APPENDIX F

Traffic Impact Analysis

HEXAGON TRANSPORTATION CONSULTANTS, INC.

5150 El Camino Real Residential Development

Traffic Impact Analysis

Prepared for:

David J. Powers & Associates, Inc.

March 14, 2019

Hexagon Transportation Consultants, Inc.
Hexagon Office: 4 North Second Street, Suite 400
San Jose, CA 95113
Hexagon Job Number: 18GB51
Phone: 408.971.6100
Document Name: 5150 El Camino Real Residential_2019-03-14.docx

Table of Contents

Appendices

List of Tables

List of Figures

Executive Summary

This report presents the results of the traffic impact analysis for the proposed residential development at 5150 El Camino Real in Los Altos, California. The project proposes to construct a 172-unit condominium and 24 townhomes. Thus, the project totals 196 dwelling units. The project will replace an existing office building on the site. There is an existing driveway to the site opposite Rengstorff Avenue. The driveway is proposed to lead to an underground parking garage, which would provide parking to the condominiums. At-grade parking also is proposed for the townhomes that are proposed at the back of the site. The townhomes are accessed via two existing driveways located north and south of Rengstorff Avenue.

The study includes an evaluation of intersection levels of service and also includes an evaluation of potential impacts to bicycle, pedestrian, and transit facilities, and a review of site access, on-site circulation, vehicle queuing, and parking demand.

Project Trip Estimates

The trip generation rates published in the Institute of Transportation Engineers' (ITE) manual entitled *Trip Generation, 10th Edition* (2017) were used for this analysis. The rates published for Multifamily Housing – Low-Rise (Land Use 220) were used to estimate the trips generated by the proposed multifamily dwelling units. Based on these rates, the proposed project would generate 1435 daily trips with 90 trips during the AM peak hour and 110 trips during the PM peak hour.

The magnitude of traffic that is being generated by the existing businesses on the site was estimated based on driveway counts conducted in October 2018. The existing uses on site are estimated to generate 550 daily trips with 57 trips during the AM peak hour and 165 trips during the PM peak hour.

After accounting for the trips generated by the existing offices, the proposed residential project is estimated to generate 885 new daily trips with a net increase of 33 trips in the AM peak hour and a net decrease of 55 trips in the PM peak hour.

Intersection Levels of Service

Traffic analysis typically focuses on intersections, especially signalized intersections, because intersections act as the chokepoints in the system.

Intersection levels of service were evaluated using TRAFFIX software to determine level of service. Traffic impacts were analyzed for the AM (7-9 AM) and PM (4-6 PM) peak periods of commute traffic. The intersection level of service analysis results (see Table ES-1) show that all study intersections would operate at acceptable levels of service under all analysis scenarios.

Vehicle Queuing

The queuing analysis indicates that the 95th percentile vehicle queue for the westbound left-turn lane at the El Camino Real/Distel Drive intersection currently exceeds the existing vehicle storage capacity during the AM peak hour and would continue to do so under background conditions. The project would not increase the 95th percentile vehicle queue for the westbound left-turn lane during AM peak hour. There is no room in the median to lengthen the left turn pocket.

Traffic Using Distel Drive

Distel Drive would likely be used as a route to return from Los Altos High School and Almond Elementary School to the project site. It is estimated the project would generate 23 school trips during the AM peak hour. Distel Drive could be used as a cut-through street to San Antonio Road via Jordan Avenue. However, Hexagon estimates an increase in traffic only outbound in the AM peak hour. In other time periods the traffic would be reduced. The AM outbound traffic increase would be very small to the south, and more than offset by decreases in northbound AM peak hour traffic. Overall, the PM peak hour traffic would be reduced.

Traffic Using Clark Avenue

Clark Avenue would likely be used as a route going to Almond Elementary School and Los Altos High School, but not likely to be used to return to the project site. Clark Avenue provides a direct route to Almond Elementary School. Traffic would likely use Casita Way to Marich Way to Distel Drive to return to the project site. As previously mentioned above, it is estimated that 23 student trips would be generated by the project and would use Clark Avenue to access the schools to the south. Due to having a direct route from El Camino Real to Almond Avenue, traffic going to and from the project may use Clark Avenue as a cut-through street. However, Hexagon estimates an increase in traffic only outbound during the AM peak hour. Traffic in other time periods would be reduced. The AM outbound traffic increase would be very small to the south, and more than offset by decreases in northbound AM peak hour traffic. Overall, the PM peak hour traffic would be reduced.

Parking

The condominium garage would provide 239 spaces and the townhomes would provide 54 parking spaces, which provides adequate parking space for the project. One loading zone space would be provided at each end of the condominiums. There are 6 guest parking spaces that would be provided for the townhomes around the project site.

Other Transportation Issues

Hexagon identified the following recommendations resulting from the off-site improvements, site access and circulation analysis.

- The added traffic entering the El Camino Real and Rengstorff Avenue intersection would require a complete signal modification. In addition, the intersection would need improvements for ADA accessibility.
- “Do not enter” signs and “one-way only” markings should be installed at the one-way western driveway to inform drivers not to enter the driveway. In addition, “right-turn only” signs should be installed at the western and eastern driveways to inform drivers exiting the project site.

- The project should update the bus shelters along its frontage, which requires coordination with the Valley Transportation Authority.
- Street parking is allowed on El Camino Real and could obstruct the vision of exiting drivers if there are cars parked next to the driveways. Therefore, Hexagon recommends prohibiting street parking within 15 feet of both driveways by installing red curbs on the left side of each driveway. Parking between the Rengstorff Avenue driveway and the eastern driveway should continue to be prohibited to allow sight distance at the driveway and to allow room for the bus stop.
- According to the site plan, the project proposes a standard “dust pan” driveway opposite Rengstorff Avenue. This should be changed to a standard detached driveway to clearly identify limit lines for motorists and signal controls for pedestrians. A 3-lane driveway with two outbound lanes to allow for a dedicated left-turn lane and thru/right-turn lane driveway is recommended to assist with circulation.
- The site plan shows multiple dead-end parking aisles. The dead-end aisle spaces should be reserved for residents, and guest parking should be located near the driveway ramp.
- Some of the Class I bicycle parking should be moved to the ground floor.

Table ES 1
Intersection Level of Service Summary

#	Intersection	LOS Standard	Peak Hour	Count Date	Traffic Control	Existing Conditions				Background Conditions			
						No Project		with Project		No Project		with Project	
						Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS
1	Distel Drive & El Camino Real	D	AM	11/13/18	Signal	31.3	C	31.5	C	32.6	C	32.7	C
			PM	11/13/18		20.8	C	20.7	C	21.2	C	21.1	C
2	Clark Avenue & El Camino Real	D	AM	11/13/18	Signal	28.4	C	28.3	C	29.6	C	29.4	C
			PM	11/13/18		19.0	B	18.9	B	19.7	B	19.6	B
3	Rengstorff Avenue & El Camino Real*	E	AM	10/18/18	Signal	30.9	C	31.4	C	31.9	C	32.4	C
			PM	11/3/16		24.0	C	23.1	C	24.5	C	23.6	C

Note:
* Denotes the CMP designated Intersection

1. Introduction

This report presents the results of the traffic impact analysis for the proposed residential development at 5150 El Camino Real in Los Altos, California (see Figure 1). The project proposes to construct a 172-unit condominium and 24 townhomes, for a total of 196 dwelling units. The project will replace an existing office building on the site. There is an existing driveway to the site opposite Rengstorff Avenue. The driveway is proposed to lead to an underground parking garage, which would provide parking to the condominiums. At-grade parking also is proposed for the townhomes that are proposed at the back of the site (see Figure 2). The townhomes are accessed via two existing driveways located north and south of Rengstorff Avenue.

Scope of Study

The purpose of the traffic analysis is to satisfy the requirements of the City of Los Altos and the Santa Clara Valley Transportation Authority (VTA). VTA administers the Santa Clara County Congestion Management Program (CMP). The traffic analysis includes an analysis of weekday AM and PM peak-hour traffic conditions and determines the traffic impacts of the proposed residential development on key intersections in the vicinity of the site. The key intersections are identified below.

- El Camino Real & Rengstorff Avenue (CMP)
- El Camino Real & Distel Drive
- El Camino Real & Clark Avenue

Traffic conditions at the study intersections were analyzed for the weekday AM and PM peak hours of traffic. Locally, the AM peak hour of traffic is between 7:00 and 9:00 AM, and the PM peak hour is between 4:00 and 6:00 PM. It is during these periods that the most congested traffic conditions occur on an average weekday.

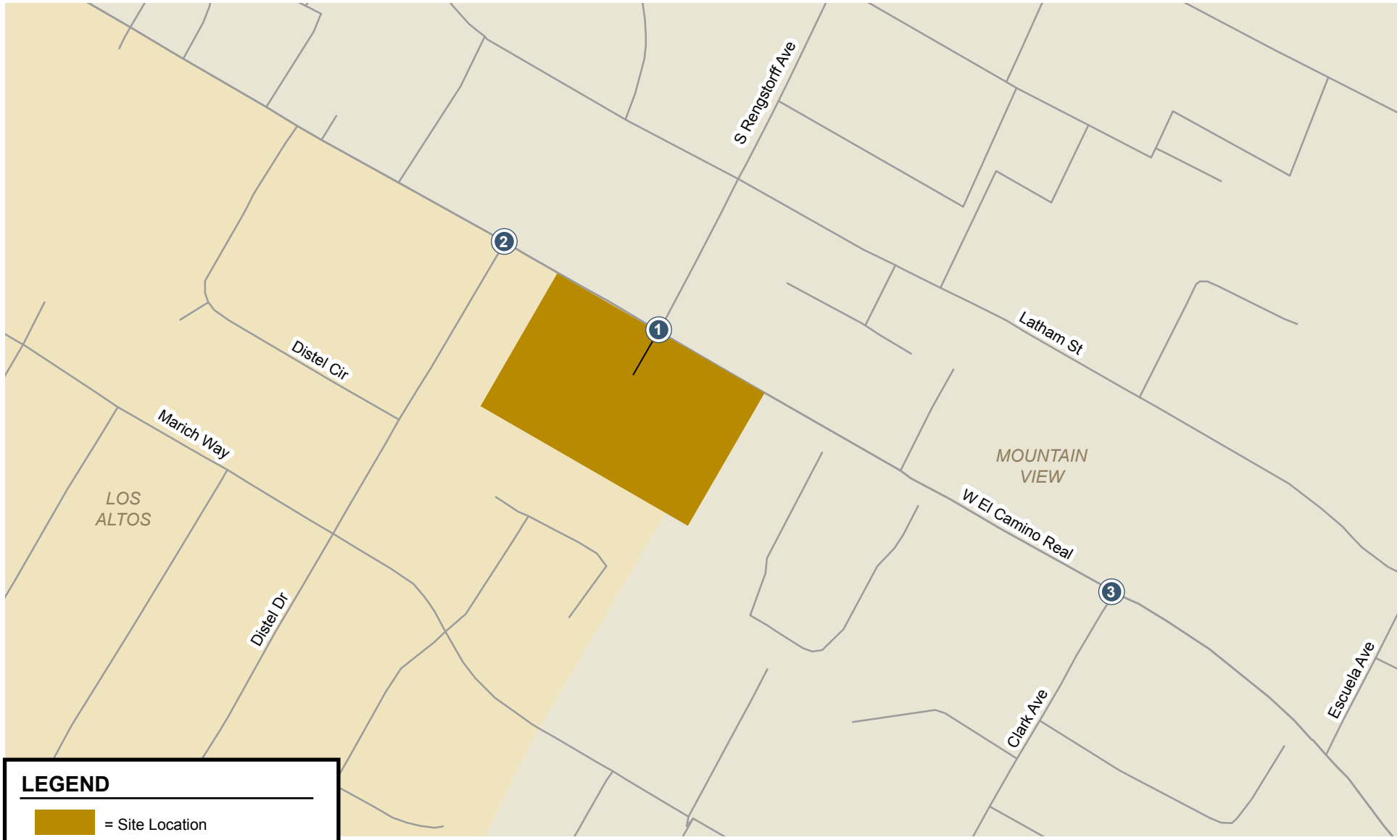


Figure 1
Site Location and Study Intersections

Figure 2
Proposed Site Plan

NORTH
Not to Scale

The study also includes an operations analysis, based on vehicle queuing at selected intersections, an evaluation of potential impacts to bicycle, pedestrian, and transit facilities, and a review of site access, on-site circulation, and parking demand.

Traffic conditions were evaluated for the following scenarios:

- ***Existing Conditions.*** Existing AM and PM peak-hour traffic volumes at study intersections were based on new traffic counts collected in October and November 2018. Existing PM peak-hour traffic volumes at the CMP intersections were obtained from the 2016 CMP Annual Monitoring Report.
- ***Existing Plus Project Conditions.*** Existing plus project conditions reflect the projected traffic volumes on the existing roadway network with completion of the project. Existing plus project traffic volumes were estimated by adding to existing traffic counts the additional traffic generated by the project.
- ***Background Conditions.*** Background traffic volumes were estimated by adding to existing traffic counts the additional traffic generated by approved but not yet constructed developments in the area. The study uses a growth factor of 2% per year until the project opening date to represent traffic growth on El Camino Real.
- ***Background Plus Project Conditions.*** Background plus project traffic volumes were estimated by adding to background traffic volumes the additional traffic generated by the project. Background plus project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Methodology

This section presents the methods used to determine the traffic conditions for each scenario described above and the traffic impacts of the project. 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 new traffic counts, field observations, the City of Los Altos, the CMP Annual Monitoring Report, and previous traffic studies. The following data were collected from these sources:

- Intersection traffic volumes,
- Intersection lane configurations, and
- Intersection signal timing and phasing.

Analysis Methodologies

Signalized Intersection Level of Service

Traffic conditions at the study intersections 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 jammed conditions with excessive delays.

The City of Los Altos evaluates intersection levels of service using the TRAFFIX software, which is based on the Highway Capacity Manual (HCM) 2000 method for signalized intersections. Since TRAFFIX is the level of service methodology for the CMP-designated intersections, the City of Los Altos employs CMP defaults values for the analysis parameters. This HCM method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the

intersection. This average delay can then be correlated to a level of service. Table 1 presents the level of service definitions for signalized intersections.

The City of Los Altos level of service standard for signalized intersections is LOS D or better. One of the study intersections is a CMP intersection. The CMP level of service standard for signalized intersections is LOS E or better.

Table 1
Signalized Intersection Level of Service Definitions Based on 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+ B 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 12.0 12.1 to 18.0 18.1 to 20.0
C+ C 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 may still pass through the intersection without stopping.	20.1 to 23.0 23.1 to 32.0 32.1 to 35.0
D+ D D-	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lenghts, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 39.0 39.1 to 51.0 51.1 to 55.0
E+ E 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 60.0 60.1 to 75.0 75.1 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, *2000 Highway Capacity Manual* (Washington, D.C., 2000) p10-16.
VTA Traffic Level of Service Analysis Guidelines (June 2003), Table 2.

Vehicle Queuing

The queuing analysis is used to determine the appropriate storage lengths for the high demand turn lanes where the project would add a substantial number of trips. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

$$\text{Probability } (X=n) = \frac{\lambda^n e^{-(\lambda)}}{n!}$$

Where:

Probability (X=n) = probability of "n" vehicles in queue per lane
n = number of vehicles in the queue per lane
λ = Average number of vehicles in queue per lane (vehicles per hour per lane/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. This analysis thus provides a basis for estimating future storage requirements at intersections.

Significant Impact Criteria

Significance criteria are used to establish what constitutes an impact. For this analysis, the criteria used to determine significant impacts on signalized intersections are based on City of Los Altos Level of Service standards. Impacts to pedestrian and bicycle facilities and transit services were evaluated based on the VTA Transportation Impact Analysis (TIA) Guidelines (October 2014) and professional judgment.

City of Los Altos Signalized Intersections

According to City of Los Altos level of service standard, a development is said to create a significant adverse impact on traffic conditions at a signalized intersection if for either peak hour, either of the following conditions occurs:

1. The level of service at the intersection drops below its respective level of service standard (LOS D or better for local intersections) when project traffic is added, or
2. An intersection that operates below its level of service standard under no-project conditions experiences an increase in critical-movement delay of four (4) or more seconds, and the volume-to-capacity ratio (v/c) is increased by one percent (0.01) or more when project traffic is added.

A significant impact at a signalized intersection is said to be satisfactorily mitigated when measures are implemented that would restore intersection operations back to background (without the project) conditions or better.

CMP Signalized Intersections

The definition of a significant impact at a CMP intersection is the same as for the City of Los Altos, except that the CMP standard for acceptable level of service at a CMP intersection is LOS E or better. A significant impact by CMP standards is said to be satisfactorily mitigated when measures are implemented that would restore intersection conditions to background conditions or better.

Pedestrians, Bicycles, and Transit Services

According to the VTA TIA Guidelines, a traffic study should qualitatively address the project effects on existing bicyclists and pedestrians as well as the effects and benefits of site development and associated roadway improvements on bicycle/pedestrian infrastructure, circulation, and conformance to existing plans and policies.

For transit services, a traffic study should estimate the increase in transit vehicle delay as a result of the project development and qualitatively address the project effects on transit access and facilities.

Report Organization

The remainder of this report is divided into six chapters. Chapter 2 describes the existing roadway network, transit services, and pedestrian facilities. Chapter 3 describes the methods used to estimate project traffic, intersection operations under existing plus project conditions, and the project's impacts on the existing transportation system. Chapter 4 presents the intersection operations under background conditions. Chapter 5 presents the intersection operations under background plus project conditions and describes the project's impact on the near-term transportation system when the project is expected to be fully occupied. Chapter 6 presents the project's impacts on transit, bicycle and pedestrian facilities, and evaluates vehicle queuing. Chapter 7 includes a summary of project impacts and recommended improvements.

2. Existing Conditions

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

Roadway Network

Regional access to the project is provided via El Camino Real (SR 82). Local access to the project site is provided via Rengstorff Avenue, Distel Drive, and Clark Avenue. These facilities are described below.

El Camino Real (SR 82) is a six-lane state arterial that extends from Santa County northerly through San Mateo County. El Camino Real is oriented in an east-west direction in the project vicinity. Near the project site, El Camino Real has a raised, landscaped median with left-turn pockets provided at intersections. The posted speed limit on El Camino Real is 35 mph in the vicinity of the project site.

Rengstorff Avenue is a four-lane arterial that extends between US 101 and El Camino Real. Rengstorff Avenue is oriented in a north-south direction in the project vicinity. There are bike lanes and sidewalks present on both sides of the street. Access to the project site exists via a driveway opposite Rengstorff Avenue. The posted speed limit on Rengstorff Avenue is 35 mph.

Distel Drive is a two-lane local street that extends between Jardin Drive and El Camino Real. Distel Drive becomes a discontinuous roadway by two cul-de-sacs between Alvarado Avenue and Marich Way. Distel Drive is oriented in a north-south direction in the project vicinity. Distel Drive is a designated bike route from Marich Way to El Camino Real. Distel Drive has discontinuous sidewalks present on both sides of the street south of El Camino Real. The prima facie speed limit on Distel Drive is 25 mph.

Clark Avenue is a two-lane local street that extends between Almond Avenue and El Camino Real. Clark Avenue is oriented in a north-south direction in the project vicinity. There are sidewalks present on both sides of the street from Jardin Drive to El Camino Real and no sidewalks present from Almond Avenue to Jardin Drive. Outbound Clark Avenue allows only right turns when approaching El Camino Real. There are speed bumps, chokers, and a traffic circle along Clark Avenue. Clark Avenue provides access to Almond Elementary School. The posted speed limit on Clark Avenue is 25 mph.

Pedestrian and Bicycle Facilities

Pedestrian facilities within the study area are in the form of sidewalks and signalized crossings. Sidewalks are found on both sides of the three study intersections in the study area. Crosswalks with pedestrian signal heads and push buttons are located at all the study intersections.

Bicycle facilities in the study area include bike lanes and a bike route (see Figure 3). Bike lanes are lanes on roadways designated for use by bicycles with special lane markings, pavement legends, and signage. Bike routes are existing rights-of-way that accommodate bicycles but are not separate from the existing travel lanes. Routes are typically designated only with signs or pavement markers. Within the project study area, bike lanes (Class II Bikeway) are provided on Rengstorff Avenue. Distel Avenue is a designated bike route (Class III Bikeway) marked with “sharrows.”

Transit Services

Local route 22 and 522 are provided by the Santa Clara Valley Transportation Authority (VTA). Local route 22 provides service along El Camino Real between the Palo Alto Transit Center to the Eastridge Transit Center in San Jose, with 15- to 20-minute headways weekdays and weekends. In the project vicinity, bus stops are located on both sides of El Camino Real between Distel Drive and Clark Avenue with the nearest stop adjacent to the project site at the El Camino Real/Rengstorff Avenue intersection. Therefore, the site has good transit access to Route 22.

Express route 522 provides service between the Palo Alto Transit Center and the Eastridge Transit Center, with 10- to 15-minute headways weekdays and 20-minute headways weekends. In the project vicinity, bus stops are located on both sides of El Camino Real with the nearest stop at the El Camino Real/Showers Drive intersection. The El Camino Real/Showers Drive intersection is approximately ½ mile from the project site. The San Antonio Caltrain Station is approximately 1 mile from the project.

Intersection Lane Configurations and Traffic Volumes

The existing lane configurations at the study intersections were obtained from field observations (see Figure 4).

Existing peak-hour traffic volumes were obtained from new turning-movement counts conducted in October 2018 and November 2018. Existing PM peak-hour traffic volumes at the CMP intersection were obtained from the 2016 CMP Annual Monitoring Report (see Figure 5). New intersection turning-movement counts conducted for this analysis are presented in Appendix A.

Intersection Levels of Service

The intersection level of service analysis results show that all study intersections currently operate at acceptable levels of service during both AM and PM peak hours under existing conditions (see Table 2). The intersection level of service calculation sheets are included in Appendix B.

Field observations for key intersections adjacent to the project site are described in the section below.

