate	59	159	362	411
Geometry Grp	1	1	1	1
Degree of Util (X)	0.095	0.259	0.522	0.627
Departure Headway (Hd)	5.859	5.878	5.198	5.497
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	608	609	691	657
Service Time	3.933	3.943	3.251	3.544
HCM Lane V/C Ratio	0.097	0.261	0.524	0.626
HCM Control Delay	9.6	11	13.8	17.4
HCM Lane LOS	A	B	B	C
HCM 95th-tile Q	0.3	1	3	4.4

Intersection	
Intersection Delay, s/veh	51.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	255	130	69	129	233	363	47	73	136	260	40	90
Future Vol, veh/h	255	130	69	129	233	363	47	73	136	260	40	90
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	266	135	72	134	243	378	49	76	142	271	42	94
Number of Lanes	1	1	0	0	2	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	26.4	83.7	30.1	36.4
HCM LOS	D	F	D	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	18%	100%	0%	53%	0%	87%	0%
Vol Thru, %	29%	0%	65%	47%	24%	13%	0%
Vol Right, %	53%	0%	35%	0%	76%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	256	255	199	246	480	300	90
LT Vol	47	255	0	129	0	260	0
Through Vol	73	0	130	117	117	40	0
RT Vol	136	0	69	0	363	0	90
Lane Flow Rate	267	266	207	256	499	313	94
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.674	0.687	0.498	0.64	1.136	0.812	0.213
Departure Headway (Hd)	9.503	9.713	8.935	9.016	8.189	9.737	8.556
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	384	375	406	404	445	375	422
Service Time	7.503	7.413	6.635	6.72	5.893	7.437	6.256
HCM Lane V/C Ratio	0.695	0.709	0.51	0.634	1.121	0.835	0.223
HCM Control Delay	30.1	31.2	20.2	26.4	113.1	43.3	13.6
HCM Lane LOS	D	D	C	D	F	E	B
HCM 95th-tile Q	4.7	4.9	2.7	4.3	17.9	7.1	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	359	72	230	416	313	173	204	78	176	277	139
Future Volume (vph)	103	359	72	230	416	313	173	204	78	176	277	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3433		1770	3280		1770	1774		1770	1863	1557
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3433		1770	3280		1770	1774		1770	1863	1557
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	105	366	73	235	424	319	177	208	80	180	283	142
RTOR Reduction (vph)	0	26	0	0	207	0	0	22	0	0	0	110
Lane Group Flow (vph)	105	413	0	235	536	0	177	266	0	180	283	32
Confl. Peds. (#/hr)	9		6	6		9	4		10	10		4
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												6
Actuated Green, G (s)	4.6	13.3		9.1	17.8		7.1	13.4		7.1	13.4	13.4
Effective Green, g (s)	4.6	13.3		9.1	17.8		7.1	13.4		7.1	13.4	13.4
Actuated g/C Ratio	0.08	0.23		0.15	0.30		0.12	0.23		0.12	0.23	0.23
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	138	775		273	991		213	403		213	423	354
v/s Ratio Prot	0.06	0.12		c0.13	c0.16		0.10	0.15		c0.10	c0.15	
v/s Ratio Perm												0.02
v/c Ratio	0.76	0.53		0.86	0.54		0.83	0.66		0.85	0.67	0.09
Uniform Delay, d1	26.6	20.1		24.3	17.1		25.3	20.7		25.4	20.7	17.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.6	0.7		23.1	0.6		23.2	3.9		25.2	4.0	0.1
Delay (s)	48.2	20.8		47.4	17.7		48.5	24.5		50.6	24.7	18.1
Level of Service	D	C		D	B		D	C		D	C	B
Approach Delay (s)		26.1			24.9			33.7			30.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	73	92	205	125	514	323
Future Volume (vph)	73	92	205	125	514	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.92		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3184		1770	3539	1770	1562
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3184		1770	3539	1770	1562
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	81	102	228	139	571	359
RTOR Reduction (vph)	90	0	0	0	0	197
Lane Group Flow (vph)	93	0	228	139	571	162
Confl. Peds. (#/hr)		3	3			2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	5.5		9.1	18.6	21.8	21.8
Effective Green, g (s)	5.5		9.1	18.6	21.8	21.8
Actuated g/C Ratio	0.11		0.19	0.38	0.45	0.45
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	361		332	1360	797	703
v/s Ratio Prot	c0.03		c0.13	0.04	c0.32	
v/s Ratio Perm						0.10
v/c Ratio	0.26		0.69	0.10	0.72	0.23
Uniform Delay, d1	19.6		18.3	9.5	10.8	8.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		5.8	0.0	3.1	0.2
Delay (s)	20.0		24.1	9.6	13.9	8.3
Level of Service	B		C	A	B	A
Approach Delay (s)	20.0			18.6	11.7	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	402	225	37	56	131	211	51	61	55	193	42	95
Future Volume (vph)	402	225	37	56	131	211	51	61	55	193	42	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99			0.98			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.98			0.92			0.96			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.98			0.96	1.00
Satd. Flow (prot)	1770	1814			3182			1751			1789	1555
Flt Permitted	0.95	1.00			0.99			0.84			0.66	1.00
Satd. Flow (perm)	1770	1814			3182			1498			1234	1555
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	442	247	41	62	144	232	56	67	60	212	46	104
RTOR Reduction (vph)	0	10	0	0	190	0	0	29	0	0	0	75
Lane Group Flow (vph)	442	278	0	0	248	0	0	154	0	0	258	29
Confl. Peds. (#/hr)	7		10	10		7	6					6
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	15.8	15.8			9.4			14.7			14.7	14.7
Effective Green, g (s)	15.8	15.8			9.4			14.7			14.7	14.7
Actuated g/C Ratio	0.30	0.30			0.18			0.28			0.28	0.28
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	538	552			576			424			349	440
v/s Ratio Prot	c0.25	0.15			c0.08							
v/s Ratio Perm								0.10			c0.21	0.02