Figure 3
Existing Bicycle Facilities

NORTH
Not to Scale

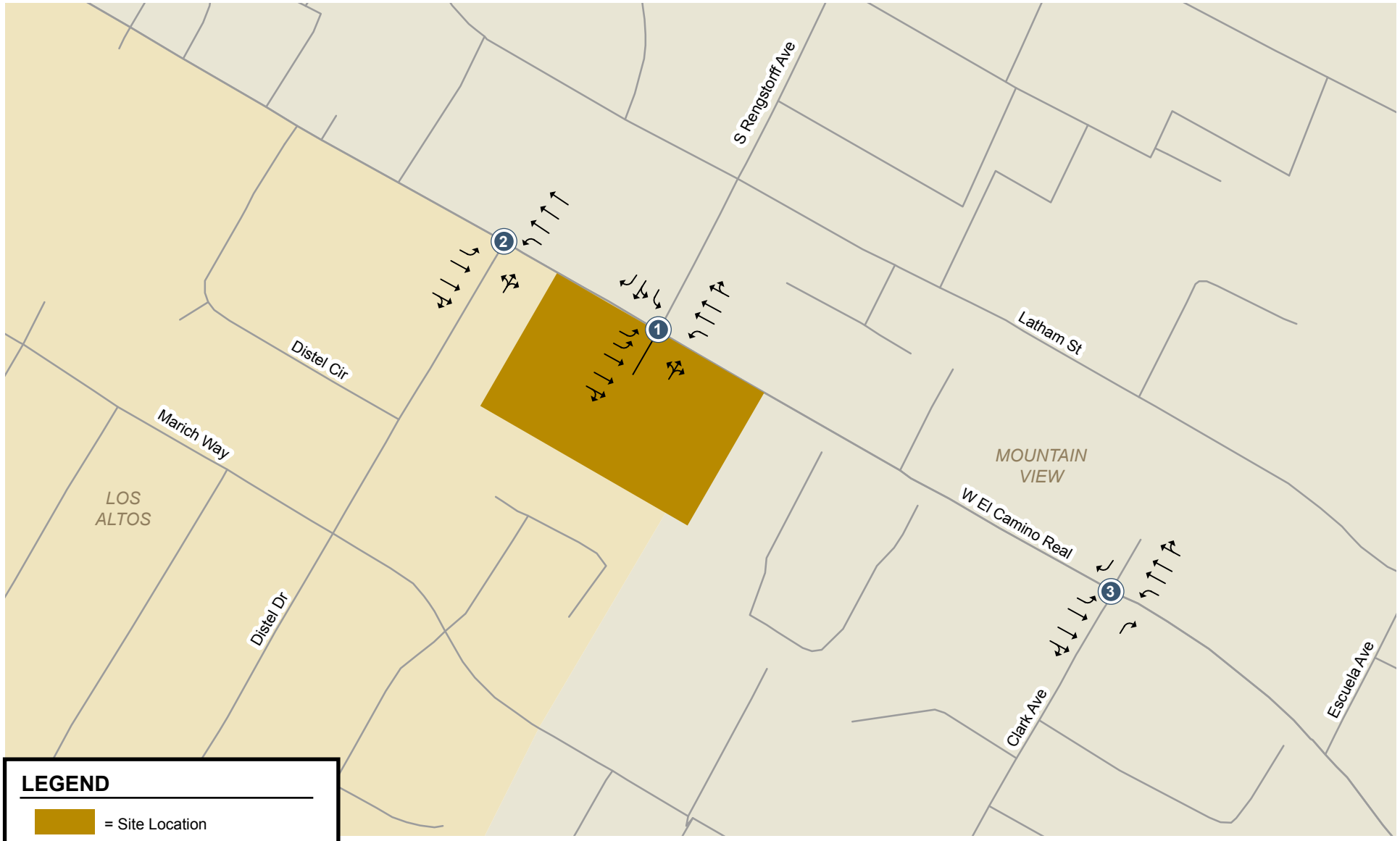


Figure 4
Existing Lane Configurations

NORTH
Not to Scale

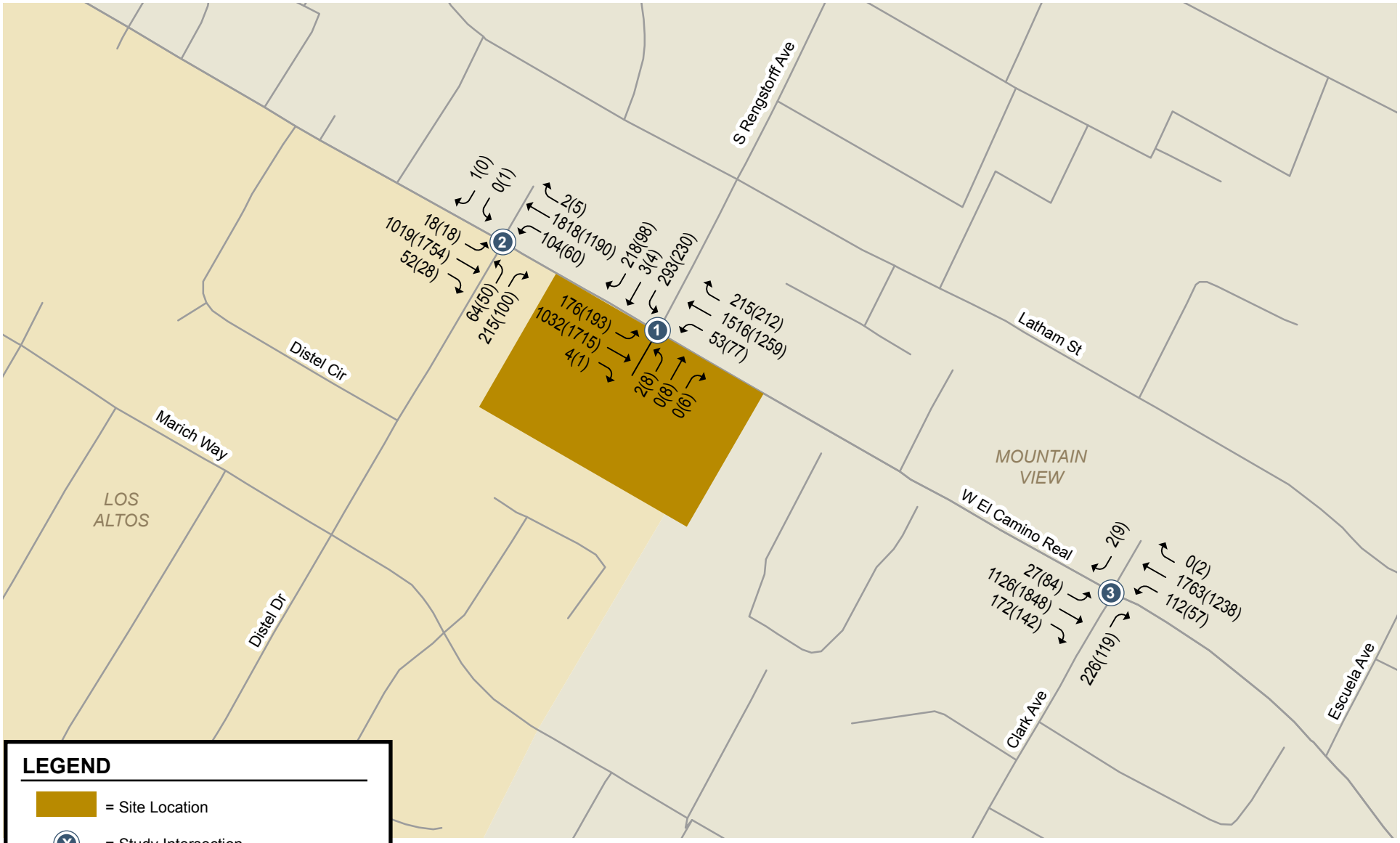


Figure 5
Existing Traffic Volumes

Table 2
Existing Intersection Levels of Service

ID	Intersection	LOS Standard	Traffic Control	Peak Hour	Count Date	Existing Conditions Avg. Delay (sec)	Existing Conditions LOS
1	Distel Drive & El Camino Real	D	Signal	AM	11/13/18	31.3	C
				PM	11/13/18	20.8	C
2	Clark Avenue & El Camino Real	D	Signal	AM	11/13/18	28.4	C
				PM	11/13/18	19.0	B
3	Rengstorff Avenue & El Camino Real*	E	Signal	AM	10/18/18	30.9	C
				PM	11/03/16	24.0	C

Note:
* Denotes the CMP designated Intersection

Observed Traffic Conditions

Traffic conditions were observed in the field 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 analysis does not accurately reflect level of service in the field.

Overall, the study intersections operated adequately during both the AM and PM peak hours of traffic, and the level of service analysis appears to accurately reflect actual existing traffic conditions. Field observations showed that some operational issues occurred along El Camino Real.

El Camino Real and Rengstorff Avenue

During the PM peak hour, the eastbound vehicle queues on El Camino Real occasionally extended from Rengstorff Avenue to Distel Drive during red lights. However, the vehicle queues dissipated quickly when the eastbound movement at both intersections received a green light.

El Camino Real and Distel Drive

During the AM peak hour, the westbound left-turn vehicle queue lane occasionally filled the turn pocket but did not impede the adjacent through lane traffic. The left-turn vehicle queue did clear when receiving the green light.

3.
Existing Plus Project Conditions

This chapter describes existing traffic conditions with the addition of the traffic that would be generated by the proposed project. Existing plus project traffic conditions could potentially occur if the project were to be occupied prior to the other approved projects in the area.

Roadway Network

The roadway network under existing plus project conditions would be the same as the existing roadway network because the project would not alter the existing intersection lane configurations.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, an estimate is made of the directions to and from which the project trips would travel. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Trip Generation

Through empirical research, data have been collected that quantify the amount of traffic produced by common land uses. Thus, for the most common land uses there are standard trip generation rates that can be applied to help predict the future traffic increases that would result from a new development. The magnitude of traffic added to the roadway system by a particular development is estimated by multiplying the applicable trip generation rates by the size of the development. The trip generation rates published in the Institute of Transportation Engineers' (ITE) manual entitled *Trip Generation, 10th Edition* (2017) were used for this analysis. As advised by the City staff, the rates published for Multifamily Housing – Low-Rise (Land Use 220) were used to estimate the trips generated by the proposed multifamily dwelling units. Based on these rates, the proposed project would generate 1,435 daily trips with 90 trips during the AM peak hour and 110 trips during the PM peak hour (see Table 3).

The magnitude of traffic that is being generated by the existing businesses on the site was estimated based on driveway counts conducted in October 2018 and November 2018. It was estimated that 67,000 square feet of the 77,000 square feet was occupied when the driveway counts were conducted. As shown in Table 3, the existing uses on site are generating 550 daily trips with 57 trips during the AM peak hour and 165 trips during the PM peak hour.

After accounting for the trips generated by the existing businesses, the proposed residential project is estimated to generate 885 new daily trips with a net increase of 33 trips in the AM peak hour and a net decrease of 55 trips in the PM peak hour.

Table 3
Project Trip Generation Estimates

				AM Peak Hour				PM Peak Hour			
Land Use	Size	Daily Rate	Daily Trips	Rate	In	Out	Total Trips	Rate	In	Out	Total Trips
Proposed Use											
Condominiums/Townhomes[1]	196 units	7.32	1,435	0.46	21	69	90	0.56	69	41	110
Existing Land Use											
Office[2]			(550)		(53)	(4)	(57)		(105)	(60)	(165)
Net New Trips:			**885**		**(32)**	**65**	**33**		**(36)**	**(19)**	**(55)**

Notes:

[1] Low-Rise Multifamily Housing (Land Use 220), *ITE Trip Generation Manual, 10th Edition (2017)* , average rates for General Urban/Suburban settings are used.

[2] Existing use trips based on peak-hour driveway counts conducted on 10/18/18 and 11/13/18. Daily traffic estimated based on peak hours.

Trip Distribution and Assignment

The trip distribution pattern for the proposed development was estimated based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses (see Figure 6).

The peak-hour trips generated by the existing and proposed uses were assigned to the roadway system based on the directions of approach and departure, the roadway network connections, and the locations of project driveways (see Figure 7). The trips generated by the existing uses were subtracted from the roadway network prior to assigning project trips. The trips generated by the condominium would use the existing two-way driveway opposite Rengstorff Avenue that would lead to an underground parking garage. The trips generated by the townhomes would use the two driveways located west and east of Rengstorff Avenue. The eastern driveway would provide full access to the townhomes and the western driveway would provide a one-way, right-out access onto El Camino Real. It is expected that the western driveway would serve the exiting townhome traffic traveling on westbound El Camino Real via a U-turn at Rengstorff Avenue. It is expected that vehicles traveling on westbound El Camino Real would enter the eastern driveway via a U-turn at Rengstorff Avenue.

Intersection Traffic Volumes

Project trips, as represented in the above project trip assignment, were added to existing traffic volumes to obtain existing plus project traffic volumes (see Figure 8).

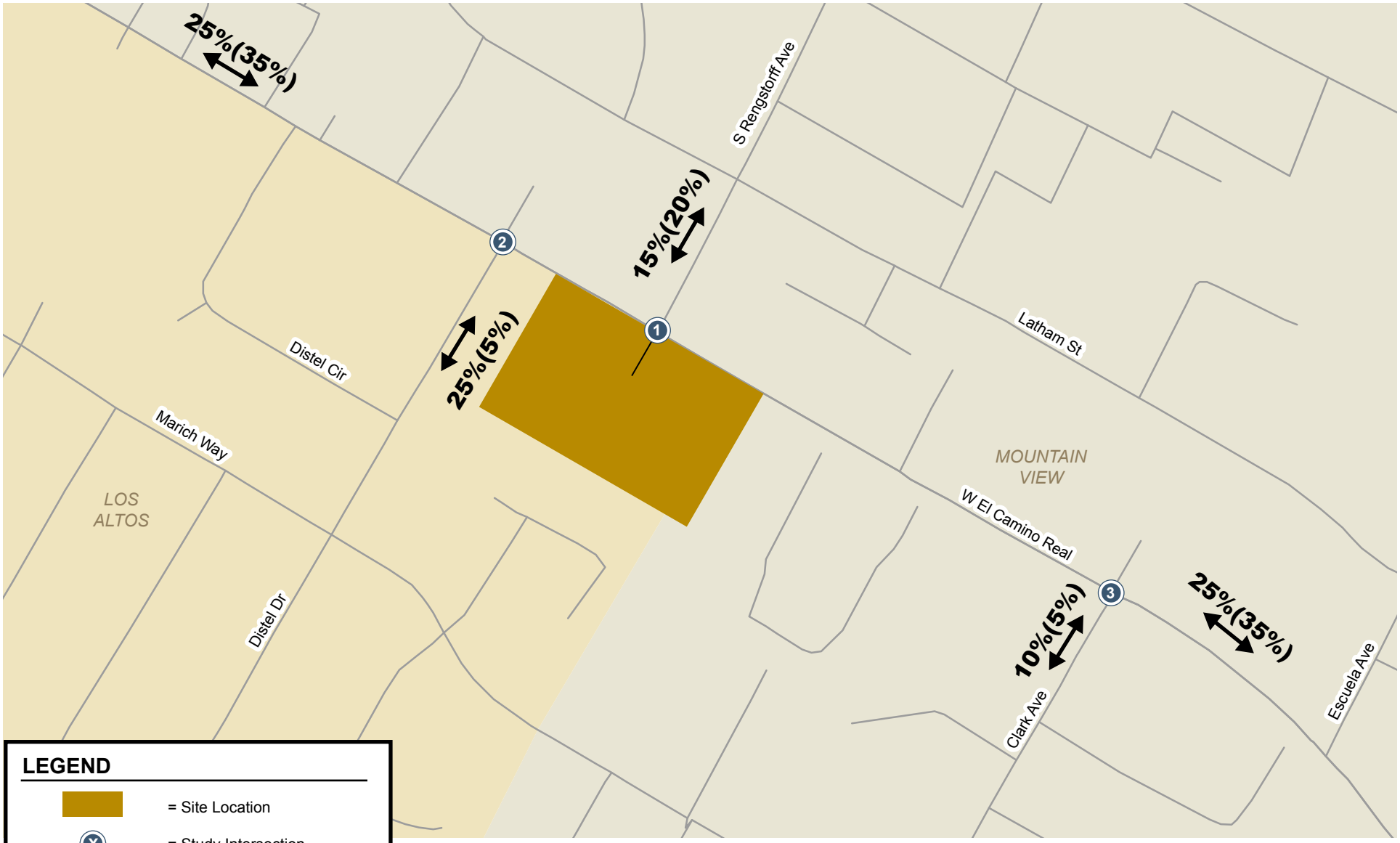


Figure 6
Project Trip Distribution

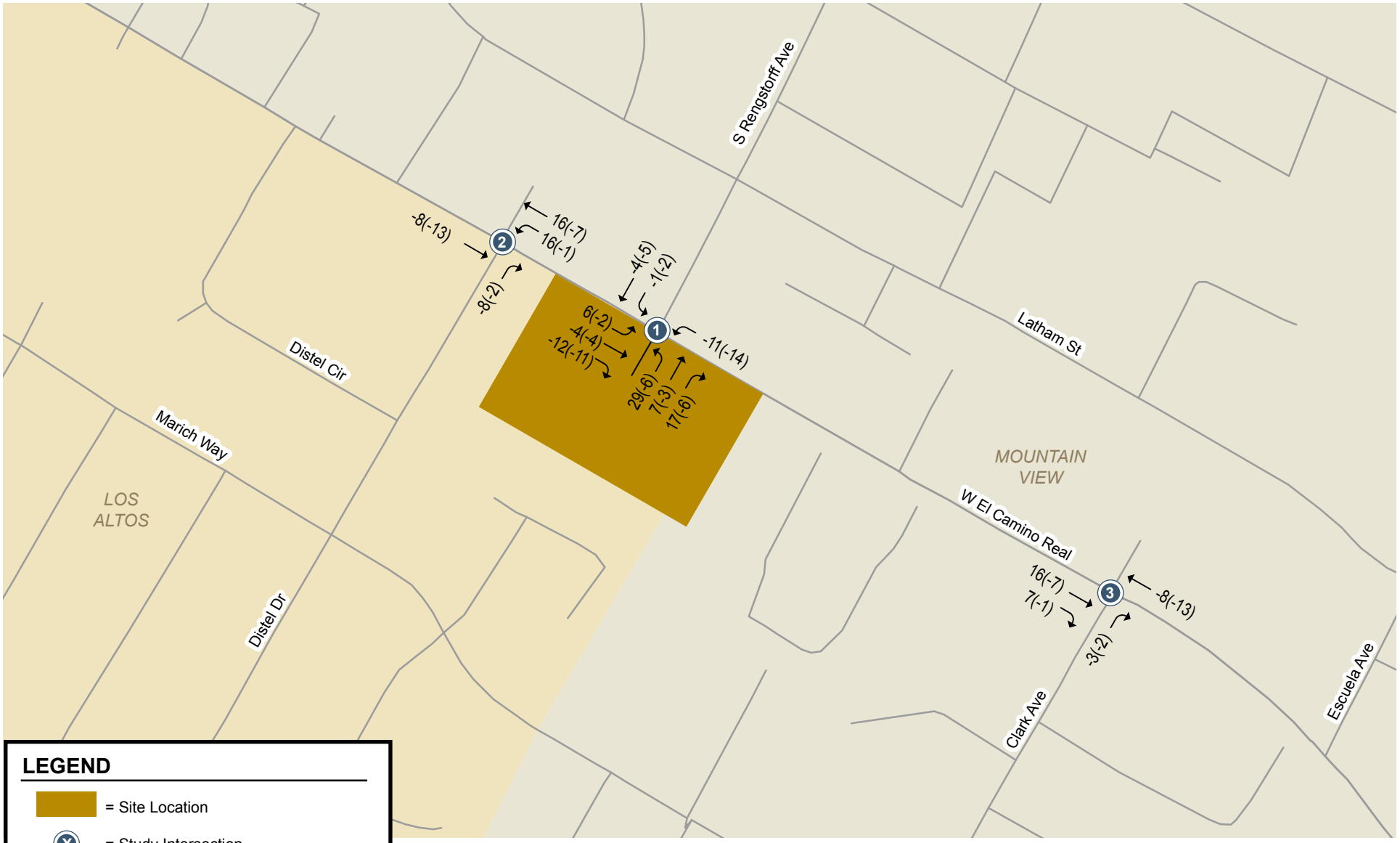


Figure 7
Net Project Trip Assignment

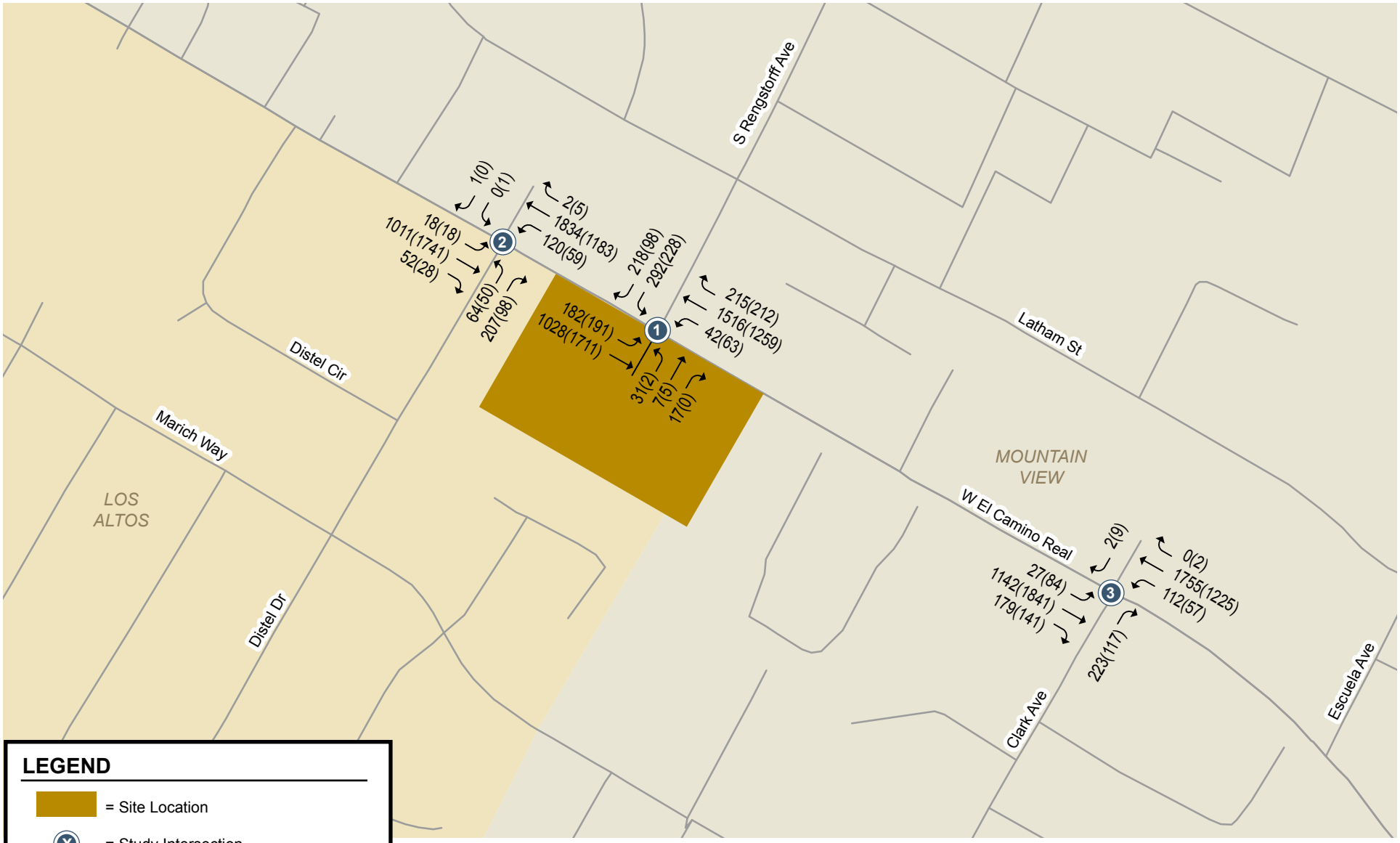


Figure 8
Existing Plus Project Traffic Volumes

Intersection Levels of Service

The intersection level of service analysis results show that all study intersections would operate at acceptable levels of service during both AM and PM peak hours under existing plus project conditions (see Table 4). It should be noted that, at some study intersections, the average delay under project conditions is shown to be better than under no-project conditions. This occurs because the project would result in a reduction in traffic for several of the intersection movements. The intersection level of service calculation sheets are included in Appendix B.

Table 4
Existing Plus Project Intersection Levels of Service

ID	Intersection	LOS Standard	Traffic Control	Peak Hour	Existing Conditions			
					No Project		With Project	
					Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS
1	Distel Drive & El Camino Real	D	Signal	AM	31.3	C	31.5	C
				PM	20.8	C	20.7	C
2	Clark Avenue & El Camino Real	D	Signal	AM	28.4	C	28.3	C
				PM	19.0	B	18.9	B
3	Rengstorff Avenue & El Camino Real*	E	Signal	AM	30.9	C	31.4	C
				PM	24.0	C	23.1	C

Note:
* Denotes the CMP designated Intersection

4. Background Conditions

This chapter describes background traffic conditions. Background (baseline) conditions are defined as conditions just prior to completion of the proposed development. Traffic volumes for background conditions comprise volumes from existing traffic counts plus traffic generated by other approved developments in the vicinity of the site. This chapter describes the procedure used to determine background traffic volumes and the resulting traffic conditions.

Roadway Network

The roadway network under background conditions would be the same as the existing roadway network because: 1) there are no approved projects in the area that would alter the existing roadway network, and 2) the project would not alter the existing roadway network.

Intersection Traffic Volumes

Background peak-hour traffic volumes (see Figure 9) were estimated by adding to existing volumes the estimated traffic from the approved but not yet constructed developments. This study uses a growth factor of 2% per year through the year 2023 (five years) to represent background traffic growth on El Camino Real.

Volumes under background conditions are presented in Appendix C.

Intersection Levels of Service

The results of the level of service analysis under background conditions show that all of the study intersections would operate at an acceptable level of service (see Table 5). The detailed level of service calculation sheets are included in Appendix B.

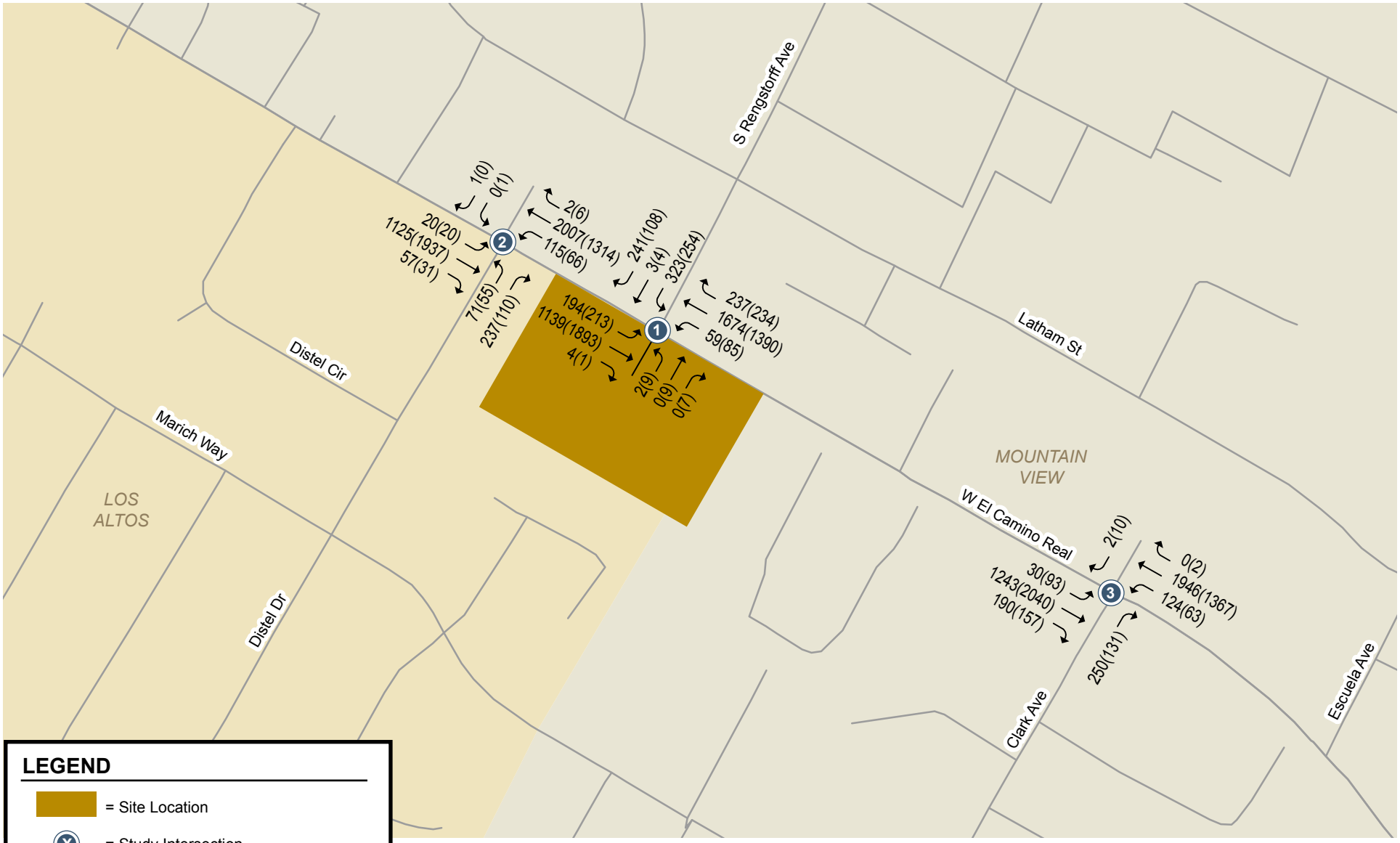


Figure 9
Background Traffic Volumes

NORTH
Not to Scale

Table 5
Background Intersection Levels of Service

ID	Intersection	LOS Standard	Traffic Control	Peak Hour	Existing Avg. Delay (sec)	Existing LOS	Background Avg. Delay (sec)	Background LOS
1	Distel Drive & El Camino Real	D	Signal	AM	31.3	C	32.6	C
				PM	20.8	C	21.2	C
2	Clark Avenue & El Camino Real	D	Signal	AM	28.4	C	29.6	C
				PM	19.0	B	19.7	B
3	Rengstorff Avenue & El Camino Real*	E	Signal	AM	30.9	C	31.9	C
				PM	24.0	C	24.5	C

Note:
* Denotes the CMP designated Intersection

5.
Background Plus Project Conditions

This chapter describes traffic conditions that would occur when the project is complete. Background plus project conditions were evaluated relative to background conditions in order to determine potential project impacts.

Roadway Network

The roadway network under background plus project conditions would be the same as the existing roadway network because: 1) there are no approved projects in the area that would alter the existing roadway network, and 2) the project would not alter the existing roadway network.

Project Trip Estimates

As shown in Table 4 in Chapter 3, after applying the appropriate trip rates and trip reductions, the project would generate 885 new daily vehicle trips, with a net increase of 33 trips occurring during the AM peak hour, and a net decrease of 55 trips occurring during the PM peak hour.

Intersection Traffic Volumes

Background plus project traffic volumes (see Figure 10) were estimated by adding to background traffic volumes the net project trips.

Intersection Levels of Service

The results of the level of service analysis under background plus project conditions show that all of the study intersections would operate at an acceptable level of service (see Table 6) during both AM and PM peak hours. It should be noted that, at some study intersections, the average delay under project conditions is shown to be better than under no-project conditions. This occurs because the project would result in a reduction in traffic for several of the intersection movements. The detailed level of service calculation sheets are included in Appendix B.

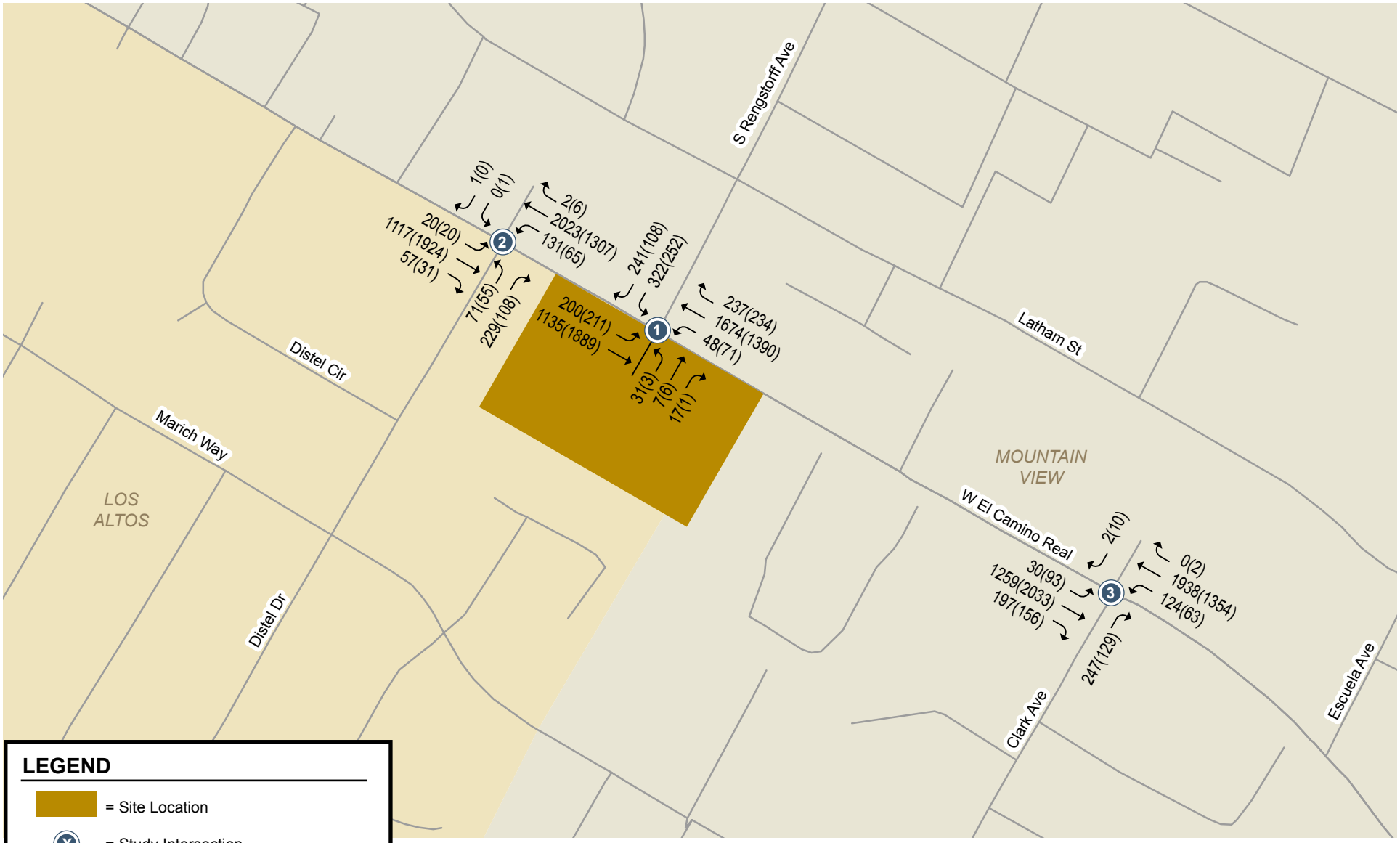


Figure 10
Background Plus Project Traffic Volumes

Table 6
Background Plus Project Intersection Levels of Service

ID	Intersection	LOS Standard	Traffic Control	Peak Hour	Background Conditions			
					No Project		With Project	
					Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS
1	Distel Drive & El Camino Real	D	Signal	AM	32.6	C	32.7	C
				PM	21.2	C	21.1	C
2	Clark Avenue & El Camino Real	D	Signal	AM	29.6	C	29.4	C
				PM	19.7	B	19.6	B
3	Rengstorff Avenue & El Camino Real*	E	Signal	AM	31.9	C	32.4	C
				PM	24.5	C	23.6	C

Note:
* Denotes the CMP designated Intersection

6. Other Transportation Issues

This chapter presents other transportation issues associated with the project. These include an analysis of:

- Potential impacts to pedestrians, bicycles, and transit services
- Vehicle queuing
- Traffic added to Distel Drive and Clark Avenue
- Site access and on-site circulation
- Parking

These other transportation issues were evaluated to determine if any deficiencies would exist under project conditions that may not be specifically linked to environmental impact reporting. These may not be considered environmental issues, and may not be evaluated in an environmental assessment, but have been included in the traffic study to meet the requirements of the local jurisdiction. Unlike the level of service impact methodology, which is adopted by the City Council, the analyses in this chapter are based on professional judgment in accordance with the standards and methods employed by the traffic engineering community.

Pedestrian and Bicycle Access

The project would provide sidewalks along the project's frontage on El Camino Real. The project would also provide walking pathways down the center of the project site. Within the project site, pedestrian access would be provided between El Camino Real, the project building, and the parking garage via sidewalks, the open space, and parking garage stairwells. Along the project frontage, the pedestrian areas should include continuous sidewalks at least 7 feet wide, enhanced landscaping and continuous street trees which would be in accordance with the City of Mountain View's El Camino Real Streetscape Plan. Although the City of Los Altos does not have a Streetscape Plan, it should be noted that the Streetscape Plan proposes to implement bicycle lanes along El Camino Real west of Calderon Avenue, which would replace the existing on-street parking. It should also be noted that this treatment is expected to begin just south of the project site and that the City of Mountain View will require a continuation of this treatment to the intersection at Distel Drive to create a logical transition. The project is consistent with the Streetscape Plan and would not preclude bike lanes.

Vehicle Queuing

The analysis of intersection levels of service was supplemented with a vehicle queuing analysis for left-turn lanes and stop-controlled approaches at intersections where the project would add left-turn movements. This analysis provides a basis for estimating future storage requirements at the

intersections under existing plus project conditions. Vehicle queues were estimated using a Poisson probability distribution, described in Chapter 1. The following movements were selected for evaluation:

- El Camino Real and Rengstorff Avenue –Westbound left turn
- El Camino Real and Distel Drive –Westbound left turn

Table 7 shows that the estimated 95th percentile queues could be accommodated within the existing turn lanes at the El Camino Real/Rengstorff Avenue intersection under all AM and PM peak hour conditions.

Table 7 shows that the estimated 95th percentile queues would exceed the left-turn storage capacity on El Camino Real at the El Camino Real/Distel Drive intersection under all AM peak hour conditions and background condition in the PM peak hour.

The queuing analysis indicates that the 95th percentile vehicle queue for the westbound left-turn lane at the El Camino Real/Distel Drive intersection currently exceeds the existing vehicle storage capacity during the AM peak hour and would continue to do so under background conditions. The existing left-turn lane provides 150 feet of vehicle storage and currently requires 250 feet based on the queuing analysis during the AM peak hour and 175 feet during the PM peak hour. The project would increase the 95th percentile vehicle queue for the westbound left-turn lane during AM peak hour by 25 feet or 1 vehicle. There is no room in the median to lengthen the left turn pocket.

Traffic Using Distel Drive

Distel Drive would likely be used as a route to return from Los Altos High School and Almond Elementary School to the project site. The Los Altos School District (LASD) and the Mountain View-Los Altos Union High School District (MVLAUHSD) uses a student trip generation rate of 0.63 students per townhouse and 0.17 students per condominium. Based on average student generation rates from the LASD and MVLAUHSD, there would be a total of 45 students living in the project. Assuming 2 students per car, it is estimated the project would generate approximately 23 school trips during the AM peak hour. It should be noted that Los Altos High School is approximately 0.8 miles to the project site, which may be conducive for some students to walk or ride a bicycle. In addition, Distel Drive could be used as a cut-through street to San Antonio Road via Jordan Avenue. A cut-through street is defined as motorists using side streets instead of the intended main road. However, Hexagon estimates an increase only in outbound traffic during the AM peak hour. During other time periods traffic would be reduced. The AM outbound increase would be very small to the south, and more than offset by decreases in northbound AM peak hour traffic. Overall, the PM peak hour traffic would be reduced.

Traffic Using Clark Avenue

Clark Avenue would likely be used as a route going to Almond Elementary School and Los Altos High School, but not likely to be used to return to the project site. Clark Avenue provides a direct route to Almond Elementary School. Traffic would likely use Casita Way to Marich Way to Distel Drive to return to the project site. As previously mentioned above, it is estimated that 23 student trips would be generated from the project and use Clark Avenue to access the schools to the south. Due to having a direct route from El Camino Real to Almond Avenue, other traffic going to and from the project could use Clark Avenue as a cut-through street. A cut-through street is defined as motorists using side streets instead of the intended main road. However, Hexagon estimates an increase only in outbound traffic during the AM peak hour. Traffic during other time periods would be reduced. The AM outbound increase would be very small to the south, and more than offset by decreases in northbound AM peak hour traffic. Overall, the PM peak hour traffic would be reduced.

Table 7
Vehicle Queuing Analysis Summary

Measurement	El Camino Real and Rengstorff Avenue WBL AM	El Camino Real and Rengstorff Avenue WBL PM	El Camino Real and Distel Drive WBL AM	El Camino Real and Distel Drive WBL PM
Existing				
Cycle/Delay [1] (sec)	150	150	180	180
Volume (vphpl)	53	77	104	60
Total 95th %. Queue (veh.)	5	6	9	6
Total 95th %. Queue (ft.) [2]	125	150	225	150
Total Storage	225	225	150	150
Adequate (Y/N)	Y	Y	**N**	Y
Existing Plus Project				
Cycle/Delay [1] (sec)	150	150	180	180
Volume (vphpl)	42	63	120	59
Total 95th %. Queue (veh.)	4	6	10	6
Total 95th %. Queue (ft.) [2]	100	150	250	150
Total Storage	225	225	150	150
Adequate (Y/N)	Y	Y	**N**	Y
Background				
Cycle/Delay [1] (sec)	150	150	180	180
Volume (vphpl)	59	85	115	66
Total 95th %. Queue (veh.)	5	7	10	7
Total 95th %. Queue (ft.) [2]	125	175	250	175
Total Storage	225	225	150	150
Adequate (Y/N)	Y	Y	**N**	**N**
Background Plus Project				
Cycle/Delay [1] (sec)	150	150	180	180
Volume (vphpl)	48	71	131	65
Total 95th %. Queue (veh.)	5	6	11	6
Total 95th %. Queue (ft.) [2]	125	150	275	150
Total Storage	225	225	150	150
Adequate (Y/N)	Y	Y	**N**	Y

Notes:
WBL = westbound left movement
[1] Vehicle queue calculations based on cycle length for signalized intersections.
[2] Assumes 25 feet per vehicle queued.

Off-Site Improvements

The added traffic entering the El Camino Real and Rengstorff Avenue intersection would require a complete signal modification. In addition, the intersection would need improvements for ADA accessibility. Modifications for ADA accessibility would include straightening of crosswalks, an additional crosswalk on the south leg of the intersection, median island improvements to straighten the crosswalks, new detection that complies with Caltrans requirements, and use of accessible pedestrian signals and bicycle detection features.

Site Access and On-Site Circulation

A review of the project site plan was performed to determine whether adequate site access and onsite circulation would be provided, using commonly accepted transportation planning principles and traffic engineering standards. This review was based on the site plan prepared by Dutchints Development, LLC dated September 21, 2018, shown on Figures 11 and 12.

Vehicle Site Access at Rengstorff Avenue Driveway

Vehicle site access was evaluated to determine the adequacy of the site driveways with regard to stopping sight distance and traffic volumes. The project generated traffic would access the site via a full access driveway on El Camino Real and Rengstorff Avenue that leads to the underground parking garage. According to the City of Los Altos Zoning Code (14.74.200), the typical width for a two-way driveway for a residential (multi-family) building is 18 feet. The two-way driveway leading to the underground garage is 26 feet, which meets City's Standard.