v/c Ratio	0.82	0.50			0.43			0.36			0.74	0.07
Uniform Delay, d1	16.7	14.8			18.9			14.9			16.9	13.6
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	9.8	0.7			0.5			0.5			8.0	0.1
Delay (s)	26.5	15.6			19.4			15.4			24.8	13.7
Level of Service	C	B			B			B			C	B
Approach Delay (s)		22.2			19.4			15.4			21.6	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	20.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	87	134	560	29	548	327
Future Volume (vph)	87	134	560	29	548	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.91		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3164		1770	3539	1770	1562
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3164		1770	3539	1770	1562
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	99	152	636	33	623	372
RTOR Reduction (vph)	137	0	0	0	0	232
Lane Group Flow (vph)	114	0	636	33	623	140
Confl. Peds. (#/hr)		3	3			2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	8.3		31.0	43.3	31.0	31.0
Effective Green, g (s)	8.3		31.0	43.3	31.0	31.0
Actuated g/C Ratio	0.10		0.38	0.53	0.38	0.38
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319		666	1861	666	588
v/s Ratio Prot	c0.04		c0.36	0.01	c0.35	
v/s Ratio Perm						0.09
v/c Ratio	0.36		0.95	0.02	0.94	0.24
Uniform Delay, d1	34.5		25.0	9.3	24.7	17.6
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7		24.1	0.0	20.4	0.2
Delay (s)	35.2		49.1	9.3	45.1	17.8
Level of Service	D		D	A	D	B
Approach Delay (s)	35.2			47.1	34.9	
Approach LOS	D			D	C	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	446	112	55	160	274	378	66	134	183	191	100	106
Future Volume (vph)	446	112	55	160	274	378	66	134	183	191	100	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99			0.98			1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			0.93			0.94			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.99			0.97	1.00
Satd. Flow (prot)	1770	1747			3207			1726			1804	1552
Flt Permitted	0.95	1.00			0.99			0.82			0.46	1.00
Satd. Flow (perm)	1770	1747			3207			1436			863	1552
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	490	123	60	176	301	415	73	147	201	210	110	116
RTOR Reduction (vph)	0	25	0	0	224	0	0	47	0	0	0	76
Lane Group Flow (vph)	490	158	0	0	668	0	0	374	0	0	320	40
Confl. Peds. (#/hr)	7		10	10		7	6					6
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	18.0	18.0			16.0			24.0			24.0	24.0
Effective Green, g (s)	18.0	18.0			16.0			24.0			24.0	24.0
Actuated g/C Ratio	0.26	0.26			0.23			0.34			0.34	0.34
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	455	449			733			492			295	532
v/s Ratio Prot	c0.28	0.09			c0.21							
v/s Ratio Perm								0.26			c0.37	0.03
v/c Ratio	1.08	0.35			0.91			0.76			1.08	0.07
Uniform Delay, d1	26.0	21.2			26.3			20.4			23.0	15.5
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	64.4	0.5			15.5			6.6			76.9	0.1
Delay (s)	90.4	21.7			41.8			27.1			99.9	15.6
Level of Service	F	C			D			C			F	B
Approach Delay (s)		71.7			41.8			27.1			77.4	
Approach LOS		E			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	54.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	39	80	363	87	470	315
Future Volume (vph)	39	80	363	87	470	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.90		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3105		1770	3539	1770	1562
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3105		1770	3539	1770	1562
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	41	85	386	93	500	335
RTOR Reduction (vph)	77	0	0	0	0	208
Lane Group Flow (vph)	49	0	386	93	500	127
Confl. Peds. (#/hr)		3	3			2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	4.9		15.3	24.2	19.7	19.7
Effective Green, g (s)	4.9		15.3	24.2	19.7	19.7
Actuated g/C Ratio	0.09		0.29	0.47	0.38	0.38
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	293		521	1650	671	592
v/s Ratio Prot	c0.02		c0.22	0.03	c0.28	
v/s Ratio Perm						0.08
v/c Ratio	0.17		0.74	0.06	0.75	0.21
Uniform Delay, d1	21.6		16.5	7.6	13.9	10.9
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3		5.6	0.0	4.5	0.2
Delay (s)	21.9		22.1	7.6	18.4	11.1
Level of Service	C		C	A	B	B
Approach Delay (s)	21.9			19.3	15.5	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	44	89	405	97	524	351
Future Volume (vph)	44	89	405	97	524	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.90		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3103		1770	3539	1770	1562
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	3103		1770	3539	1770	1562
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	99	450	108	582	390
RTOR Reduction (vph)	91	0	0	0	0	230
Lane Group Flow (vph)	57	0	450	108	582	160
Confl. Peds. (#/hr)		3	3			2
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases						2
Actuated Green, G (s)	5.3		21.4	30.7	26.8	26.8
Effective Green, g (s)	5.3		21.4	30.7	26.8	26.8
Actuated g/C Ratio	0.08		0.33	0.47	0.41	0.41
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251		578	1658	724	639
v/s Ratio Prot	c0.02		c0.25	0.03	c0.33	
v/s Ratio Perm						0.10
v/c Ratio	0.23		0.78	0.07	0.80	0.25
Uniform Delay, d1	28.2		19.9	9.5	17.0	12.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		6.6	0.0	6.5	0.2
Delay (s)	28.6		26.5	9.6	23.5	12.9
Level of Service	C		C	A	C	B
Approach Delay (s)	28.6			23.2	19.3	
Approach LOS	C			C	B	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