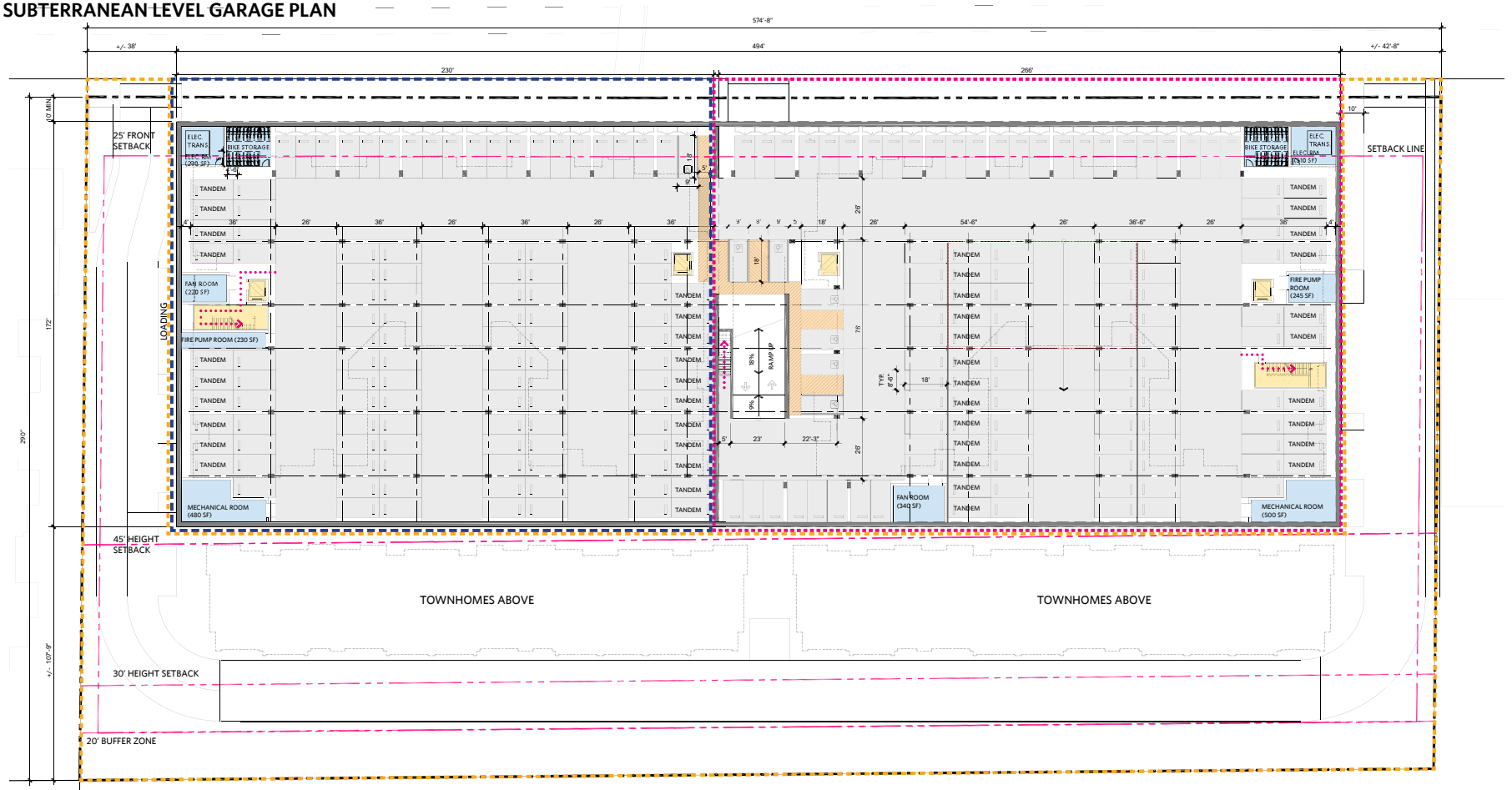
A memorandum prepared by Fehr & Peers studied the full access driveway on Rengstorff Avenue. The study includes driveway alignment and queuing analysis to determine the need for exclusive right-turn lanes for the driveway on Rengstorff Avenue.

The existing driveway is approximately 46 feet wide. The project proposes to reduce the driveway width to 26 feet. According to the Fehr and Peers study, the driveway's outbound lane is currently designed where it aligns with the middle of the two northbound receiving lanes and the inbound lane is approximately 10 feet to the left of the southbound through lane on Rengstorff Avenue. It is recommended that the driveway be modified to improve alignment for inbound vehicles from southbound Rengstorff Avenue, and the offset should be reduced to a maximum of 6 feet. In addition, an edge line extension striping should be added through the intersection to direct drivers into and out of the driveway.

The study mentions the results of the queuing analysis were conducted for the eastbound through/right-turn lane on El Camino Real and the northbound left-turn/through/right-turn lane at the driveway of the site. The results show that the maximum queue in the eastbound through/right-turn lane was estimated to be 250 feet, or 10 vehicles. The eastbound queue can fit within the available storage area between the driveway and the next upstream intersection, Distel Drive. The maximum outbound queue at the Rengstorff Avenue driveway was estimated to be 50 feet, or 2 vehicles, which is within the available storage distance between El Camino Real and the first drive aisle in the underground parking garage. Thus, an exclusive right-turn lane was found to be unnecessary for both the eastbound through/right-turn lane and the northbound left/through/right-turn lane.

The Fehr & Peers Memorandum of the Rengstorff Avenue driveway is included in Appendix E.

SUBTERRANEAN LEVEL GARAGE PLAN



PARKING SUMMARY

CONSTRUCTION PHASE	PARKING	TANDEM	ADA (REG)	ADA (VAN)	TOTAL VEHICLE PKG
PHASE 1 (TOWNHOME)	53	0	0	1	54
PHASE 2 (CONDO I)	93	23	0	6	122
PHASE 3 (CONDO II)	95	21	1	0	117
TOTAL (PROVIDED)	**188**	**44**	**1**	**7**	**293**
TOTAL (REQUIRED)					**180**

BIKE PARKING SUMMARY

CONSTRUCTION PHASE	CLASS I	CLASS II	TOTAL BIKE PKG
PHASE 1 (TOWNHOME)	-	-	-
PHASE 1 (CONDO I)	42	7	49
PHASE 2 (CONDO II)	42	7	49
TOTAL (PROVIDED)	**84**	**14**	**98**
TOTAL (REQUIRED)	**66**	**14**	**80**

PHASE I (TOWNHOMES)
PHASE II (CONDO BUILDING I)
PHASE III (CONDO BUILDING I)

0' 20' 40' 80'

5150 EL CAMINO REAL, LOS ALTOS, CA | DUTCHINTS DEVELOPMENT, LLC. | STUDIO T-SQUARE | SUBMITTAL FOR DESIGN REVIEW | SEPTEMBER 21, 2018 | SUBTERRANEAN GARAGE PLAN - A-1.0

Figure 11
Subterranean Level Garage Plan

HEXAGON

NORTH
Not to Scale

STREET LEVEL PLAN

PARKING SUMMARY

CONSTRUCTION PHASE	PARKING	TANDEM	ADA (REG)	ADA (VAN)	TOTAL VEHICLE PKG
PHASE 1 (TOWNHOME)	53	0	0	1	54
PHASE 2 (CONDO I)	93	23	0	6	122
PHASE 3 (CONDO II)	95	21	1	0	117
TOTAL (PROVIDED)	**188**	**44**	**1**	**7**	**293**
TOTAL (REQUIRED)					**180**

BIKE PARKING SUMMARY

CONSTRUCTION PHASE	CLASS I	CLASS II	TOTAL BIKE PKG
PHASE 1 (TOWNHOME)	-	-	-
PHASE 1 (CONDO I)	42	7	49
PHASE 2 (CONDO II)	42	7	49
TOTAL (PROVIDED)	**84**	**14**	**98**
TOTAL (REQUIRED)	**66**	**14**	**80**

5150 EL CAMINO REAL, LOS ALTOS, CA | DUTCHINTS DEVELOPMENT, LLC. | STUDIO T-SQUARE | SUBMITTAL FOR DESIGN REVIEW | SEPTEMBER 21, 2018 | STREET LEVEL PLAN - A-1.1

Figure 12
Street Level Plan

NORTH
Not to Scale

Vehicle Site Access at Right-In, Right-Out Driveways along El Camino Real

The project would also utilize two existing right-turn-only driveways located west and east of Rengstorff Avenue. These would serve the townhomes. According to the site plan, the western driveway is a one-way, right-out driveway. According to the City of Los Altos Municipal Code (14.74.200), the minimum one-way drive width is 12 feet. The project proposes to that the one-way driveway width is 13 feet, which meet City's Standard. Hexagon recommends that "do not enter" signs and "one-way only" markings should be installed at the one-way western driveway to inform drivers along El Camino Real to not enter the driveway. In addition, "right-turn only" signs should be installed at the western and eastern driveways to inform drivers exiting the project site.

The project driveways should be free and clear of any obstructions to optimize sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and other vehicles traveling on the street. Any landscaping, parking, and signage should be located in such a way to ensure an unobstructed view for drivers entering and exiting the site.

Sight distance generally should be provided in accordance with Caltrans design standards. Sight distance requirements vary depending on the roadway speeds. The speed limit on El Camino Real is 35 mph. The Caltrans recommended stopping sight distance is 250 feet. This means that a driver must be able to see 250 feet down the street to locate a sufficient gap to turn out of the driveways. There are no sharp roadway curves or landscaping features shown on the site plan that would obstruct the vision of exiting drivers. However, street parking is allowed on El Camino Real and could obstruct the vision of exiting drivers if there are cars parked next to the driveways. Therefore, Hexagon recommends prohibiting street parking within 15 feet of both driveways by installing red curbs on the left side of each driveway. Currently, a VTA bus stop exists between the Rengstorff Avenue driveway and the eastern driveway. Parking between these two driveways should continue to be prohibited to allow adequate sight distance at the driveway and a stop area for the bus route. The project should update the bus shelters along its frontage, which requires coordination with the Valley Transportation Authority.

The site plan shows a trash staging area at the west side of the west condominium and at the east side of the east condominium. In addition, a loading zone area is located at the west side of the west condominium and east side of the east condominium. Therefore, it is presumed that all garbage and delivery trucks would perform their operations along the side driveways of the project site. As currently designed, the west side of the project does not provide good access to the trash staging area and loading zone area located on that side due to having a one-way driveway. Hexagon recommends widening the driveway to provide a two-way, right-in, right-out driveway to allow better access to the trash staging and loading zone areas. According the Los Altos Municipal Code Ordinance 14.50.180, a multifamily housing development shall provide at least one off-street loading space. The site plan shows two off-street loading spaces, which meets the City's standard.

Vehicle Onsite Circulation

Onsite vehicle circulation was evaluated for the underground parking garage. The project would provide 90-degree parking spaces throughout the site. According to the City of Los Altos Zoning Code (14.74.200), the typical width for a two-way driveway for a residential (multi-family) building is 18 feet. The two-way driveway leading to the underground garage is 26 feet, which meets the City's Standard. The site plan shows a standard "dust pan" driveway opposite Rengstorff Avenue. This design should be changed to a standard detached driveway to clearly identify limit lines for motorists and signal controls for pedestrians. The driveway should have 3 lanes to allow two exit lanes for a dedicated left-turn lane and a thru/right-turn lane to assist with circulation. Generally, the proposed plan would provide vehicle traffic with adequate connectivity through the parking areas. However, the site plan shows multiple dead-end parking aisles. Generally, dead-end aisles are undesirable because vehicles finding all parking spaces occupied would need to back out. Therefore, the dead-end aisle spaces should be reserved for residents, and guest parking should be located near the driveway ramp.

Access to the underground parking garage would be provided via a ramp from the driveway opposite Rengstorff Avenue. According to the site plan, the ramp would have an 18% slope. The slope of the parking garage ramp would provide adequate access for motor vehicles entering and exiting the underground garage. However, the garage ramp would too steep for bicycles, and the use of stairwells for bicycles would be awkward. While the elevator is the preferred access path and is accessible at the front entrance, Hexagon recommends that some of the Class I bicycle parking be relocated to the ground floor.

Parking

Vehicle Parking

The proposed project would provide Below Market Rate (BMR) units for the condominiums. According to the Los Altos Municipal Code Ordinance 14.28.040, the project would be eligible for a density bonus and would be qualified for a parking reduction.

According to the Los Altos Municipal Code (14.28.040) (G), for low income housing near a major transit stop, upon the request of the developer, the city shall not impose a parking requirement, inclusive of handicapped and guest parking, that exceeds one-half parking spaces per bedroom if:

i. The development includes the maximum percentage of low or very low-income units; and
ii. The development is located within one-half mile of a major transit stop; and
iii. There is unobstructed access to the major stop to the development.

According to the Los Altos Municipal Code (14.28.020), all multifamily residential projects creating ten or more new dwelling units shall provide affordable housing as follows:

1. **Rental units.** Twenty percent designated as affordable at the low-income level or fifteen percent designated as affordable at the very-low income level.
2. **Ownership units.** Fifteen percent total, with a majority of the units designated as affordable at the moderate-income level and the remaining units designated as affordable at the low- or very-low income level.

The proposed project would provide 30 BMR units (16 moderate-income and 14 very-low income), which is fifteen percent of the total units. This fulfills the fifteen percent of ownership units to the total units and fulfills the maximum percentage of low or very-low income units. In addition, the development is located within one-half of a transit stop and has unobstructed access to the major stop. Thus, the Los Altos Municipal Code (14.28.040) (G) applies to the condominium section of the project development.

The following Los Altos Municipal Code would apply to the townhomes of the project:

According to the Los Altos Municipal Code (14.28.040) (G), for any development eligible for a density bonus, upon the request of the developer, the city shall not impose a parking requirement, inclusive of handicapped and guest parking, that exceeds the following requirements:

i. For zero to one bedroom, one onsite parking space.
ii. For two to three bedrooms, two onsite parking spaces.
iii. For four and more bedrooms, two and one-half parking spaces.

The project would include 81 1-bedroom units and 91 2-bedroom units in the condominiums and 24 2-bedroom townhomes. Thus, the project would need to provide 180 parking spaces. The project proposes to provide 236 parking spaces in the underground parking garage, including 88 tandem spaces (44 x 2), 48 townhome parking spaces, and 6 surface guest parking spaces for the townhomes.

Therefore, the project proposes to provide 290 parking spaces, which meets the City's parking requirements. It is assumed that the tandem spaces would be assigned to the two-bedroom units.

To determine whether the parking supply would be adequate, Hexagon examined existing parking research for residential developments of this type. A parking supply study was done by Fehr & Peers to count the average parking supply and demand rates for similar multi-family residential developments. In this study, 17 residential developments (14 market rate and 3 affordable housing) were counted in Mountain View, Palo Alto, Sunnyvale, and Santa Clara. Based on the parking study, the average parking demand rate for affordable housing was found to be 0.65 spaces per bedroom. For market rate housing, the average parking demand was found to be 0.70 spaces per bedroom. Using the average rates, the proposed project would need to supply 183 spaces for the condominiums. The condominium garage shows 236 spaces. Therefore, the project proposes an adequate number of parking spaces. Table 8 shows the Parking Demand Analysis. The Fehr & Peers Parking Study is included in Appendix D.

Table 8
Parking Demand Analysis

		# of Units	Bedrooms	Rate	Parking Demand Spaces	Parking Provided
Condominiums						
Affordable	1 Bed	30	30	0.65	20	
	2 Bed	-	-	-		
Market Rate	1 Bed	51	51	0.70	36	
	2 Bed	91	182	0.70	127	
Total		**172**			**183**	**236**
Townhomes	2 Bed	24	48	0.70	**33**	**54**
Total					**216**	**290**

Bicycle Parking

The City of Los Altos does not have minimum parking requirements for bicycles. It is recommended that the project provide bicycle parking according to the recommendations contained in the VTA Bicycle Technical Guidelines, 2012. The VTA guidelines recommend 1 long-term bicycle space (Class I) per 3 units and 1 short-term bicycle parking space (Class II) per 15 units for residential buildings. Based on the VTA guidelines, it is recommended the project provide 66 long-term and 14 short-term bicycle parking spaces. The proposed condominiums and townhomes would provide 84 long-term and 14 short-term parking spaces, which meets the VTA bicycle parking recommendation. The 14 short-term bicycle parking spaces would be provided on-grade adjacent to the condominium building entrances. However, the long-term bicycle parking is shown to be located within the garage. The garage ramp is too steep for bicycles, and the use of stairwells for bicycles would be awkward. While the elevator is the preferred access path and is accessible at the front entrance, Hexagon recommends that some of the Class I bicycle parking be relocated to the ground floor.

7. Conclusions

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of Los Altos and the Santa Clara Valley Transportation Authority (VTA). The traffic study analyzed AM and PM peak-hour traffic conditions for three intersections. Project impacts on site access, on-site circulation, and other transportation facilities, such as bicycle facilities and transit service, were determined on the basis of engineering judgment.

Intersection Levels of Service

The intersection level of service analysis results show that all study intersections would operate at acceptable levels of service under all analysis scenarios.

Vehicle Queuing

The queuing analysis indicates that the 95th percentile vehicle queue for the westbound left-turn lane at the El Camino Real/Distel Drive intersection currently exceeds the existing vehicle storage capacity during the AM peak hour and would continue to do so under background conditions. The project would not increase the 95th percentile vehicle queue for the westbound left-turn lane during AM peak hour. There is no room in the median to lengthen the left turn pocket.

Traffic Using Distel Drive

Distel Drive would likely be used as a route to return from Los Altos High School and Almond Elementary School to the project site. It is estimated the project would generate 23 school trips during the AM peak hour. Distel Drive could be used as a cut-through street to San Antonio Road via Jordan Avenue. However, Hexagon estimates an increase in traffic only outbound in the AM peak hour. In other time periods the traffic would be reduced. The AM outbound traffic increase would be very small to the south, and more than offset by decreases in northbound AM peak hour traffic. Overall, the PM peak hour traffic would be reduced.

Traffic Using Clark Avenue

Clark Avenue would likely be used as a route going to Almond Elementary School and Los Altos High School, but not likely to be used to return to the project site. Clark Avenue provides a direct route to Almond Elementary School. Traffic would likely use Casita Way to Marich Way to Distel Drive to return to the project site. As previously mentioned above, it is estimated that 23 student trips would be generated by the project and would use Clark Avenue to access the schools to the south. Due to

having a direct route from El Camino Real to Almond Avenue, traffic going to and from the project may use Clark Avenue as a cut-through street. However, Hexagon estimates an increase in traffic only outbound during the AM peak hour. Traffic in other time periods would be reduced. The AM outbound traffic increase would be very small to the south, and more than offset by decreases in northbound AM peak hour traffic. Overall, the PM peak hour traffic would be reduced.

Parking

The condominium garage would provide 239 spaces and the townhomes would provide 54 parking spaces, which provides adequate parking space for the project. One loading zone space would be provided at each end of the condominiums. There are 6 guesting parking spaces that would be provided for the townhomes around the project site.

Other Transportation Issues

Hexagon identified the following recommendations resulting from the off-site improvements, site access and circulation analysis.

- The added traffic entering the El Camino Real and Rengstorff Avenue intersection would require a complete signal modification. In addition, the intersection would need improvements for ADA accessibility.
- “Do not enter” signs and “one-way only” markings should be installed at the one-way western driveway to inform drivers not to enter the driveway. In addition, “right-turn only” signs should be installed at the western and eastern driveways to inform drivers exiting the project site.
- The project should update the bus shelters along its frontage, which requires coordination with the Valley Transportation Authority.
- Street parking is allowed on El Camino Real and could obstruct the vision of exiting drivers if there are cars parked next to the driveways. Therefore, Hexagon recommends prohibiting street parking within 15 feet of both driveways by installing red curbs on the left side of each driveway. Parking between the Rengstorff Avenue driveway and eastern driveway should continue to be prohibited to allow sight distance for the driveway and to provide room for the bus stop.
- The site plan shows a standard “dust pan” driveway opposite Rengstorff Avenue. This should be changed to a standard detached driveway to clearly identify limit lines for motorists and signal controls for pedestrians. A 3-lane driveway should be provided to include two outbound lanes for a dedicated left-turn lane and thru/right-turn lane to assist with circulation.
- The site plan shows multiple dead-end parking aisles. The dead-end aisle spaces should be reserved for residents, and guest parking should be located near the driveway ramp.
- Some of the Class I bicycle parking should be moved to the ground floor.

5150 El Camino Real Residential Development
Traffic impact Analysis

Technical Appendices

March 14, 2019

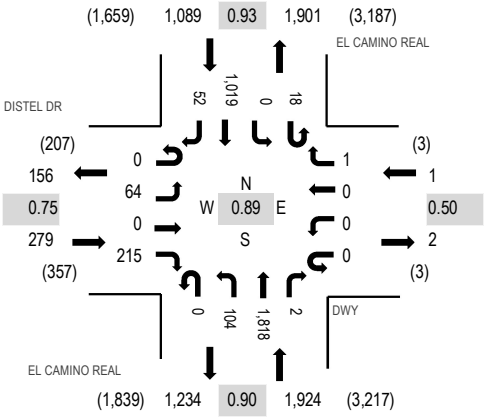
Appendix A

Traffic Counts

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

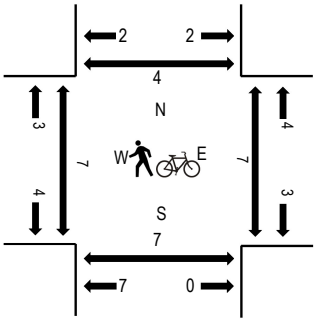
Location: 1 EL CAMINO REAL & DWY AM
Date: Tuesday, November 13, 2018
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DISTEL DR Eastbound				DWY Westbound				EL CAMINO REAL Northbound				EL CAMINO REAL Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	2	0	10	0	0	0	0	0	5	221	0	0	0	94	5	337	1,943	0	4	0	13
7:15 AM	0	3	0	5	0	0	0	0	0	6	303	0	1	0	92	3	413	2,341	3	2	0	4
7:30 AM	0	3	0	19	1	0	0	0	0	5	350	0	1	0	148	6	533	2,702	1	0	0	0
7:45 AM	0	10	0	26	0	0	1	0	0	13	390	0	2	0	211	7	660	3,029	2	2	0	0
8:00 AM	0	16	0	36	0	0	0	0	0	12	448	2	1	0	210	10	735	3,293	1	0	0	0
8:15 AM	0	11	0	38	0	0	0	0	0	19	413	0	5	0	282	6	774		1	2	1	0
8:30 AM	0	19	0	66	0	0	0	1	0	50	443	0	9	0	248	24	860		1	3	5	0
8:45 AM	0	18	0	75	0	0	0	0	0	23	514	0	3	0	279	12	924		3	2	1	3

Peak Rolling Hour Flow Rates

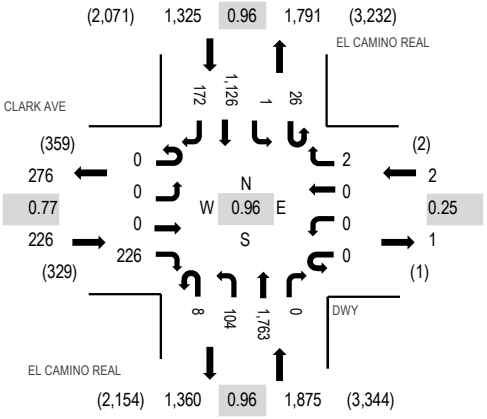
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	1	0	0	0	0	0	0	0	0	10	0	0	0	5	0	16
Lights	0	62	0	214	0	0	0	1	0	100	1,780	2	18	0	993	52	3,222
Mediums	0	1	0	1	0	0	0	0	0	4	28	0	0	0	21	0	55
Total	0	64	0	215	0	0	0	1	0	104	1,818	2	18	0	1,019	52	3,293

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

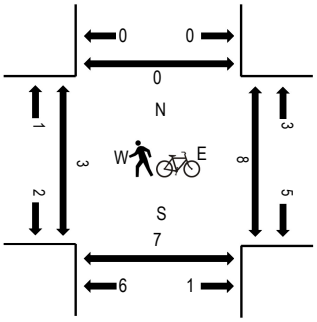
Location: 2 EL CAMINO REAL & DWY AM
Date: Tuesday, November 13, 2018
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CLARK AVE Eastbound				DWY Westbound				EL CAMINO REAL Northbound				EL CAMINO REAL Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	16	0	0	0	0	0	8	253	0	4	0	117	7	405	2,318	1	4	1	0
7:15 AM	0	0	0	16	0	0	0	0	0	8	349	0	1	0	135	7	516	2,715	0	4	1	0
7:30 AM	0	0	0	30	0	0	0	0	1	8	367	0	2	0	210	17	635	3,077	4	2	2	0
7:45 AM	0	0	0	41	0	0	0	0	2	9	464	0	1	0	226	19	762	3,332	1	3	1	0
8:00 AM	0	0	0	30	0	0	0	0	4	16	437	0	7	0	273	35	802	3,428	1	1	1	0
8:15 AM	0	0	0	57	0	0	0	0	1	30	444	0	7	0	273	66	878		0	1	0	0
8:30 AM	0	0	0	66	0	0	0	0	1	45	446	0	4	1	280	47	890		1	3	3	0
8:45 AM	0	0	0	73	0	0	0	2	2	13	436	0	8	0	300	24	858		1	3	3	0

Peak Rolling Hour Flow Rates

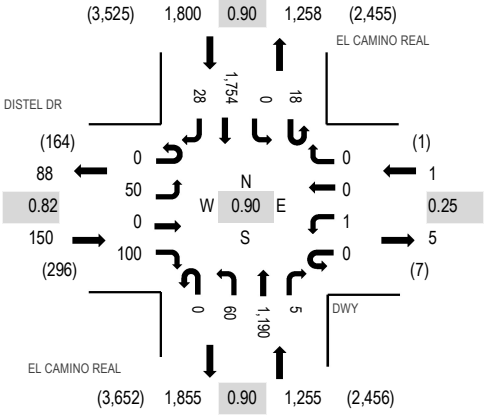
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	1	0	0	0	0	0	0	6	0	0	0	1	0	8
Lights	0	0	0	224	0	0	0	2	8	103	1,710	0	25	1	1,091	171	3,335
Mediums	0	0	0	1	0	0	0	0	0	1	47	0	1	0	34	1	85
Total	0	0	0	226	0	0	0	2	8	104	1,763	0	26	1	1,126	172	3,428

All Traffic Data Services Inc.

(303) 216-2439
www.alltrafficdata.net

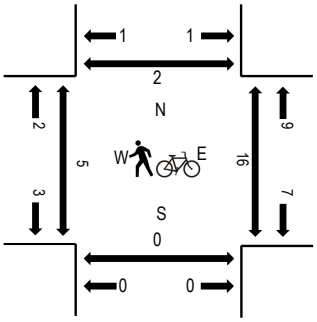
Location: 1 EL CAMINO REAL & DWY PM
Date: Tuesday, November 13, 2018
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	DISTEL DR Eastbound				DWY Westbound				EL CAMINO REAL Northbound				EL CAMINO REAL Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	10	0	28	0	0	0	0	0	11	275	1	3	0	401	4	733	3,072	4	2	0	0
4:15 PM	0	9	0	22	0	0	0	0	0	15	307	0	2	0	468	5	828	3,087	3	4	0	0
4:30 PM	0	11	0	25	0	0	0	0	0	11	271	0	2	0	417	9	746	3,041	6	0	1	0
4:45 PM	0	8	0	33	0	0	0	0	0	14	295	1	4	0	403	7	765	3,185	1	2	0	0
5:00 PM	0	21	0	31	0	0	0	0	0	16	258	1	6	0	409	6	748	3,206	2	2	0	0
5:15 PM	0	10	0	28	0	0	0	0	0	11	312	2	7	0	407	5	782		1	8	0	1
5:30 PM	0	13	0	27	0	0	0	0	0	21	327	0	3	0	493	6	890		0	4	0	0
5:45 PM	0	6	0	14	0	1	0	0	0	12	293	2	2	0	445	11	786		0	2	0	1

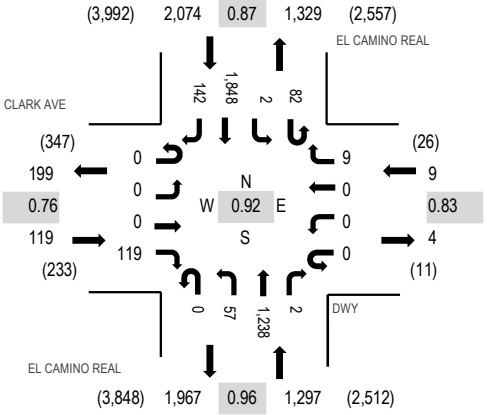
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3
Lights	0	50	0	100	0	1	0	0	0	59	1,179	5	18	0	1,733	28	3,173
Mediums	0	0	0	0	0	0	0	0	0	1	9	0	0	0	20	0	30
Total	0	50	0	100	0	1	0	0	0	60	1,190	5	18	0	1,754	28	3,206

All Traffic Data Services Inc.
(303) 216-2439
www.alltrafficdata.net

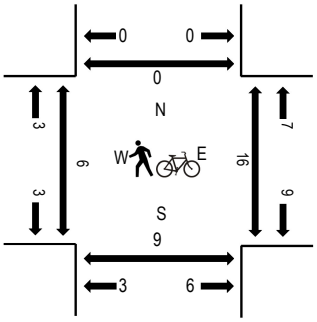
Location: 2 EL CAMINO REAL & DWY PM
Date: Tuesday, November 13, 2018
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts

Interval Start Time	CLARK AVE Eastbound				DWY Westbound				EL CAMINO REAL Northbound				EL CAMINO REAL Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	34	0	0	0	2	3	8	292	0	6	2	432	23	802	3,264	0	3	5	0
4:15 PM	0	0	0	27	0	0	0	5	2	10	271	0	8	1	479	35	838	3,251	0	3	2	0
4:30 PM	0	0	0	27	0	0	0	4	3	6	312	0	25	2	433	31	843	3,272	0	4	0	0
4:45 PM	0	0	0	26	0	0	0	6	4	12	292	0	5	2	411	23	781	3,380	1	6	3	0
5:00 PM	0	0	0	36	0	0	0	5	0	12	289	1	12	0	415	19	789	3,499	2	3	3	0
5:15 PM	0	0	0	23	0	0	0	2	0	9	330	0	23	0	442	30	859		0	5	0	0
5:30 PM	0	0	0	21	0	0	0	0	0	17	319	0	31	0	515	48	951		3	7	1	0
5:45 PM	0	0	0	39	0	0	0	2	0	19	300	1	16	2	476	45	900		1	1	4	0

Peak Rolling Hour Flow Rates

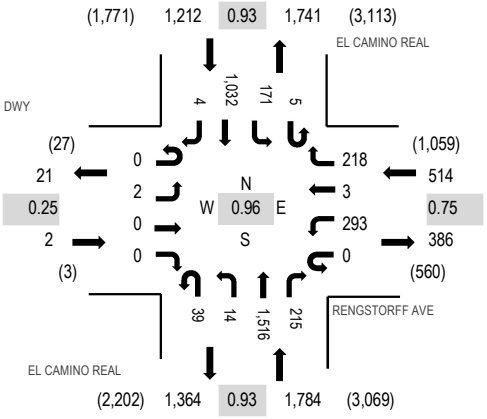
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4
Lights	0	0	0	119	0	0	0	9	0	57	1,227	2	82	2	1,820	141	3,459
Mediums	0	0	0	0	0	0	0	0	0	0	9	0	0	0	26	1	36
Total	0	0	0	119	0	0	0	9	0	57	1,238	2	82	2	1,848	142	3,499

All Traffic Data Services Inc.

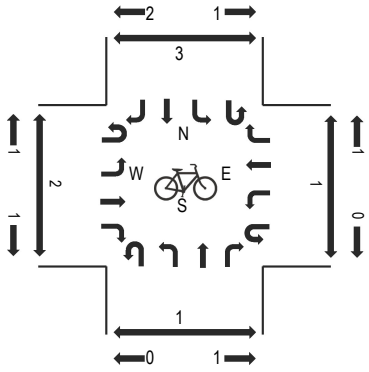
(303) 216-2439
www.alltrafficdata.net

Location: 1 EL CAMINO REAL & RENGSTORFF AVE AM
Date: Thursday, October 18, 2018
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

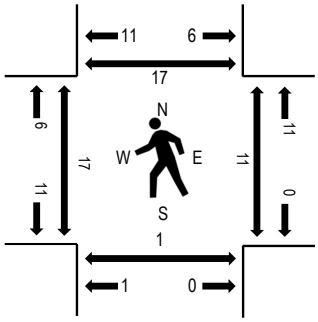
Peak Hour - All Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts

Interval Start Time	DWY Eastbound				RENGSTORFF AVE Westbound				EL CAMINO REAL Northbound				EL CAMINO REAL Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	31	2	16	2	1	202	20	0	5	76	0	355	2,390	3	0	0	2
7:15 AM	0	0	1	0	0	56	0	38	4	0	282	21	0	6	98	0	506	2,929	5	0	0	7
7:30 AM	0	0	0	0	0	107	0	67	7	0	308	33	0	14	152	0	688	3,288	6	0	0	1
7:45 AM	0	0	0	0	0	120	0	108	12	3	351	39	0	35	173	0	841	3,511	2	2	0	8
8:00 AM	0	0	0	0	0	89	0	48	9	3	369	54	0	70	251	1	894	3,512	2	4	0	2
8:15 AM	0	0	0	0	0	84	3	54	7	0	342	50	4	46	274	1	865		3	4	1	6
8:30 AM	0	0	0	0	0	56	0	64	12	3	416	51	0	32	277	0	911		7	2	0	6
8:45 AM	0	2	0	0	0	64	0	52	11	8	389	60	1	23	230	2	842		5	1	0	3

Peak Rolling Hour Flow Rates

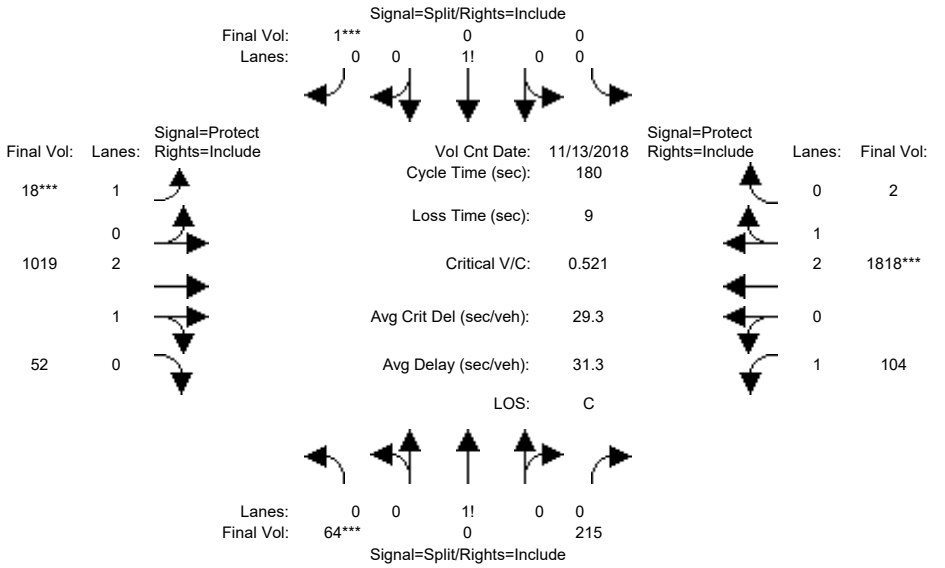
Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	2	0	0	11	2	0	1	9	0	25
Lights	0	2	0	0	0	288	3	214	39	14	1,473	212	5	169	994	4	3,417
Mediums	0	0	0	0	0	5	0	2	0	0	32	1	0	1	29	0	70
Total	0	2	0	0	0	293	3	218	39	14	1,516	215	5	171	1,032	4	3,512

Appendix B

Level of Service Calculations

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #2: Distel Drive & El Camino Real

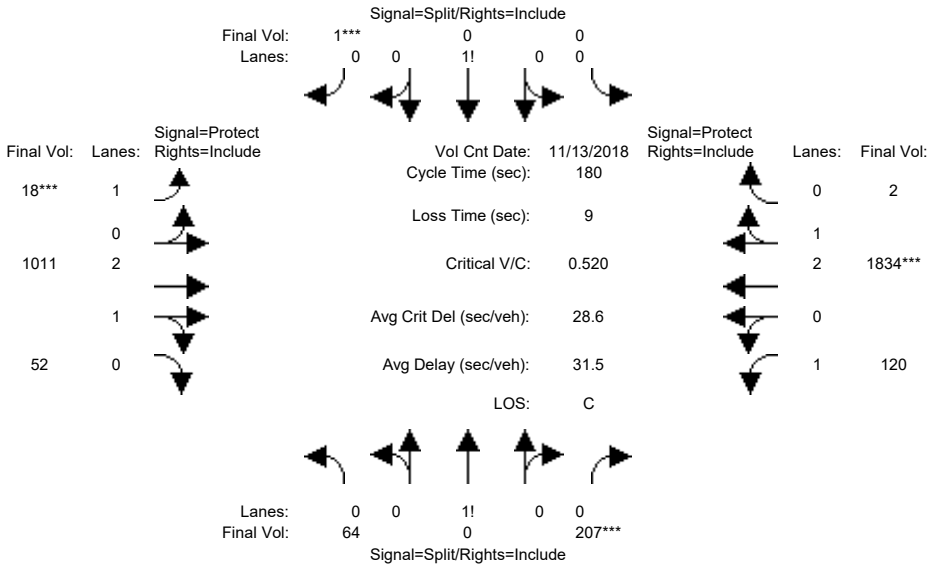


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 8:00 AM - 9:00 AM												
Base Vol:	64	0	215	0	0	1	18	1019	52	104	1818	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	64	0	215	0	0	1	18	1019	52	104	1818	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	64	0	215	0	0	1	18	1019	52	104	1818	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	64	0	215	0	0	1	18	1019	52	104	1818	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	64	0	215	0	0	1	18	1019	52	104	1818	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	64	0	215	0	0	1	18	1019	52	104	1818	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.23	0.00	0.77	0.00	0.00	1.00	1.00	2.85	0.15	1.00	2.99	0.01
Final Sat.:	401	0	1349	0	0	1750	1750	5328	272	1750	5594	6
Capacity Analysis Module:												
Vol/Sat:	0.16	0.00	0.16	0.00	0.00	0.00	0.01	0.19	0.19	0.06	0.33	0.33
Crit Moves:	****					****	****				****	
Green Time:	50.7	0.0	50.7	0.0	0.0	10.0	7.0	84.2	84.2	26.2	103	103.3
Volume/Cap:	0.57	0.00	0.57	0.00	0.00	0.01	0.26	0.41	0.41	0.41	0.57	0.57
Uniform Del:	55.3	0.0	55.3	0.0	0.0	80.3	84.0	31.5	31.5	69.9	24.2	24.2
IncremntDel:	1.5	0.0	1.5	0.0	0.0	0.0	2.1	0.1	0.1	1.1	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	56.8	0.0	56.8	0.0	0.0	80.4	86.1	31.6	31.6	71.0	24.4	24.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	56.8	0.0	56.8	0.0	0.0	80.4	86.1	31.6	31.6	71.0	24.4	24.4
LOS by Move:	E	A	E	A	A	F	F	C	C	E	C	C
HCM2k95thQ:	25	0	25	0	0	0	3	23	23	11	35	35

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex+Proj AM

Intersection #2: Distel Drive & El Camino Real

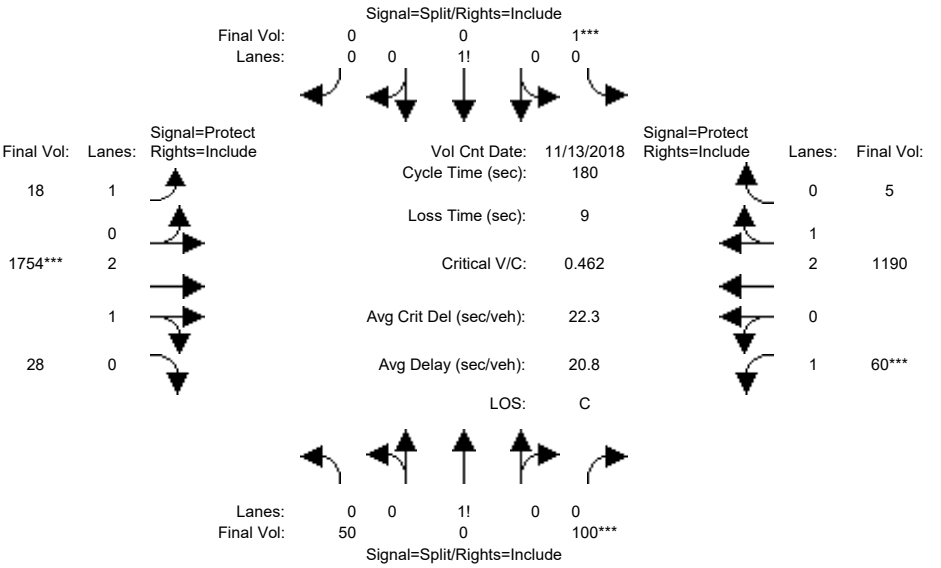


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 8:00 AM - 9:00 AM												
Base Vol:	64	0	215	0	0	1	18	1019	52	104	1818	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	64	0	215	0	0	1	18	1019	52	104	1818	2
Added Vol:	0	0	-8	0	0	0	0	-8	0	16	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	64	0	207	0	0	1	18	1011	52	120	1834	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	64	0	207	0	0	1	18	1011	52	120	1834	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	64	0	207	0	0	1	18	1011	52	120	1834	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	64	0	207	0	0	1	18	1011	52	120	1834	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.24	0.00	0.76	0.00	0.00	1.00	1.00	2.85	0.15	1.00	2.99	0.01
Final Sat.:	413	0	1337	0	0	1750	1750	5326	274	1750	5594	6
Capacity Analysis Module:												
Vol/Sat:	0.15	0.00	0.15	0.00	0.00	0.00	0.01	0.19	0.19	0.07	0.33	0.33
Crit Moves:			****			****	****				****	
Green Time:	49.4	0.0	49.4	0.0	0.0	10.0	7.0	82.0	82.0	29.6	105	104.6
Volume/Cap:	0.56	0.00	0.56	0.00	0.00	0.01	0.26	0.42	0.42	0.42	0.56	0.56
Uniform Del:	56.1	0.0	56.1	0.0	0.0	80.3	84.0	32.9	32.9	67.4	23.5	23.5
IncremntDel:	1.6	0.0	1.6	0.0	0.0	0.0	2.1	0.1	0.1	1.0	0.2	0.2
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	57.6	0.0	57.6	0.0	0.0	80.4	86.1	33.1	33.1	68.4	23.7	23.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	57.6	0.0	57.6	0.0	0.0	80.4	86.1	33.1	33.1	68.4	23.7	23.7
LOS by Move:	E	A	E	A	A	F	F	C	C	E	C	C
HCM2k95thQ:	25	0	25	0	0	0	3	23	23	13	35	35

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #2: Distel Drive & El Camino Real

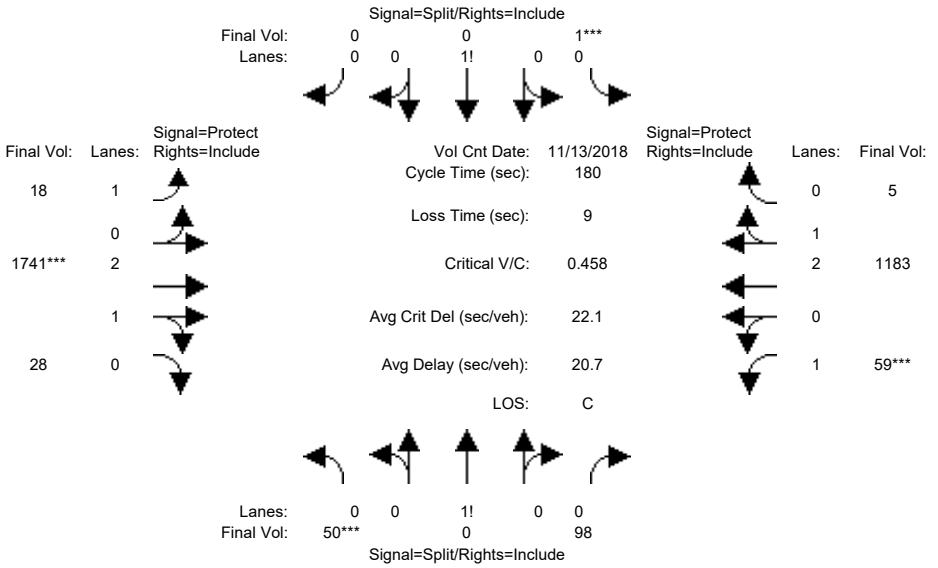


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 5:00 PM - 6:00 PM												
Base Vol:	50	0	100	1	0	0	18	1754	28	60	1190	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	0	100	1	0	0	18	1754	28	60	1190	5
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	50	0	100	1	0	0	18	1754	28	60	1190	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	0	100	1	0	0	18	1754	28	60	1190	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	0	100	1	0	0	18	1754	28	60	1190	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	50	0	100	1	0	0	18	1754	28	60	1190	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.33	0.00	0.67	1.00	0.00	0.00	1.00	2.95	0.05	1.00	2.99	0.01
Final Sat.:	583	0	1167	1750	0	0	1750	5512	88	1750	5577	23
Capacity Analysis Module:												
Vol/Sat:	0.09	0.00	0.09	0.00	0.00	0.00	0.01	0.32	0.32	0.03	0.21	0.21
Crit Moves:			****	****				****		****		
Green Time:	31.5	0.0	31.5	10.0	0.0	0.0	20.0	117	116.9	12.6	110	109.5
Volume/Cap:	0.49	0.00	0.49	0.01	0.00	0.00	0.09	0.49	0.49	0.49	0.35	0.35
Uniform Del:	67.0	0.0	67.0	80.3	0.0	0.0	71.9	16.2	16.2	80.6	17.5	17.5
IncremntDel:	1.2	0.0	1.2	0.0	0.0	0.0	0.2	0.1	0.1	3.1	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	68.2	0.0	68.2	80.4	0.0	0.0	72.1	16.3	16.3	83.7	17.6	17.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	68.2	0.0	68.2	80.4	0.0	0.0	72.1	16.3	16.3	83.7	17.6	17.6
LOS by Move:	E	A	E	F	A	A	E	B	B	F	B	B
HCM2k95thQ:	16	0	16	0	0	0	2	29	29	8	19	19