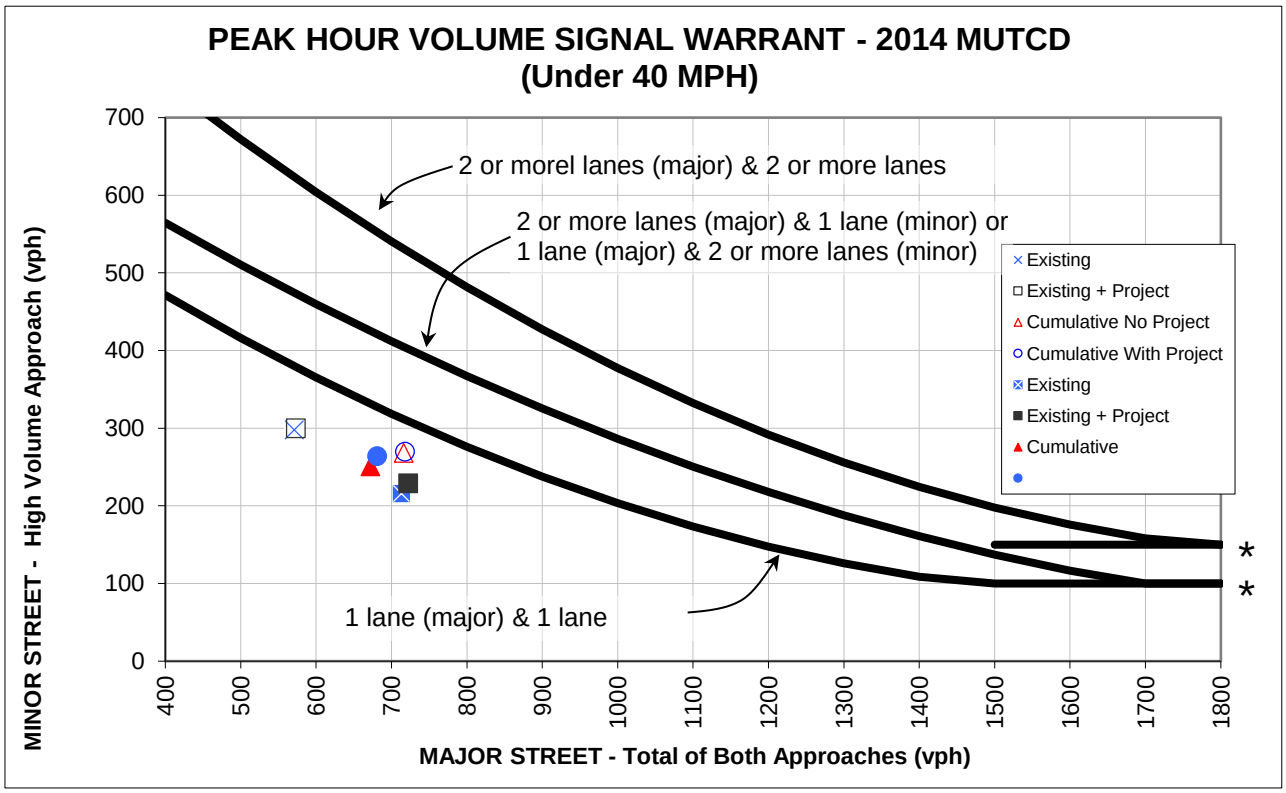
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	130	69	129	233	363	47	73	136	260	40	90
Future Volume (vph)	255	130	69	129	233	363	47	73	136	260	40	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99			0.98			0.99			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.95			0.92			0.93			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.99			0.96	1.00
Satd. Flow (prot)	1770	1745			3181			1700			1784	1553
Flt Permitted	0.95	1.00			0.99			0.90			0.55	1.00
Satd. Flow (perm)	1770	1745			3181			1541			1022	1553
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	266	135	72	134	243	378	49	76	142	271	42	94
RTOR Reduction (vph)	0	28	0	0	260	0	0	59	0	0	0	60
Lane Group Flow (vph)	266	179	0	0	495	0	0	208	0	0	313	34
Confl. Peds. (#/hr)	10		7	7		10	6		1	1		6
Turn Type	Split	NA		Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	13.7	13.7			14.1			22.8			22.8	22.8
Effective Green, g (s)	13.7	13.7			14.1			22.8			22.8	22.8
Actuated g/C Ratio	0.22	0.22			0.23			0.36			0.36	0.36
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	387	381			716			561			372	565
v/s Ratio Prot	c0.15	0.10			c0.16							
v/s Ratio Perm								0.13			c0.31	0.02
v/c Ratio	0.69	0.47			0.69			0.37			0.84	0.06
Uniform Delay, d1	22.5	21.3			22.3			14.6			18.2	12.9
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	5.0	0.9			2.9			0.4			15.7	0.0
Delay (s)	27.5	22.2			25.1			15.0			33.9	13.0
Level of Service	C	C			C			B			C	B
Approach Delay (s)		25.2			25.1			15.0			29.1	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Appendix C