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex+Proj PM

Intersection #2: Distel Drive & El Camino Real

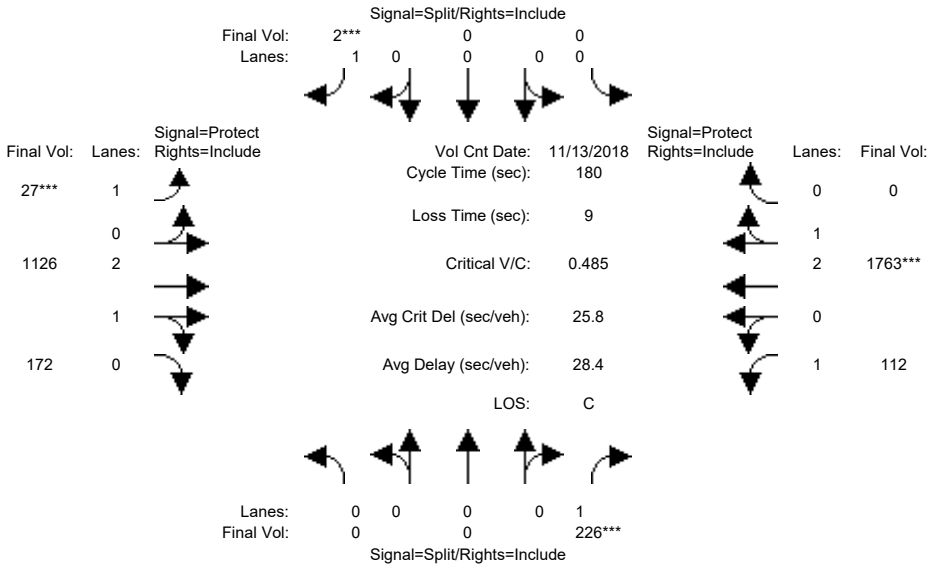


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 5:00 PM - 6:00 PM												
Base Vol:	50	0	100	1	0	0	18	1754	28	60	1190	5
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	50	0	100	1	0	0	18	1754	28	60	1190	5
Added Vol:	0	0	-2	0	0	0	0	-13	0	-1	-7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	50	0	98	1	0	0	18	1741	28	59	1183	5
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	50	0	98	1	0	0	18	1741	28	59	1183	5
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	50	0	98	1	0	0	18	1741	28	59	1183	5
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	50	0	98	1	0	0	18	1741	28	59	1183	5
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.34	0.00	0.66	1.00	0.00	0.00	1.00	2.95	0.05	1.00	2.99	0.01
Final Sat.:	591	0	1159	1750	0	0	1750	5511	89	1750	5576	24
Capacity Analysis Module:												
Vol/Sat:	0.08	0.00	0.08	0.00	0.00	0.00	0.01	0.32	0.32	0.03	0.21	0.21
Crit Moves:	****			****				****		****		
Green Time:	31.4	0.0	31.4	10.0	0.0	0.0	20.1	117	117.1	12.5	110	109.6
Volume/Cap:	0.49	0.00	0.49	0.01	0.00	0.00	0.09	0.49	0.49	0.49	0.35	0.35
Uniform Del:	67.0	0.0	67.0	80.3	0.0	0.0	71.8	16.0	16.0	80.7	17.5	17.5
IncremntDel:	1.2	0.0	1.2	0.0	0.0	0.0	0.2	0.1	0.1	3.0	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	68.3	0.0	68.3	80.4	0.0	0.0	72.0	16.1	16.1	83.7	17.6	17.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	68.3	0.0	68.3	80.4	0.0	0.0	72.0	16.1	16.1	83.7	17.6	17.6
LOS by Move:	E	A	E	F	A	A	E	B	B	F	B	B
HCM2k95thQ:	15	0	15	0	0	0	2	28	28	8	19	19

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #3: Clark Avenue & El Camino Real

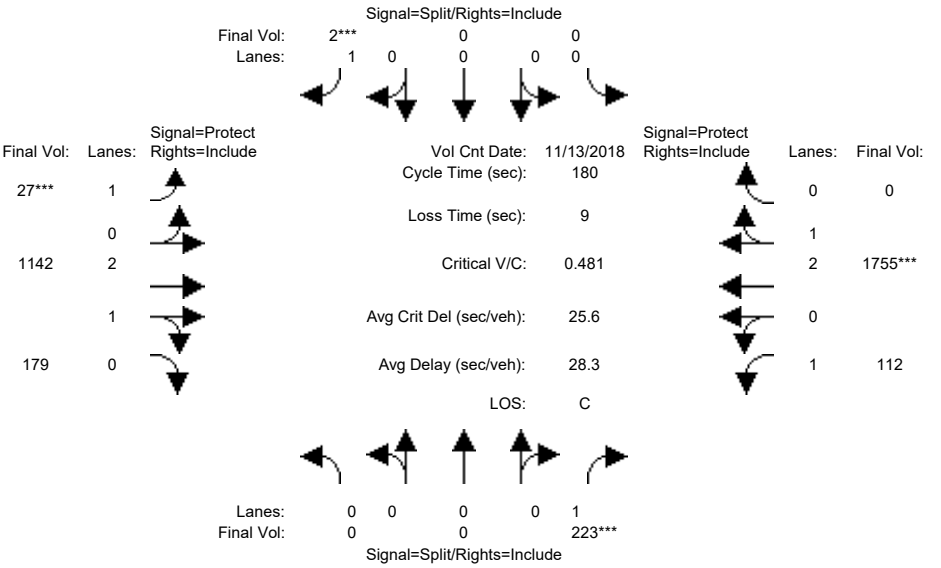


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 8:00 AM - 9:00 AM												
Base Vol:	0	0	226	0	0	2	27	1126	172	112	1763	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	226	0	0	2	27	1126	172	112	1763	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	226	0	0	2	27	1126	172	112	1763	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	226	0	0	2	27	1126	172	112	1763	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	226	0	0	2	27	1126	172	112	1763	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	226	0	0	2	27	1126	172	112	1763	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.92
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.59	0.41	1.00	3.00	0.00
Final Sat.:	0	0	1750	0	0	1750	1750	4857	742	1750	5600	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.13	0.00	0.00	0.00	0.02	0.23	0.23	0.06	0.31	0.00
Crit Moves:			****			****	****				****	
Green Time:	0.0	0.0	44.8	0.0	0.0	10.0	7.0	91.1	91.1	25.1	109	0.0
Volume/Cap:	0.00	0.00	0.52	0.00	0.00	0.02	0.40	0.46	0.46	0.46	0.52	0.00
Uniform Del:	0.0	0.0	58.3	0.0	0.0	80.4	84.4	28.6	28.6	71.2	20.3	0.0
IncremntDel:	0.0	0.0	1.1	0.0	0.0	0.1	3.8	0.1	0.1	1.4	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	59.4	0.0	0.0	80.5	88.2	28.7	28.7	72.5	20.5	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	59.4	0.0	0.0	80.5	88.2	28.7	28.7	72.5	20.5	0.0
LOS by Move:	A	A	E	A	A	F	F	C	C	E	C	A
HCM2k95thQ:	0	0	21	0	0	0	4	26	26	12	31	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex+Proj AM

Intersection #3: Clark Avenue & El Camino Real

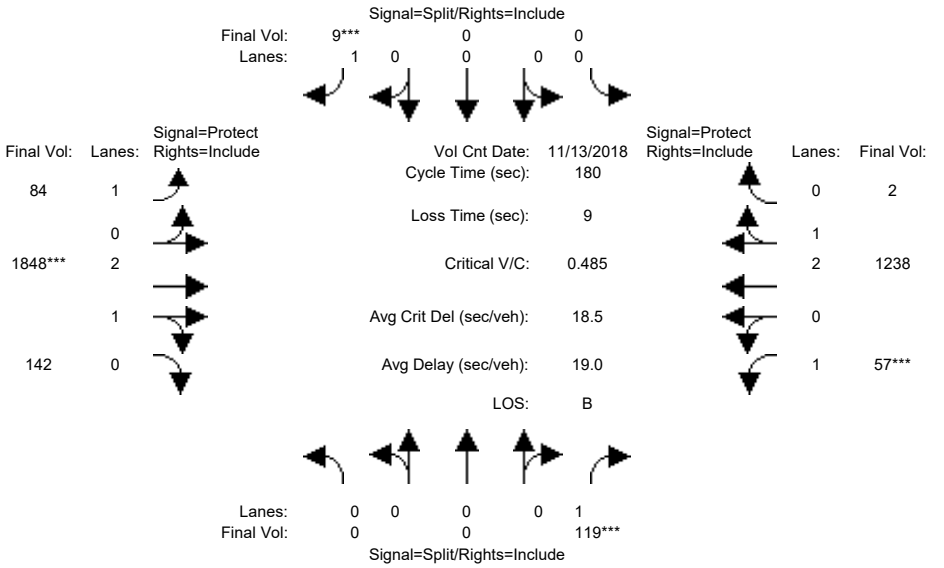


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 8:00 AM - 9:00 AM												
Base Vol:	0	0	226	0	0	2	27	1126	172	112	1763	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	226	0	0	2	27	1126	172	112	1763	0
Added Vol:	0	0	-3	0	0	0	0	16	7	0	-8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	223	0	0	2	27	1142	179	112	1755	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	223	0	0	2	27	1142	179	112	1755	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	223	0	0	2	27	1142	179	112	1755	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	223	0	0	2	27	1142	179	112	1755	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.92
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.58	0.42	1.00	3.00	0.00
Final Sat.:	0	0	1750	0	0	1750	1750	4840	759	1750	5600	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.13	0.00	0.00	0.00	0.02	0.24	0.24	0.06	0.31	0.00
Crit Moves:			****			****	****				****	
Green Time:	0.0	0.0	44.5	0.0	0.0	10.0	7.0	91.6	91.6	24.9	109	0.0
Volume/Cap:	0.00	0.00	0.52	0.00	0.00	0.02	0.40	0.46	0.46	0.46	0.52	0.00
Uniform Del:	0.0	0.0	58.4	0.0	0.0	80.4	84.4	28.4	28.4	71.4	20.1	0.0
IncremntDel:	0.0	0.0	1.1	0.0	0.0	0.1	3.8	0.1	0.1	1.4	0.1	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	59.5	0.0	0.0	80.5	88.2	28.5	28.5	72.8	20.3	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	59.5	0.0	0.0	80.5	88.2	28.5	28.5	72.8	20.3	0.0
LOS by Move:	A	A	E	A	A	F	F	C	C	E	C	A
HCM2k95thQ:	0	0	21	0	0	0	4	27	27	12	31	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #3: Clark Avenue & El Camino Real

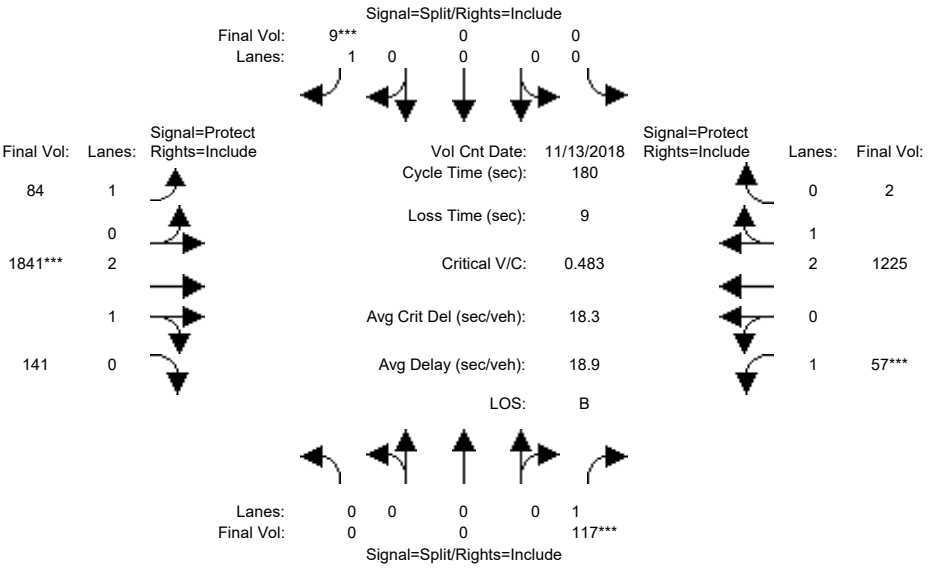


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 5:00 PM - 6:00 PM												
Base Vol:	0	0	119	0	0	9	84	1848	142	57	1238	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	119	0	0	9	84	1848	142	57	1238	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	119	0	0	9	84	1848	142	57	1238	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	119	0	0	9	84	1848	142	57	1238	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	119	0	0	9	84	1848	142	57	1238	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	119	0	0	9	84	1848	142	57	1238	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.95
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.78	0.22	1.00	2.99	0.01
Final Sat.:	0	0	1750	0	0	1750	1750	5200	400	1750	5591	9
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.07	0.00	0.00	0.01	0.05	0.36	0.36	0.03	0.22	0.22
Crit Moves:			****			****		****		****		
Green Time:	0.0	0.0	24.0	0.0	0.0	10.0	24.4	125	125.5	11.5	113	112.6
Volume/Cap:	0.00	0.00	0.51	0.00	0.00	0.09	0.35	0.51	0.51	0.51	0.35	0.35
Uniform Del:	0.0	0.0	72.5	0.0	0.0	80.7	70.6	12.8	12.8	81.5	16.2	16.2
IncremntDel:	0.0	0.0	1.9	0.0	0.0	0.4	0.9	0.1	0.1	3.9	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	74.4	0.0	0.0	81.1	71.6	12.9	12.9	85.4	16.3	16.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	74.4	0.0	0.0	81.1	71.6	12.9	12.9	85.4	16.3	16.3
LOS by Move:	A	A	E	A	A	F	E	B	B	F	B	B
HCM2k95thQ:	0	0	13	0	0	1	9	29	29	8	20	20

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex+Proj PM

Intersection #3: Clark Avenue & El Camino Real

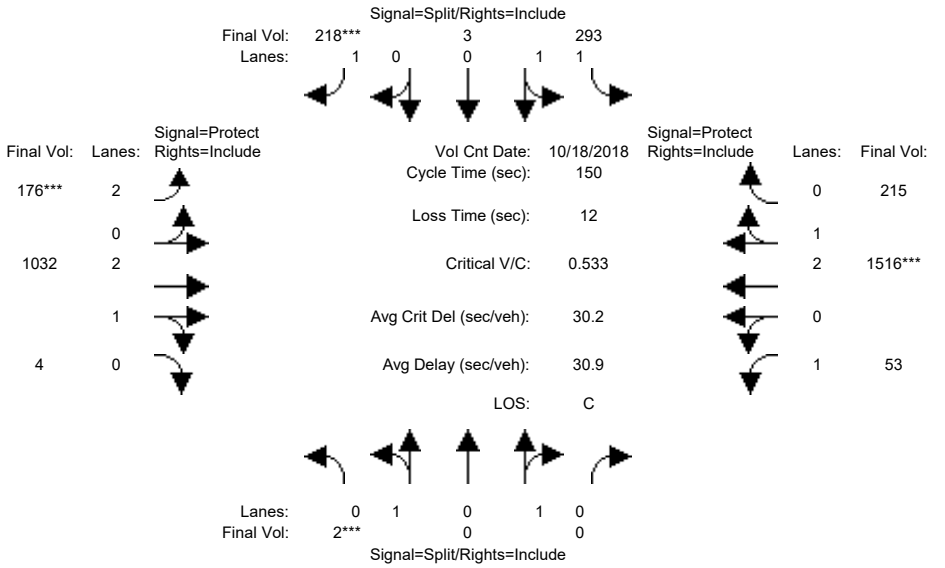


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 13 Nov 2018 << 5:00 PM - 6:00 PM												
Base Vol:	0	0	119	0	0	9	84	1848	142	57	1238	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	119	0	0	9	84	1848	142	57	1238	2
Added Vol:	0	0	-2	0	0	0	0	-7	-1	0	-13	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	117	0	0	9	84	1841	141	57	1225	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	117	0	0	9	84	1841	141	57	1225	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	117	0	0	9	84	1841	141	57	1225	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	117	0	0	9	84	1841	141	57	1225	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.95
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.78	0.22	1.00	2.99	0.01
Final Sat.:	0	0	1750	0	0	1750	1750	5201	398	1750	5591	9
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.07	0.00	0.00	0.01	0.05	0.35	0.35	0.03	0.22	0.22
Crit Moves:			****			****		****			****	
Green Time:	0.0	0.0	23.7	0.0	0.0	10.0	24.7	126	125.7	11.6	113	112.6
Volume/Cap:	0.00	0.00	0.51	0.00	0.00	0.09	0.35	0.51	0.51	0.51	0.35	0.35
Uniform Del:	0.0	0.0	72.7	0.0	0.0	80.7	70.4	12.7	12.7	81.5	16.2	16.2
IncremntDel:	0.0	0.0	1.8	0.0	0.0	0.4	0.9	0.1	0.1	3.7	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	74.5	0.0	0.0	81.1	71.3	12.8	12.8	85.2	16.2	16.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	74.5	0.0	0.0	81.1	71.3	12.8	12.8	85.2	16.2	16.2
LOS by Move:	A	A	E	A	A	F	E	B	B	F	B	B
HCM2k95thQ:	0	0	13	0	0	1	9	29	29	8	19	19

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing AM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

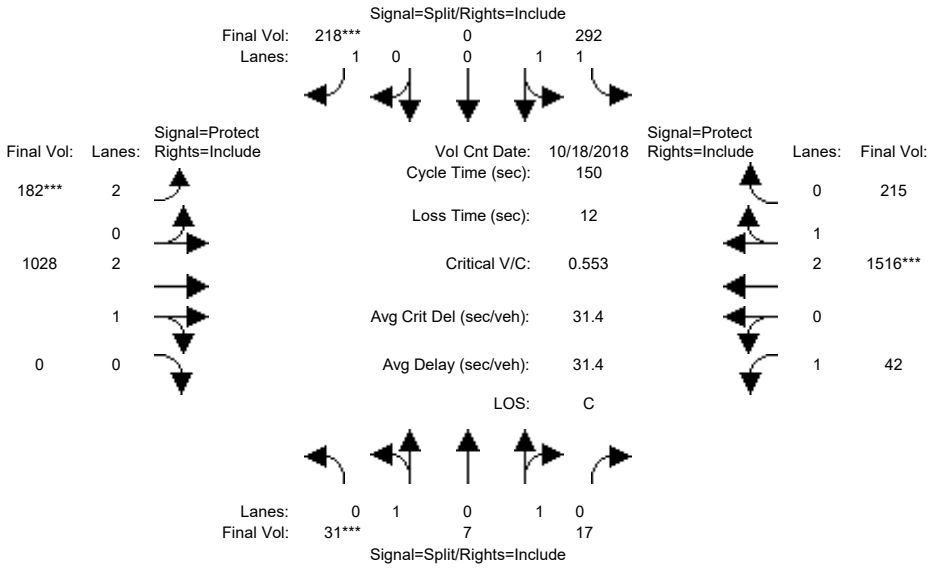


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 18 Oct 2018 << 8-9 AM												
Base Vol:	2	0	0	293	3	218	176	1032	4	53	1516	215
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	0	0	293	3	218	176	1032	4	53	1516	215
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	0	0	293	3	218	176	1032	4	53	1516	215
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	0	0	293	3	218	176	1032	4	53	1516	215
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	0	0	293	3	218	176	1032	4	53	1516	215
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	0	0	293	3	218	176	1032	4	53	1516	215
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.92	0.93	0.95	0.92	0.83	0.98	0.95	0.92	0.99	0.95
Lanes:	1.00	0.00	1.00	1.98	0.02	1.00	2.00	2.99	0.01	1.00	2.61	0.39
Final Sat.:	1800	0	1750	3514	36	1750	3150	5578	22	1750	4904	695
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.08	0.08	0.12	0.06	0.19	0.19	0.03	0.31	0.31
Crit Moves:	****					****	****				****	
Green Time:	10.0	0.0	0.0	32.6	32.6	32.6	14.6	71.6	71.6	23.9	80.8	80.8
Volume/Cap:	0.02	0.00	0.00	0.38	0.38	0.57	0.57	0.39	0.39	0.19	0.57	0.57
Uniform Del:	65.4	0.0	0.0	50.1	50.1	52.5	64.7	25.2	25.2	54.7	23.1	23.1
IncremntDel:	0.1	0.0	0.0	0.3	0.3	2.1	2.6	0.1	0.1	0.3	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	65.5	0.0	0.0	50.5	50.5	54.6	67.4	25.2	25.2	55.0	23.4	23.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.5	0.0	0.0	50.5	50.5	54.6	67.4	25.2	25.2	55.0	23.4	23.4
LOS by Move:	E	A	A	D	D	D	E	C	C	E	C	C
HCM2k95thQ:	0	0	0	12	12	19	11	18	18	5	30	30

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex+Proj AM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