Traffic Signal Warrants

#1 St. Francis Blvd and Clarinada Ave



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

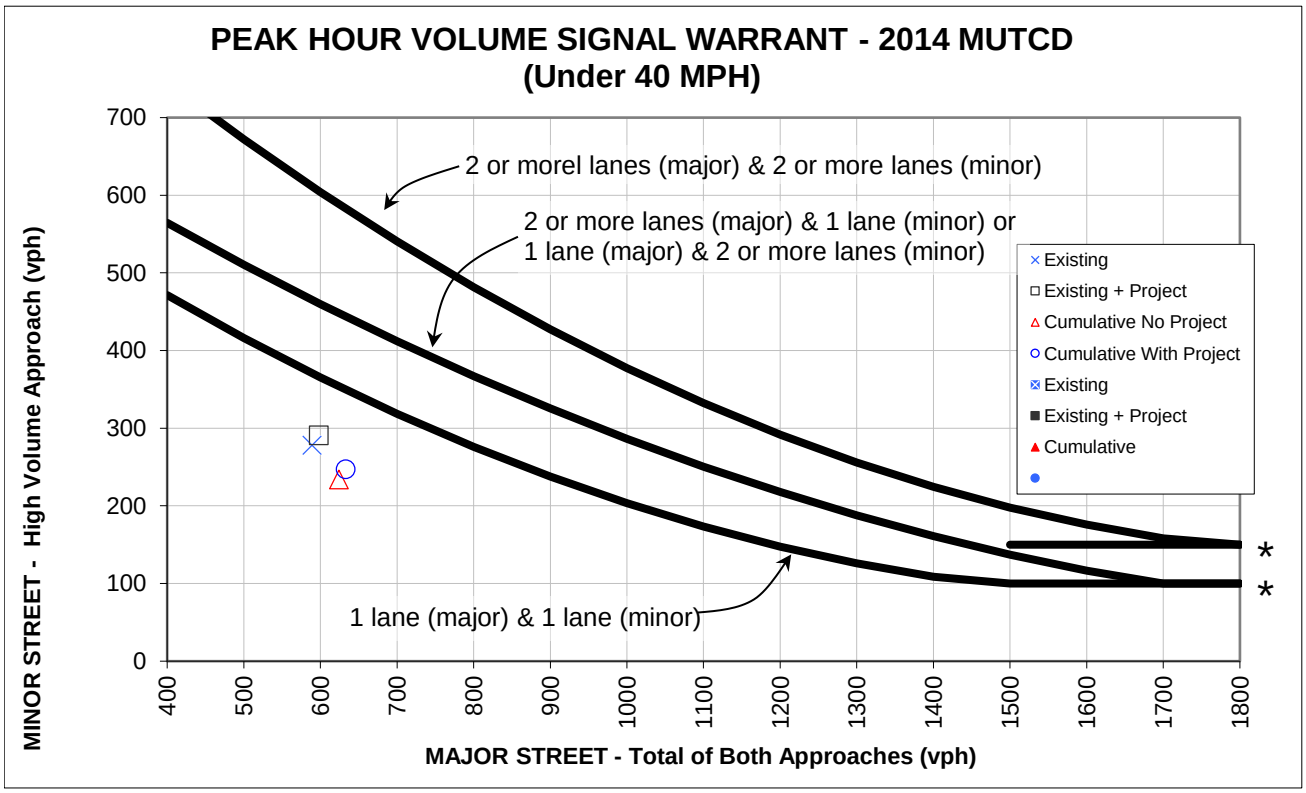
AM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Clarinada Ave	x		571	573	716	718
Minor Street - Highest Approach	St. Francis Blvd	x		298	300	268	270
	Warrant Met?			N	N	N	N

PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Clarinada Ave	x		713	722	672	681
Minor Street - Highest Approach	St. Francis Blvd	x		216	229	251	264
	Warrant Met?			N	N	N	N

#1 St. Francis Blvd and Clarinada Ave



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

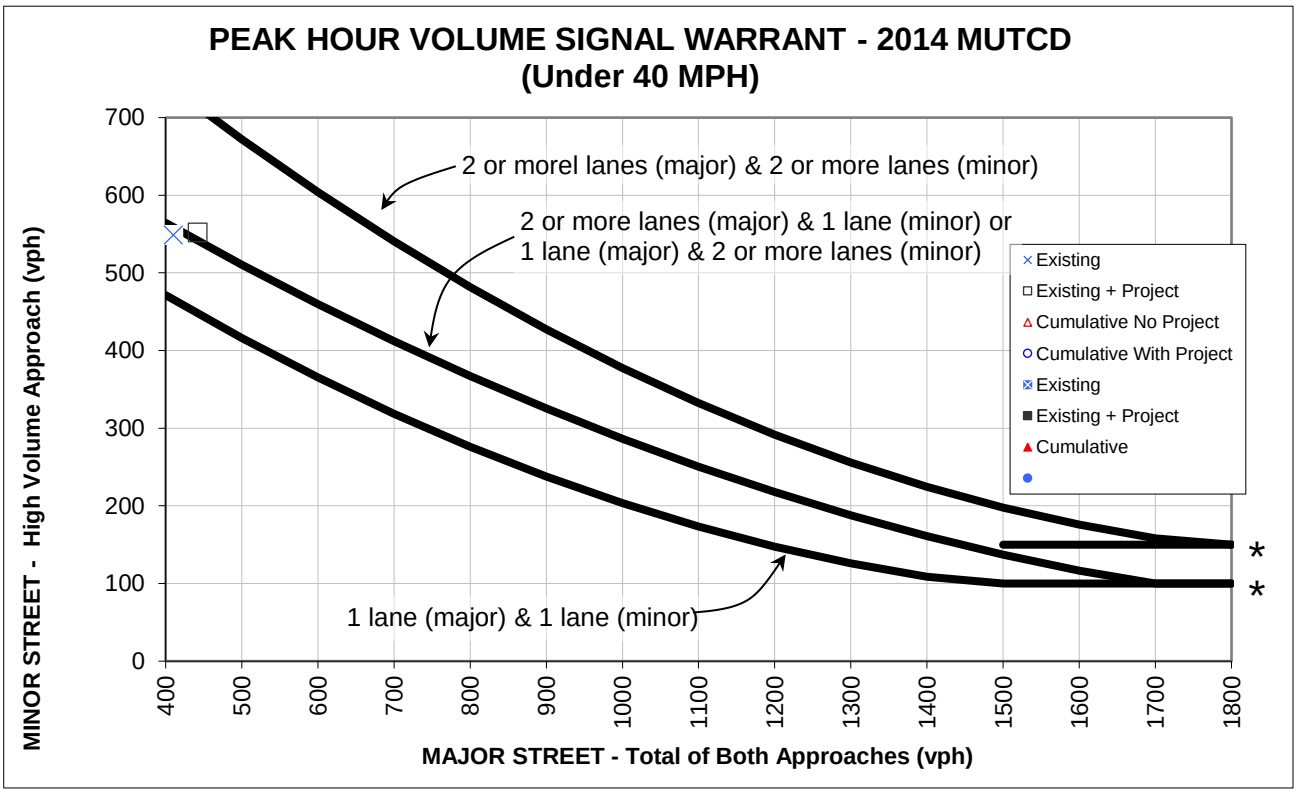
Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

School PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Clarinada Ave	x		589	598	624	633
Minor Street - Highest Approach	St. Francis Blvd	x		278	291	234	247
			Warrant Met?	N	N	N	N

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Clarinada Ave	x					
Minor Street - Highest Approach	St. Francis Blvd	x					
			Warrant Met?				

#2 SR 1 SB ramps and Clarinada Ave



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

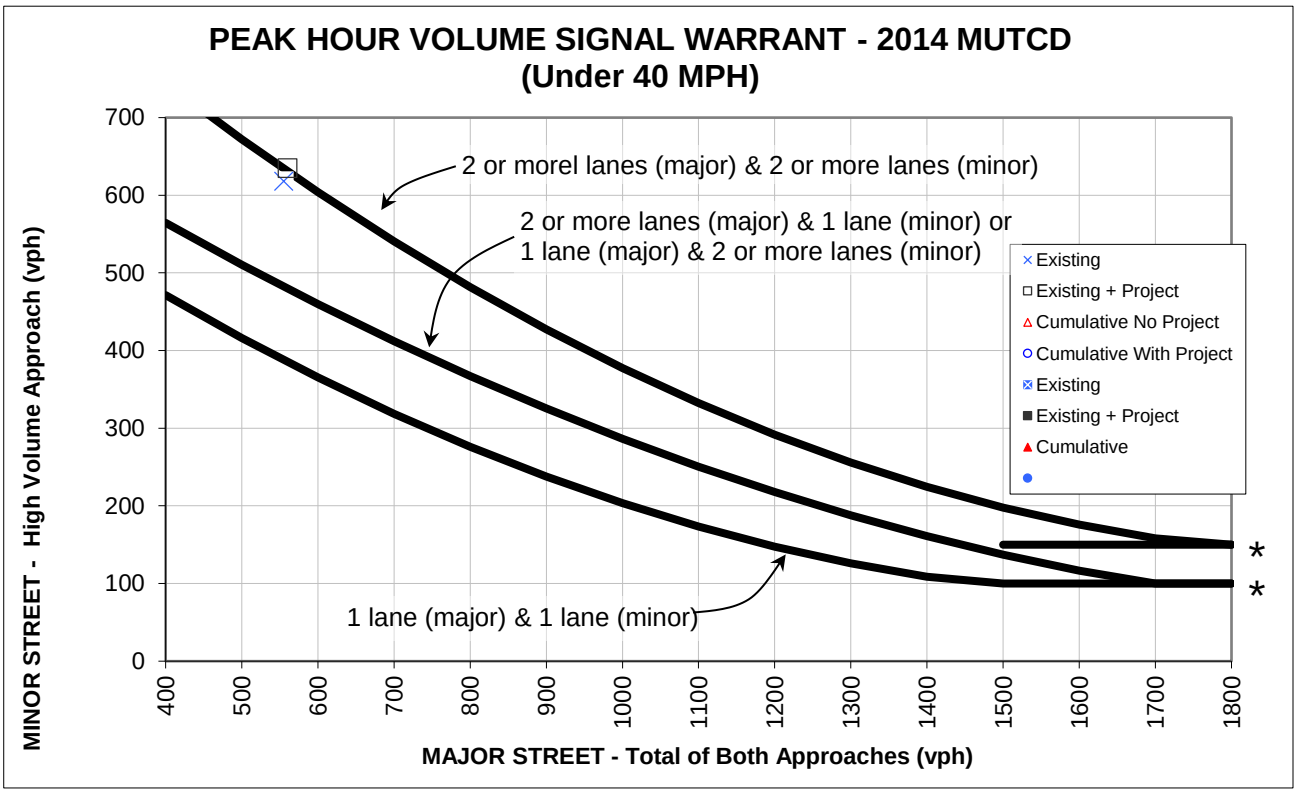
AM Peak Hour Volumes

		Approach Lanes					
		One	2 or More	Existing	Existing + Project	Cumulative No Project	Cumulative With Project
Major Street - Both Approaches	Clarinada Ave	x		410	442	778	810
Minor Street - Highest Approach	SR 1 SB off-ramp	x		549	552	872	875
			Warrant Met?	Y	Y	Y	Y