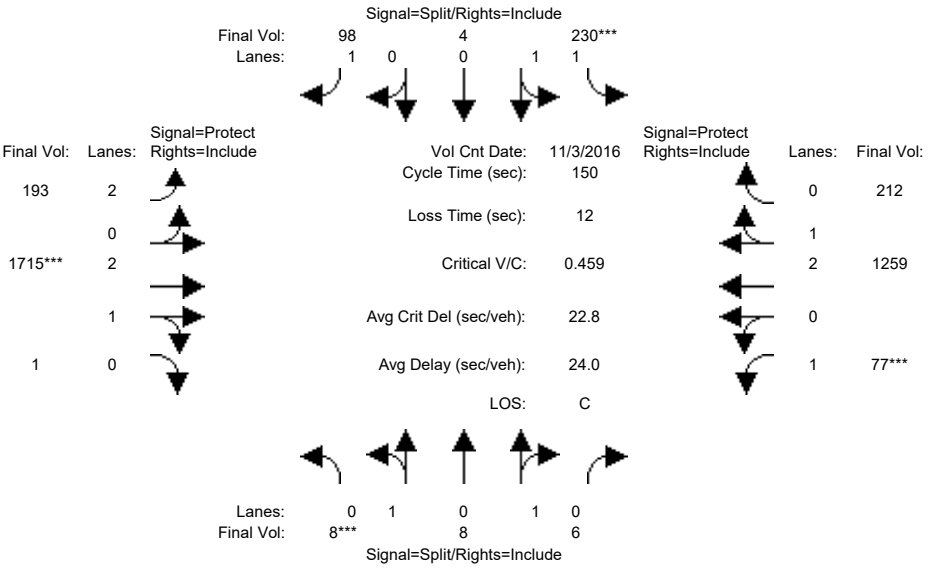


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 18 Oct 2018 << 8-9 AM												
Base Vol:	2	0	0	293	3	218	176	1032	4	53	1516	215
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	0	0	293	3	218	176	1032	4	53	1516	215
Added Vol:	29	7	17	-1	-4	0	6	-4	-12	-11	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	7	17	292	-1	218	182	1028	-8	42	1516	215
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	31	7	17	292	0	218	182	1028	0	42	1516	215
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	7	17	292	0	218	182	1028	0	42	1516	215
PCE Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	31	7	17	292	0	218	182	1028	0	42	1516	215
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.93	1.00	0.92	0.83	0.98	0.92	0.92	0.99	0.95
Lanes:	1.00	0.29	0.71	2.00	0.00	1.00	2.00	3.00	0.00	1.00	2.61	0.39
Final Sat.:	1800	525	1275	3550	0	1750	3150	5600	0	1750	4904	695
Capacity Analysis Module:												
Vol/Sat:	0.02	0.01	0.01	0.08	0.00	0.12	0.06	0.18	0.00	0.02	0.31	0.31
Crit Moves:	****					****	****				****	
Green Time:	10.0	10.0	10.0	32.4	0.0	32.4	15.0	71.7	0.0	23.9	80.5	80.5
Volume/Cap:	0.26	0.20	0.20	0.38	0.00	0.58	0.58	0.38	0.00	0.15	0.58	0.58
Uniform Del:	66.5	66.2	66.2	50.2	0.0	52.6	64.4	25.1	0.0	54.3	23.3	23.3
IncremntDel:	0.6	0.4	0.4	0.3	0.0	2.2	2.6	0.1	0.0	0.3	0.3	0.3
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	67.1	66.6	66.6	50.5	0.0	54.8	67.0	25.1	0.0	54.6	23.6	23.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	67.1	66.6	66.6	50.5	0.0	54.8	67.0	25.1	0.0	54.6	23.6	23.6
LOS by Move:	E	E	E	D	A	D	E	C	A	D	C	C
HCM2k95thQ:	3	3	3	12	0	19	11	18	0	4	31	31

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Existing PM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

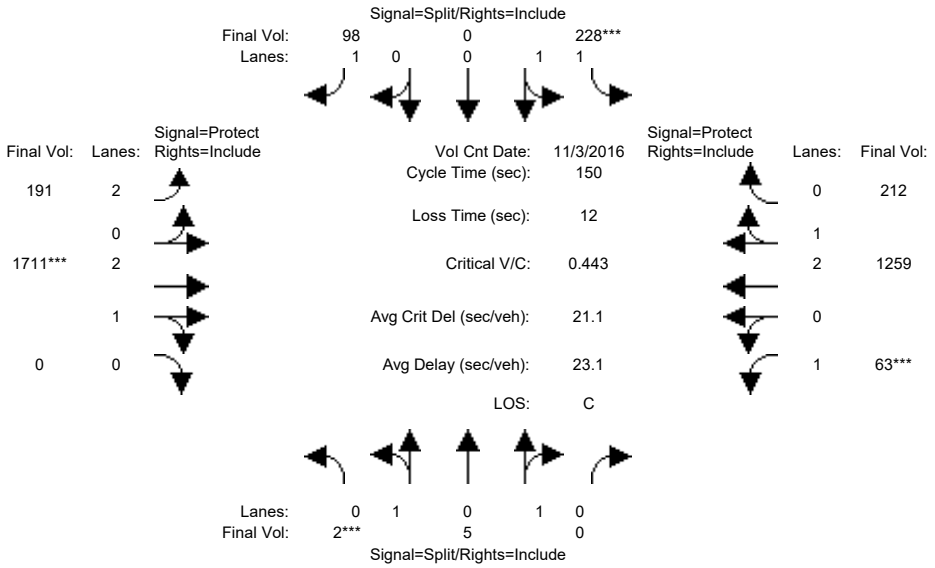


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 3 Nov 2016 << 5:15-6:15 PM												
Base Vol:	8	8	6	230	4	98	193	1715	1	77	1259	212
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	6	230	4	98	193	1715	1	77	1259	212
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	8	6	230	4	98	193	1715	1	77	1259	212
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	8	6	230	4	98	193	1715	1	77	1259	212
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	8	6	230	4	98	193	1715	1	77	1259	212
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	8	6	230	4	98	193	1715	1	77	1259	212
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.93	0.95	0.92	0.83	0.98	0.95	0.92	0.99	0.95
Lanes:	0.73	0.73	0.54	1.97	0.03	1.00	2.00	2.99	0.01	1.00	2.55	0.45
Final Sat.:	1309	1309	982	3489	61	1750	3150	5597	3	1750	4792	807
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.07	0.06	0.06	0.31	0.31	0.04	0.26	0.26
Crit Moves:	****			****				****		****		
Green Time:	10.0	10.0	10.0	20.3	20.3	20.3	21.8	94.2	94.2	13.5	85.9	85.9
Volume/Cap:	0.09	0.09	0.09	0.49	0.49	0.41	0.42	0.49	0.49	0.49	0.46	0.46
Uniform Del:	65.7	65.7	65.7	60.1	60.1	59.4	58.4	15.0	15.0	64.9	18.6	18.6
IncremntDel:	0.2	0.2	0.2	0.8	0.8	1.2	0.6	0.1	0.1	2.4	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	65.9	65.9	65.9	60.8	60.8	60.6	59.0	15.1	15.1	67.3	18.7	18.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.9	65.9	65.9	60.8	60.8	60.6	59.0	15.1	15.1	67.3	18.7	18.7
LOS by Move:	E	E	E	E	E	E	E	B	B	E	B	B
HCM2k95thQ:	1	1	1	11	11	9	10	25	25	8	23	23

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Ex+Proj PM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

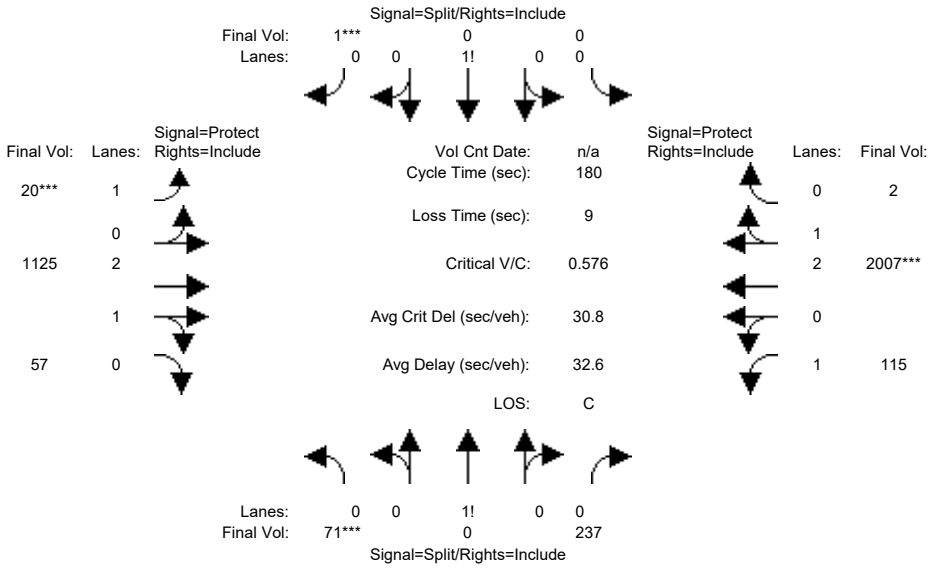


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module: >> Count Date: 3 Nov 2016 << 5:15-6:15 PM												
Base Vol:	8	8	6	230	4	98	193	1715	1	77	1259	212
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	8	6	230	4	98	193	1715	1	77	1259	212
Added Vol:	-6	-3	-6	-2	-5	0	-2	-4	-11	-14	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	5	0	228	-1	98	191	1711	-10	63	1259	212
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	2	5	0	228	0	98	191	1711	0	63	1259	212
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	5	0	228	0	98	191	1711	0	63	1259	212
PCE Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	2	5	0	228	0	98	191	1711	0	63	1259	212
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.92	0.93	1.00	0.92	0.83	0.98	0.92	0.92	0.99	0.95
Lanes:	0.57	1.43	0.00	2.00	0.00	1.00	2.00	3.00	0.00	1.00	2.55	0.45
Final Sat.:	1029	2571	0	3550	0	1750	3150	5600	0	1750	4792	807
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.00	0.06	0.06	0.31	0.00	0.04	0.26	0.26
Crit Moves:	****			****				****		****		
Green Time:	10.0	10.0	0.0	20.3	0.0	20.3	21.8	96.4	0.0	11.4	85.9	85.9
Volume/Cap:	0.03	0.03	0.00	0.48	0.00	0.41	0.42	0.48	0.00	0.48	0.46	0.46
Uniform Del:	65.5	65.5	0.0	60.0	0.0	59.4	58.3	13.8	0.0	66.5	18.6	18.6
IncremntDel:	0.0	0.0	0.0	0.7	0.0	1.2	0.6	0.1	0.0	2.7	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	65.5	65.5	0.0	60.7	0.0	60.6	58.9	13.9	0.0	69.1	18.7	18.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.5	65.5	0.0	60.7	0.0	60.6	58.9	13.9	0.0	69.1	18.7	18.7
LOS by Move:	E	E	A	E	A	E	E	B	A	E	B	B
HCM2k95thQ:	0	0	0	11	0	9	10	24	0	7	23	23

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM

Intersection #2: Distel Drive & El Camino Real

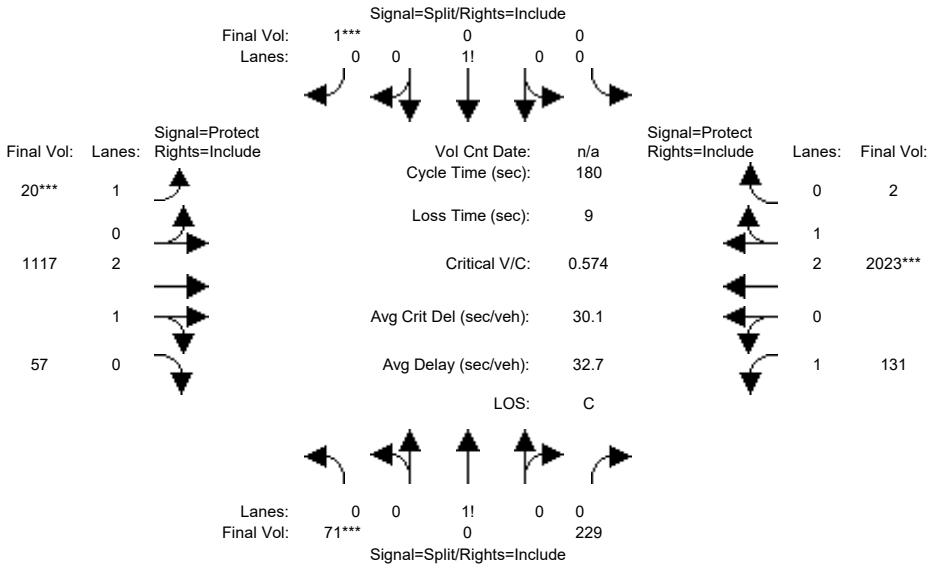


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	71	0	237	0	0	1	20	1125	57	115	2007	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	0	237	0	0	1	20	1125	57	115	2007	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	0	237	0	0	1	20	1125	57	115	2007	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	0	237	0	0	1	20	1125	57	115	2007	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	0	237	0	0	1	20	1125	57	115	2007	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	71	0	237	0	0	1	20	1125	57	115	2007	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.23	0.00	0.77	0.00	0.00	1.00	1.00	2.85	0.15	1.00	2.99	0.01
Final Sat.:	403	0	1347	0	0	1750	1750	5330	270	1750	5594	6
Capacity Analysis Module:												
Vol/Sat:	0.18	0.00	0.18	0.00	0.00	0.00	0.01	0.21	0.21	0.07	0.36	0.36
Crit Moves:	****					****	****				****	
Green Time:	50.7	0.0	50.7	0.0	0.0	10.0	7.0	84.1	84.1	26.2	103	103.3
Volume/Cap:	0.63	0.00	0.63	0.00	0.00	0.01	0.29	0.45	0.45	0.45	0.63	0.63
Uniform Del:	56.4	0.0	56.4	0.0	0.0	80.3	84.1	32.4	32.4	70.3	25.5	25.5
IncremntDel:	2.5	0.0	2.5	0.0	0.0	0.0	2.4	0.1	0.1	1.3	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	58.9	0.0	58.9	0.0	0.0	80.4	86.5	32.5	32.5	71.6	25.9	25.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	58.9	0.0	58.9	0.0	0.0	80.4	86.5	32.5	32.5	71.6	25.9	25.9
LOS by Move:	E	A	E	A	A	F	F	C	C	E	C	C
HCM2k95thQ:	28	0	28	0	0	0	3	25	25	12	40	40

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Bkgrd+Proj AM

Intersection #2: Distel Drive & El Camino Real

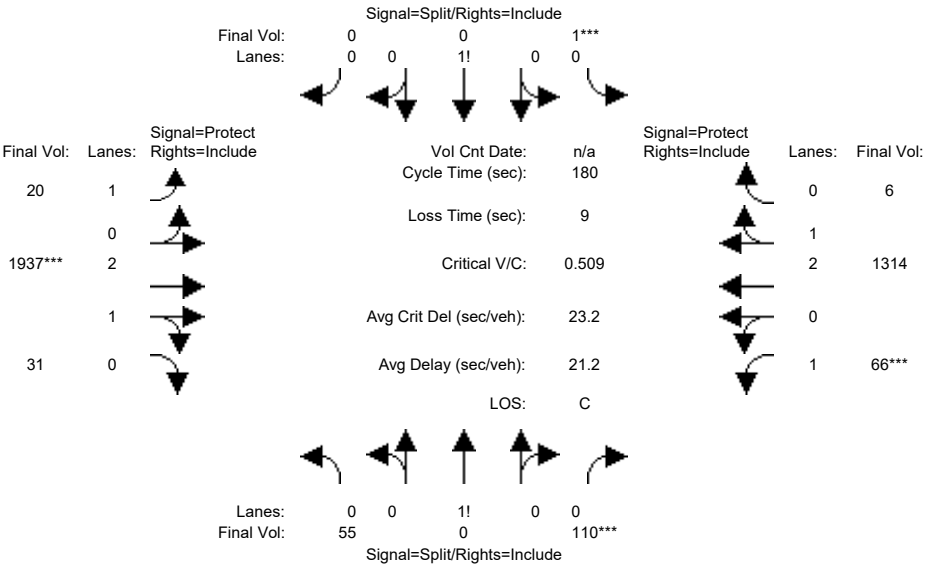


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	71	0	237	0	0	1	20	1125	57	115	2007	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	0	237	0	0	1	20	1125	57	115	2007	2
Added Vol:	0	0	-8	0	0	0	0	-8	0	16	16	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	0	229	0	0	1	20	1117	57	131	2023	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	0	229	0	0	1	20	1117	57	131	2023	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	0	229	0	0	1	20	1117	57	131	2023	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	71	0	229	0	0	1	20	1117	57	131	2023	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.24	0.00	0.76	0.00	0.00	1.00	1.00	2.85	0.15	1.00	2.99	0.01
Final Sat.:	414	0	1336	0	0	1750	1750	5328	272	1750	5594	6
Capacity Analysis Module:												
Vol/Sat:	0.17	0.00	0.17	0.00	0.00	0.00	0.01	0.21	0.21	0.07	0.36	0.36
Crit Moves:	****					****	****				****	
Green Time:	49.5	0.0	49.5	0.0	0.0	10.0	7.0	82.1	82.1	29.3	104	104.5
Volume/Cap:	0.62	0.00	0.62	0.00	0.00	0.01	0.29	0.46	0.46	0.46	0.62	0.62
Uniform Del:	57.1	0.0	57.1	0.0	0.0	80.3	84.1	33.7	33.7	68.2	24.8	24.8
IncremntDel:	2.5	0.0	2.5	0.0	0.0	0.0	2.4	0.1	0.1	1.2	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	59.6	0.0	59.6	0.0	0.0	80.4	86.5	33.8	33.8	69.3	25.2	25.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	59.6	0.0	59.6	0.0	0.0	80.4	86.5	33.8	33.8	69.3	25.2	25.2
LOS by Move:	E	A	E	A	A	F	F	C	C	E	C	C
HCM2k95thQ:	28	0	28	0	0	0	3	26	26	14	40	40

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM

Intersection #2: Distel Drive & El Camino Real

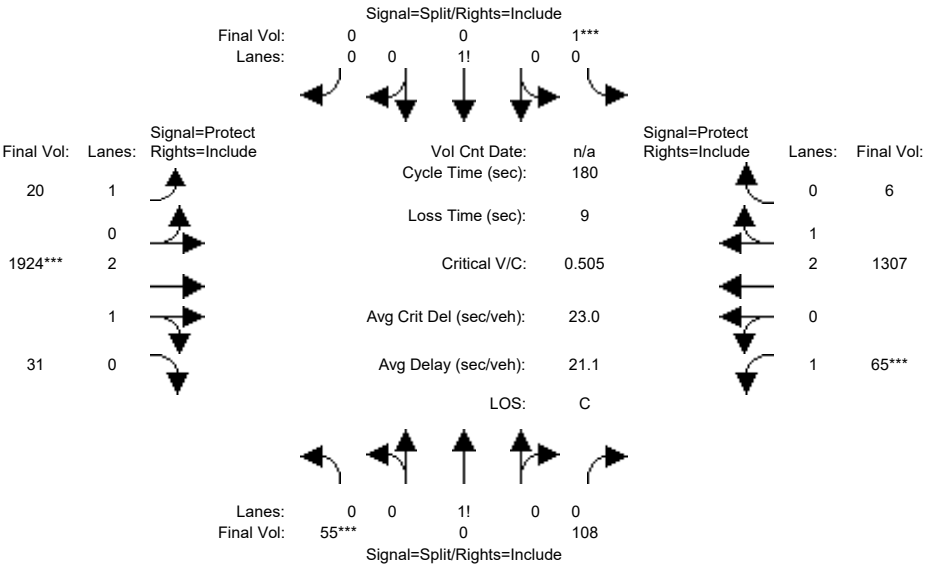


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	55	0	110	1	0	0	20	1937	31	66	1314	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	55	0	110	1	0	0	20	1937	31	66	1314	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	55	0	110	1	0	0	20	1937	31	66	1314	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	0	110	1	0	0	20	1937	31	66	1314	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	0	110	1	0	0	20	1937	31	66	1314	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	55	0	110	1	0	0	20	1937	31	66	1314	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.33	0.00	0.67	1.00	0.00	0.00	1.00	2.95	0.05	1.00	2.99	0.01
Final Sat.:	583	0	1167	1750	0	0	1750	5512	88	1750	5575	25
Capacity Analysis Module:												
Vol/Sat:	0.09	0.00	0.09	0.00	0.00	0.00	0.01	0.35	0.35	0.04	0.24	0.24
Crit Moves:			****	****				****		****		
Green Time:	31.4	0.0	31.4	10.0	0.0	0.0	18.4	117	117.0	12.6	111	111.2
Volume/Cap:	0.54	0.00	0.54	0.01	0.00	0.00	0.11	0.54	0.54	0.54	0.38	0.38
Uniform Del:	67.7	0.0	67.7	80.3	0.0	0.0	73.4	17.0	17.0	80.9	17.2	17.2
IncremntDel:	2.0	0.0	2.0	0.0	0.0	0.0	0.3	0.2	0.2	4.8	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.7	0.0	69.7	80.4	0.0	0.0	73.7	17.1	17.1	85.8	17.3	17.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	69.7	0.0	69.7	80.4	0.0	0.0	73.7	17.1	17.1	85.8	17.3	17.3
LOS by Move:	E	A	E	F	A	A	E	B	B	F	B	B
HCM2k95thQ:	17	0	17	0	0	0	2	33	33	9	21	21