PM Peak Hour Volumes

		Approach Lanes					
		One	2 or More	Existing	Existing + Project	Cumulative No Project	Cumulative With Project
Major Street - Both Approaches	Clarinada Ave	x		490	495	630	635
Minor Street - Highest Approach	SR 1 SB off-ramp	x		820	837	858	875
			Warrant Met?	Y	Y	Y	Y

#2 SR 1 SB ramps and Clarinada Ave



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

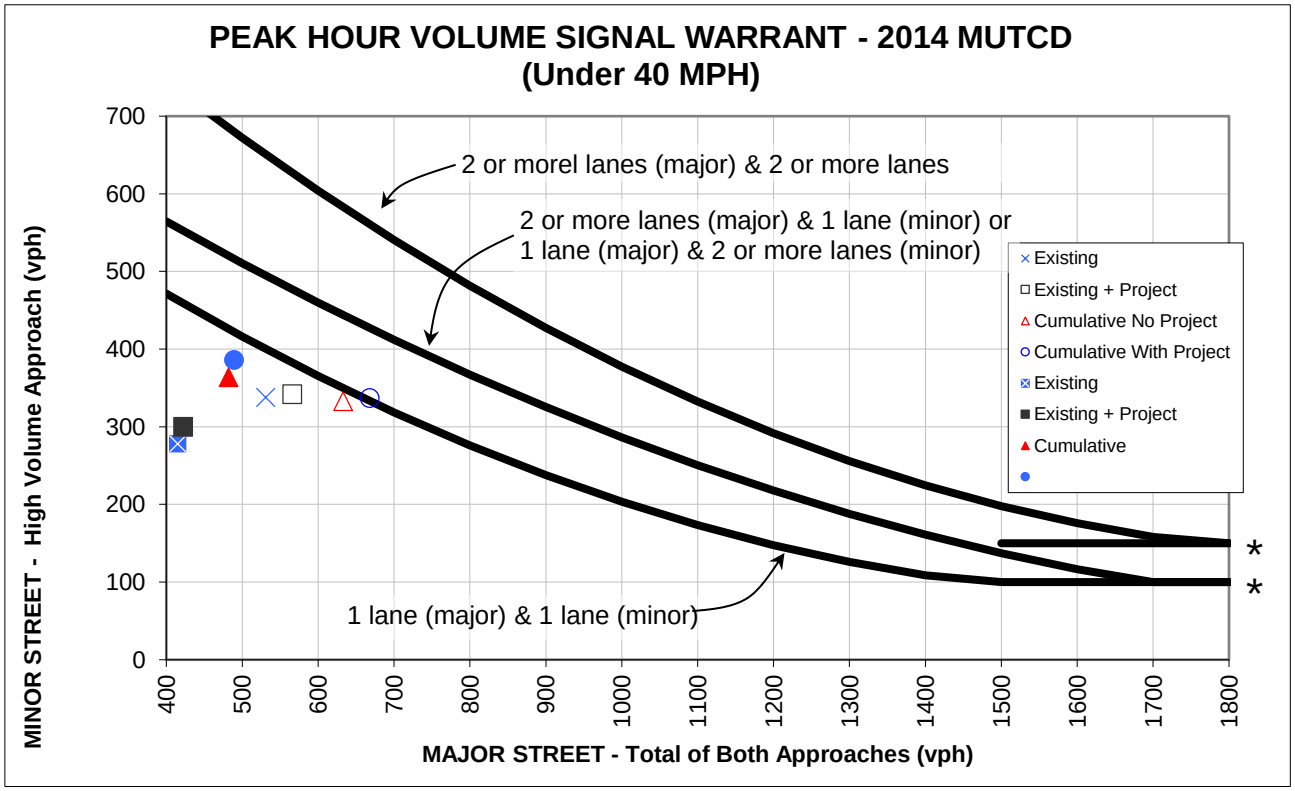
Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

School PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Clarinada Ave	x		555	560	564	569
Minor Street - Highest Approach	SR 1 SB off-ramp	x		618	635	768	785
			Warrant Met?	Y	Y	Y	Y

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Clarinada Ave	x					
Minor Street - Highest Approach	SR 1 SB off-ramp	x					
			Warrant Met?				

#3 St. Francis Blvd and Serramonte Blvd



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

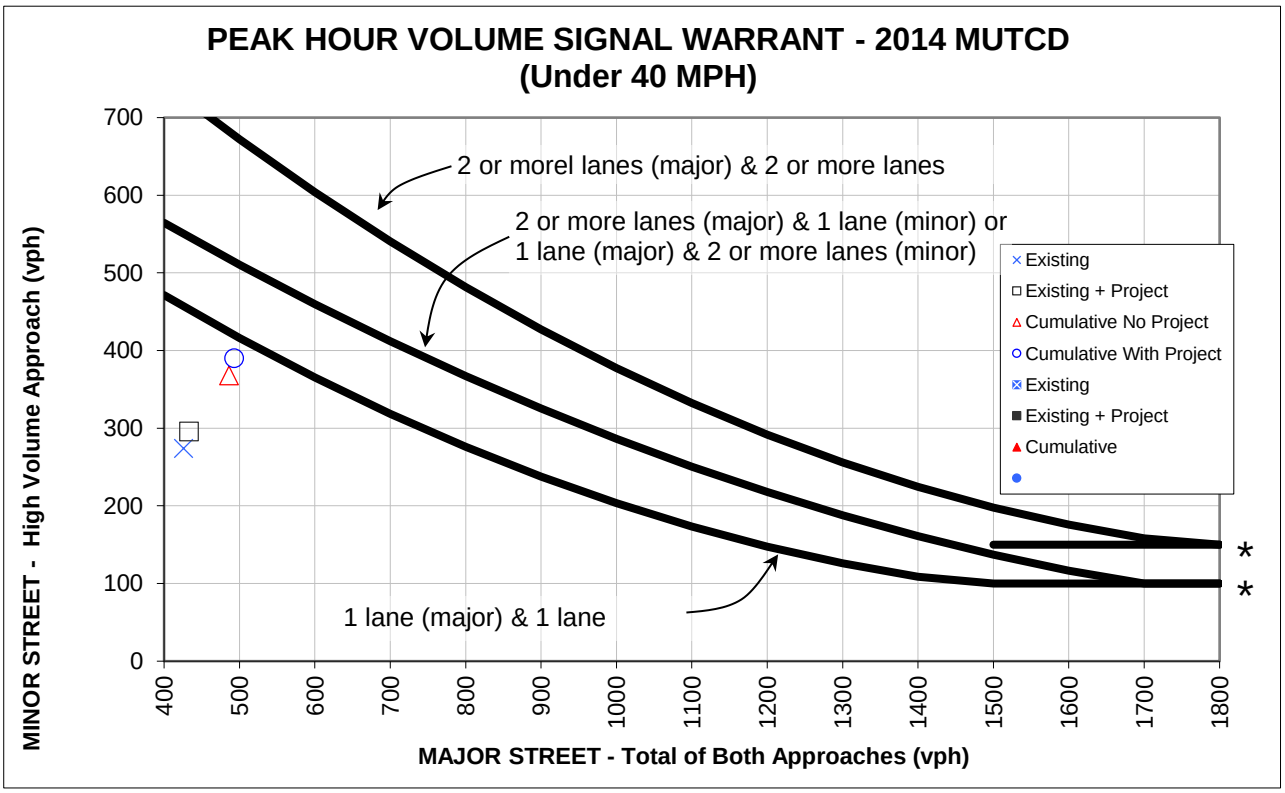
AM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Bl	x		531	566	633	668
Minor Street - Highest Approach	St. Francis Blvd	x		338	342	333	337
			Warrant Met?	N	N	N	N

PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Bl	x		415	422	482	489
Minor Street - Highest Approach	St. Francis Blvd	x		278	300	364	386
			Warrant Met?	N	N	N	N

#3 St. Francis Blvd and Serramonte Blvd



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

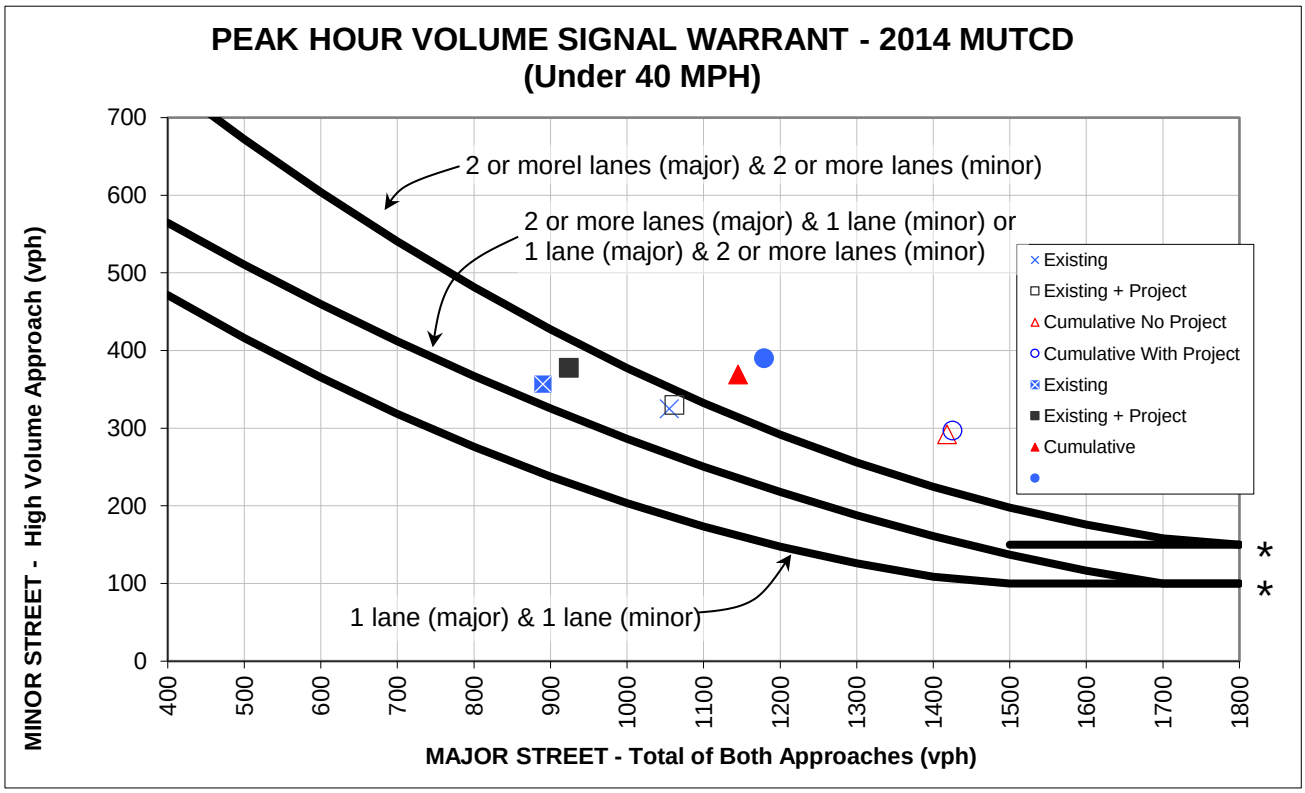
Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

School PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Bl	x		426	433	486	493
Minor Street - Highest Approach	St. Francis Blvd	x		274	296	368	390
			Warrant Met?	N	N	N	N

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Bl	x					
Minor Street - Highest Approach	St. Francis Blvd	x					
			Warrant Met?				

#4 SR 1 NB ramps and Serramonte Blvd



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

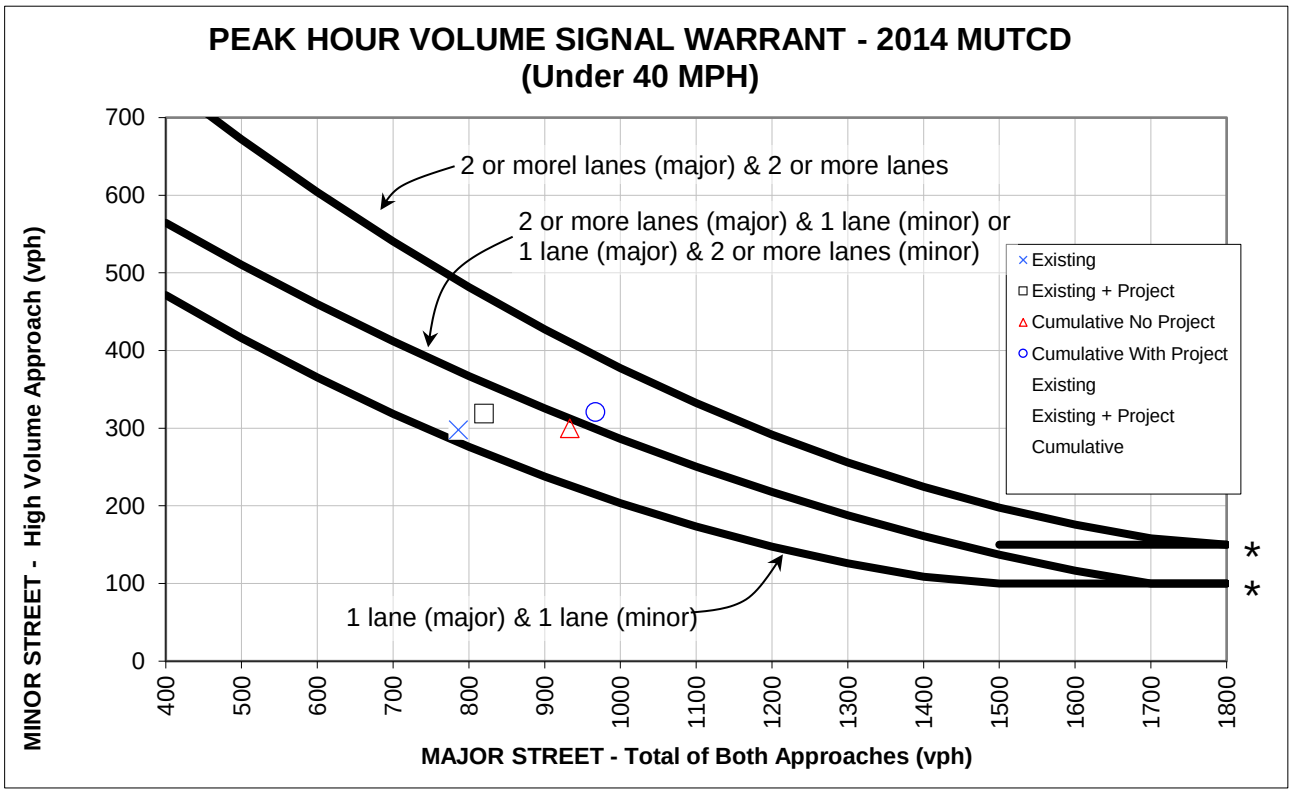
AM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Blvd	x		1055	1062	1418	1425
Minor Street - Highest Approach	SR 1 NB off-ramp	x		325	330	292	297
			Warrant Met?	Y	Y	Y	Y

PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Blvd	x		890	924	1145	1179
Minor Street - Highest Approach	SR 1 NB off-ramp	x		357	378	369	390
			Warrant Met?	Y	Y	Y	Y

#4 SR 1 NB ramps and Serramonte Blvd



***** NOTE: 150 vph applies as the lower threshold volume for a minor street approach with 2 or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with 1 lane.

Peak Hour Volume Warrant Per 2012 MUTCD- Under 40 MPH

School PM Peak Hour Volumes

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Blvd	x		786	820	933	967
Minor Street - Highest Approach	SR 1 NB off-ramp	x		298	319	300	321
	Warrant Met?			Y	Y	Y	Y

		Approach Lanes				Cumulative	
		One	2 or More	Existing	Existing + Project	No Project	With Project
Major Street - Both Approaches	Serramonte Blvd	x					
Minor Street - Highest Approach	SR 1 NB off-ramp	x					
	Warrant Met?						