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Bkgrd+Proj PM

Intersection #2: Distel Drive & El Camino Real

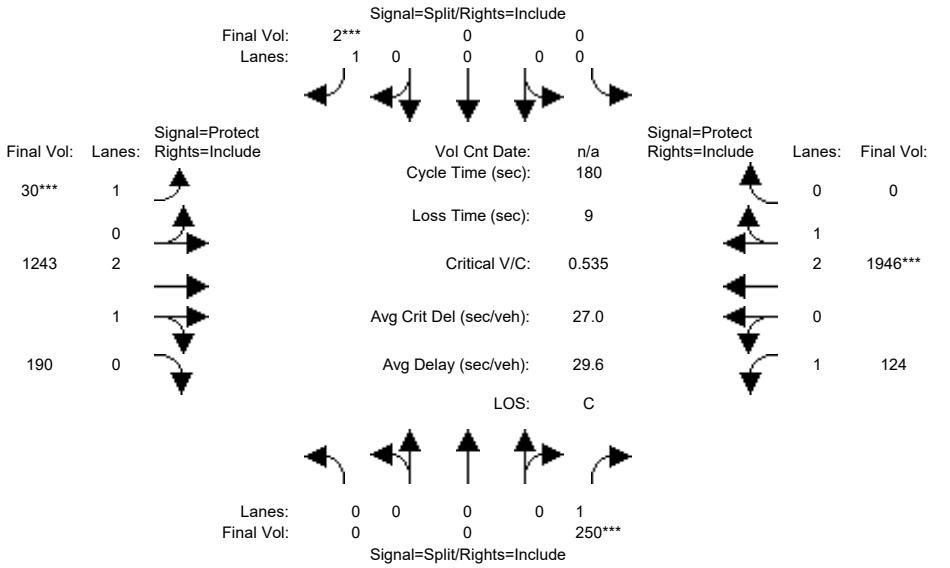


Street Name:	Distel Drive						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	55	0	110	1	0	0	20	1937	31	66	1314	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	55	0	110	1	0	0	20	1937	31	66	1314	6
Added Vol:	0	0	-2	0	0	0	0	-13	0	-1	-7	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	55	0	108	1	0	0	20	1924	31	65	1307	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	55	0	108	1	0	0	20	1924	31	65	1307	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	55	0	108	1	0	0	20	1924	31	65	1307	6
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	55	0	108	1	0	0	20	1924	31	65	1307	6
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.98	0.95	0.92	0.98	0.95
Lanes:	0.34	0.00	0.66	1.00	0.00	0.00	1.00	2.95	0.05	1.00	2.99	0.01
Final Sat.:	590	0	1160	1750	0	0	1750	5511	89	1750	5574	26
Capacity Analysis Module:												
Vol/Sat:	0.09	0.00	0.09	0.00	0.00	0.00	0.01	0.35	0.35	0.04	0.23	0.23
Crit Moves:	****			****				****		****		
Green Time:	31.3	0.0	31.3	10.0	0.0	0.0	18.5	117	117.2	12.5	111	111.3
Volume/Cap:	0.54	0.00	0.54	0.01	0.00	0.00	0.11	0.54	0.54	0.54	0.38	0.38
Uniform Del:	67.7	0.0	67.7	80.3	0.0	0.0	73.3	16.8	16.8	81.0	17.1	17.1
IncremntDel:	1.9	0.0	1.9	0.0	0.0	0.0	0.3	0.2	0.2	4.7	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	69.6	0.0	69.6	80.4	0.0	0.0	73.6	17.0	17.0	85.6	17.2	17.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	69.6	0.0	69.6	80.4	0.0	0.0	73.6	17.0	17.0	85.6	17.2	17.2
LOS by Move:	E	A	E	F	A	A	E	B	B	F	B	B
HCM2k95thQ:	17	0	17	0	0	0	2	32	32	9	21	21

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM

Intersection #3: Clark Avenue & El Camino Real

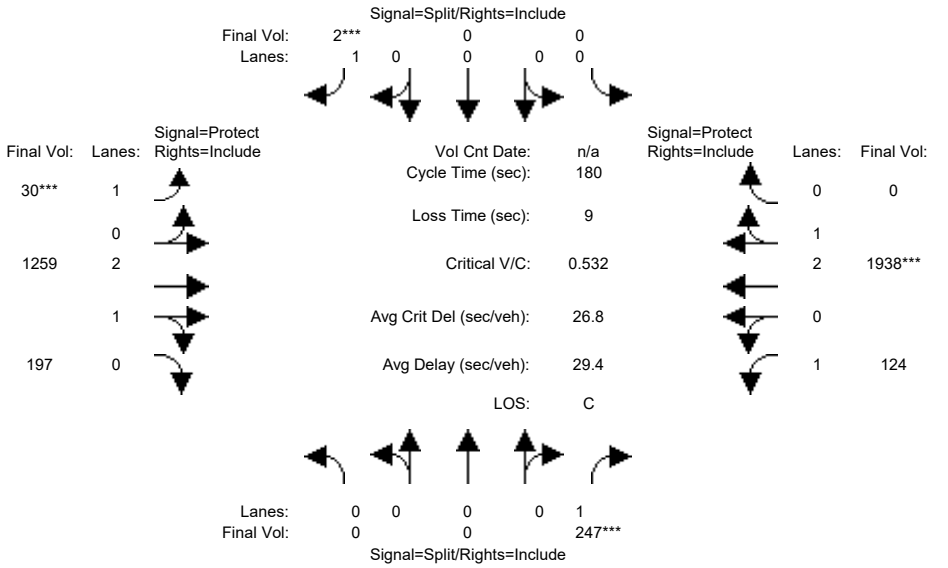


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	0	0	250	0	0	2	30	1243	190	124	1946	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	250	0	0	2	30	1243	190	124	1946	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	250	0	0	2	30	1243	190	124	1946	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	250	0	0	2	30	1243	190	124	1946	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	250	0	0	2	30	1243	190	124	1946	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	250	0	0	2	30	1243	190	124	1946	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.92
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.59	0.41	1.00	3.00	0.00
Final Sat.:	0	0	1750	0	0	1750	1750	4857	742	1750	5600	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.14	0.00	0.00	0.00	0.02	0.26	0.26	0.07	0.35	0.00
Crit Moves:			****			****	****				****	
Green Time:	0.0	0.0	44.9	0.0	0.0	10.0	7.0	91.0	91.0	25.2	109	0.0
Volume/Cap:	0.00	0.00	0.57	0.00	0.00	0.02	0.44	0.51	0.51	0.51	0.57	0.00
Uniform Del:	0.0	0.0	59.2	0.0	0.0	80.4	84.6	29.6	29.6	71.7	21.4	0.0
IncremntDel:	0.0	0.0	1.8	0.0	0.0	0.1	4.5	0.2	0.2	1.7	0.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	61.0	0.0	0.0	80.5	89.1	29.8	29.8	73.4	21.6	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	61.0	0.0	0.0	80.5	89.1	29.8	29.8	73.4	21.6	0.0
LOS by Move:	A	A	E	A	A	F	F	C	C	E	C	A
HCM2k95thQ:	0	0	24	0	0	0	5	30	30	14	36	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Bkgrd+Proj AM

Intersection #3: Clark Avenue & El Camino Real

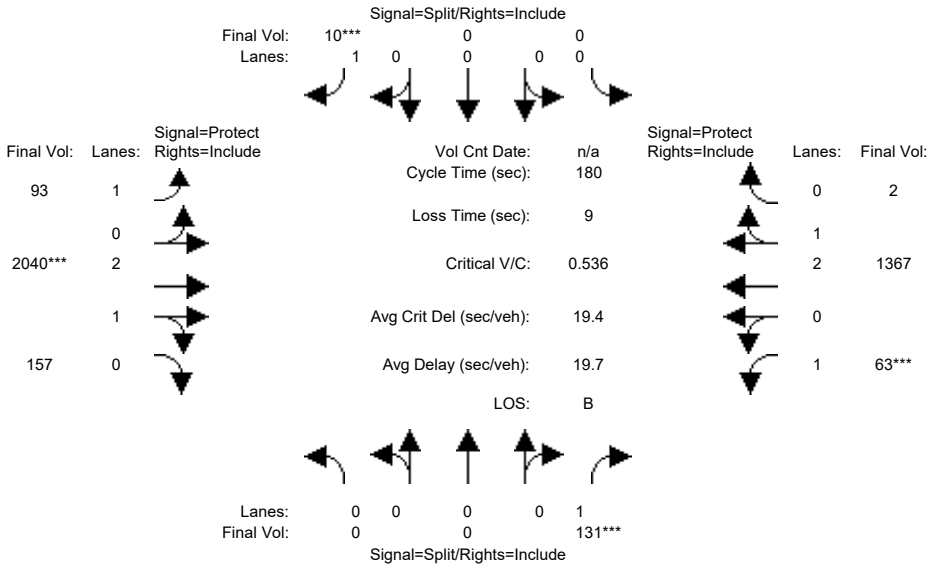


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	0	0	250	0	0	2	30	1243	190	124	1946	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	250	0	0	2	30	1243	190	124	1946	0
Added Vol:	0	0	-3	0	0	0	0	16	7	0	-8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	247	0	0	2	30	1259	197	124	1938	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	247	0	0	2	30	1259	197	124	1938	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	247	0	0	2	30	1259	197	124	1938	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	247	0	0	2	30	1259	197	124	1938	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.92
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.58	0.42	1.00	3.00	0.00
Final Sat.:	0	0	1750	0	0	1750	1750	4841	758	1750	5600	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.14	0.00	0.00	0.00	0.02	0.26	0.26	0.07	0.35	0.00
Crit Moves:			****			****	****				****	
Green Time:	0.0	0.0	44.6	0.0	0.0	10.0	7.0	91.5	91.5	24.9	109	0.0
Volume/Cap:	0.00	0.00	0.57	0.00	0.00	0.02	0.44	0.51	0.51	0.51	0.57	0.00
Uniform Del:	0.0	0.0	59.3	0.0	0.0	80.4	84.6	29.4	29.4	71.9	21.2	0.0
IncremntDel:	0.0	0.0	1.8	0.0	0.0	0.1	4.5	0.2	0.2	1.8	0.2	0.0
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Delay/Veh:	0.0	0.0	61.1	0.0	0.0	80.5	89.1	29.6	29.6	73.7	21.4	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	61.1	0.0	0.0	80.5	89.1	29.6	29.6	73.7	21.4	0.0
LOS by Move:	A	A	E	A	A	F	F	C	C	E	C	A
HCM2k95thQ:	0	0	23	0	0	0	5	30	30	14	35	0

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM

Intersection #3: Clark Avenue & El Camino Real

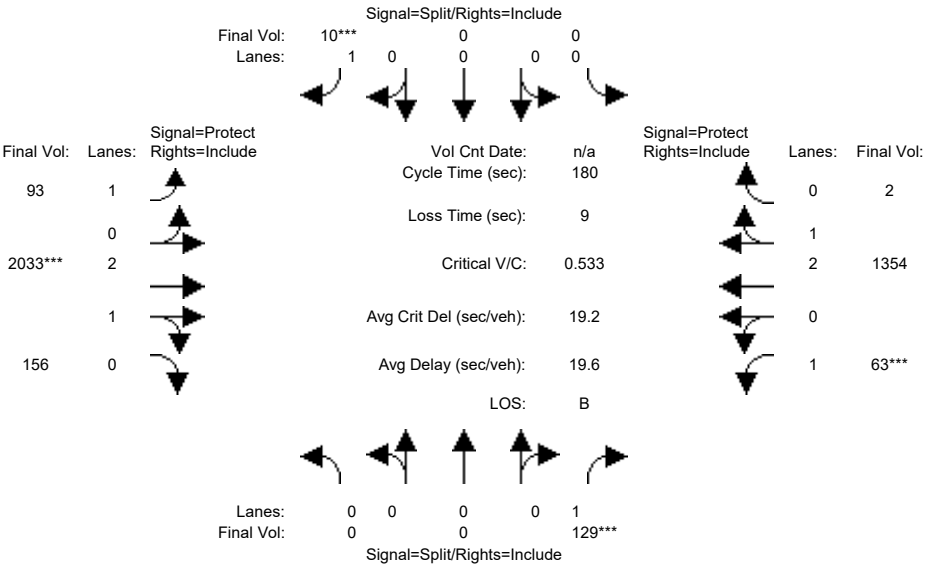


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	0	0	131	0	0	10	93	2040	157	63	1367	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	131	0	0	10	93	2040	157	63	1367	2
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	131	0	0	10	93	2040	157	63	1367	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	131	0	0	10	93	2040	157	63	1367	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	131	0	0	10	93	2040	157	63	1367	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	131	0	0	10	93	2040	157	63	1367	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.95
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.78	0.22	1.00	2.99	0.01
Final Sat.:	0	0	1750	0	0	1750	1750	5199	400	1750	5592	8
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.07	0.00	0.00	0.01	0.05	0.39	0.39	0.04	0.24	0.24
Crit Moves:			****			****		****		****		
Green Time:	0.0	0.0	23.9	0.0	0.0	10.0	24.5	126	125.5	11.5	113	112.6
Volume/Cap:	0.00	0.00	0.56	0.00	0.00	0.10	0.39	0.56	0.56	0.56	0.39	0.39
Uniform Del:	0.0	0.0	73.1	0.0	0.0	80.7	71.0	13.6	13.6	81.8	16.7	16.7
IncremntDel:	0.0	0.0	3.1	0.0	0.0	0.5	1.1	0.2	0.2	6.4	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	76.3	0.0	0.0	81.2	72.0	13.8	13.8	88.2	16.8	16.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	76.3	0.0	0.0	81.2	72.0	13.8	13.8	88.2	16.8	16.8
LOS by Move:	A	A	E	A	A	F	E	B	B	F	B	B
HCM2k95thQ:	0	0	15	0	0	1	10	34	34	9	22	22

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Bkgrd+Proj PM

Intersection #3: Clark Avenue & El Camino Real

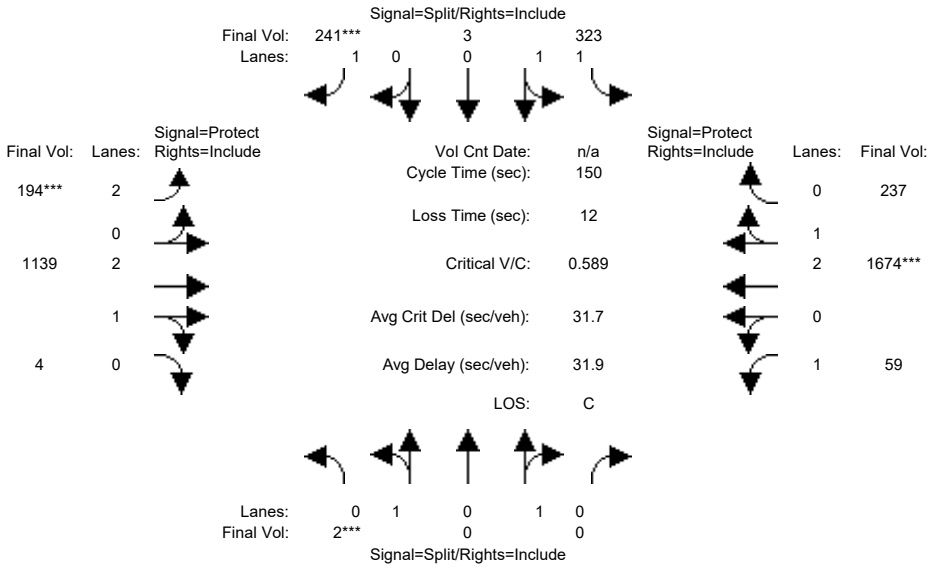


Street Name:	Clark Avenue						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	10	10	10	10	10	7	10	10	7	10	10
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	0	0	131	0	0	10	93	2040	157	63	1367	2
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	131	0	0	10	93	2040	157	63	1367	2
Added Vol:	0	0	-2	0	0	0	0	-7	-1	0	-13	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	129	0	0	10	93	2033	156	63	1354	2
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	129	0	0	10	93	2033	156	63	1354	2
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	129	0	0	10	93	2033	156	63	1354	2
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	129	0	0	10	93	2033	156	63	1354	2
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	1.00	0.92	0.92	1.00	0.92	0.92	0.99	0.95	0.92	0.98	0.95
Lanes:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	2.78	0.22	1.00	2.99	0.01
Final Sat.:	0	0	1750	0	0	1750	1750	5200	399	1750	5592	8
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.07	0.00	0.00	0.01	0.05	0.39	0.39	0.04	0.24	0.24
Crit Moves:			****			****		****		****		
Green Time:	0.0	0.0	23.7	0.0	0.0	10.0	24.7	126	125.7	11.6	113	112.6
Volume/Cap:	0.00	0.00	0.56	0.00	0.00	0.10	0.39	0.56	0.56	0.56	0.39	0.39
Uniform Del:	0.0	0.0	73.3	0.0	0.0	80.7	70.7	13.4	13.4	81.7	16.7	16.7
IncremntDel:	0.0	0.0	3.1	0.0	0.0	0.5	1.0	0.2	0.2	6.2	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	0.0	0.0	76.3	0.0	0.0	81.2	71.8	13.6	13.6	88.0	16.7	16.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	76.3	0.0	0.0	81.2	71.8	13.6	13.6	88.0	16.7	16.7
LOS by Move:	A	A	E	A	A	F	E	B	B	F	B	B
HCM2k95thQ:	0	0	15	0	0	1	10	33	33	9	22	22

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background AM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

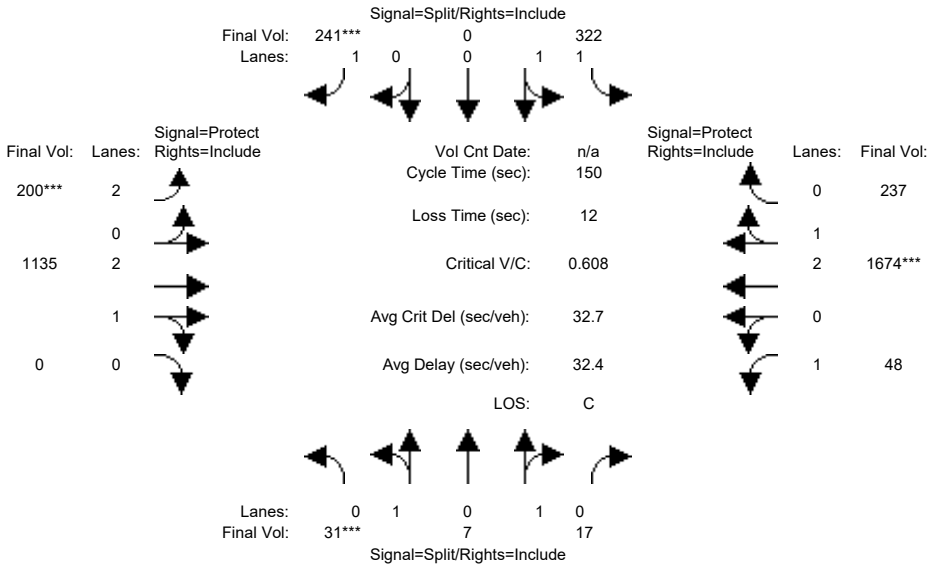


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	2	0	0	323	3	241	194	1139	4	59	1674	237
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	0	0	323	3	241	194	1139	4	59	1674	237
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	0	0	323	3	241	194	1139	4	59	1674	237
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	0	0	323	3	241	194	1139	4	59	1674	237
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	0	0	323	3	241	194	1139	4	59	1674	237
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	2	0	0	323	3	241	194	1139	4	59	1674	237
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.92	0.93	0.95	0.92	0.83	0.98	0.95	0.92	0.99	0.95
Lanes:	1.00	0.00	1.00	1.98	0.02	1.00	2.00	2.99	0.01	1.00	2.61	0.39
Final Sat.:	1800	0	1750	3517	33	1750	3150	5580	20	1750	4905	694
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.09	0.09	0.14	0.06	0.20	0.20	0.03	0.34	0.34
Crit Moves:	****					****	****				****	
Green Time:	10.0	0.0	0.0	32.6	32.6	32.6	14.6	71.9	71.9	23.5	80.8	80.8
Volume/Cap:	0.02	0.00	0.00	0.42	0.42	0.63	0.63	0.43	0.43	0.22	0.63	0.63
Uniform Del:	65.4	0.0	0.0	50.6	50.6	53.3	65.1	25.5	25.5	55.2	24.2	24.2
IncremntDel:	0.1	0.0	0.0	0.4	0.4	3.5	4.3	0.1	0.1	0.4	0.4	0.4
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	65.5	0.0	0.0	51.0	51.0	56.7	69.4	25.7	25.7	55.6	24.7	24.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.5	0.0	0.0	51.0	51.0	56.7	69.4	25.7	25.7	55.6	24.7	24.7
LOS by Move:	E	A	A	D	D	E	E	C	C	E	C	C
HCM2k95thQ:	0	0	0	13	13	21	12	21	21	5	35	35

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Bkgrd+Proj AM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

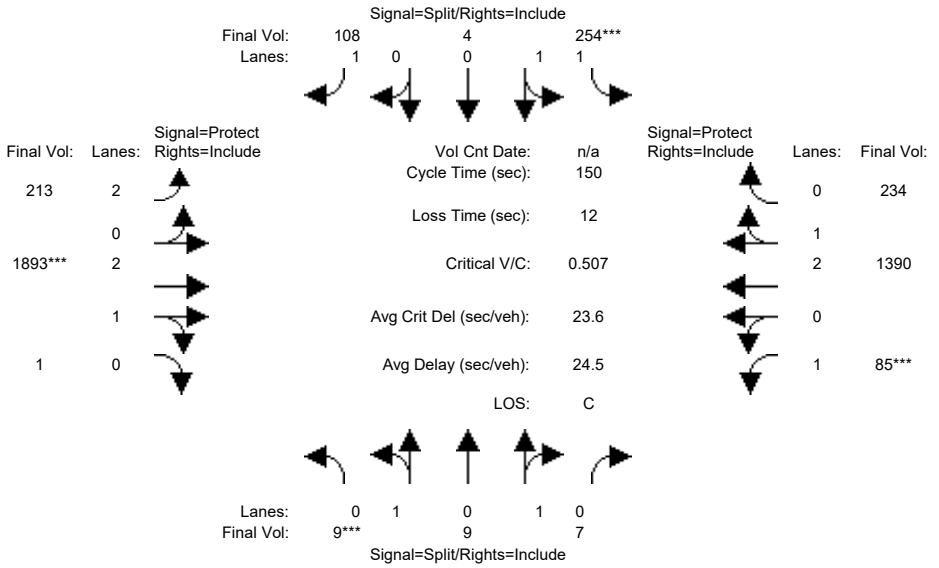


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	2	0	0	323	3	241	194	1139	4	59	1674	237
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	2	0	0	323	3	241	194	1139	4	59	1674	237
Added Vol:	29	7	17	-1	-4	0	6	-4	-12	-11	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	7	17	322	-1	241	200	1135	-8	48	1674	237
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	31	7	17	322	0	241	200	1135	0	48	1674	237
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	7	17	322	0	241	200	1135	0	48	1674	237
PCE Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	31	7	17	322	0	241	200	1135	0	48	1674	237
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.93	1.00	0.92	0.83	0.98	0.92	0.92	0.99	0.95
Lanes:	1.00	0.29	0.71	2.00	0.00	1.00	2.00	3.00	0.00	1.00	2.61	0.39
Final Sat.:	1800	525	1275	3550	0	1750	3150	5600	0	1750	4905	694
Capacity Analysis Module:												
Vol/Sat:	0.02	0.01	0.01	0.09	0.00	0.14	0.06	0.20	0.00	0.03	0.34	0.34
Crit Moves:	****					****	****				****	
Green Time:	10.0	10.0	10.0	32.5	0.0	32.5	15.0	71.9	0.0	23.6	80.5	80.5
Volume/Cap:	0.26	0.20	0.20	0.42	0.00	0.64	0.64	0.42	0.00	0.17	0.64	0.64
Uniform Del:	66.5	66.2	66.2	50.6	0.0	53.4	64.9	25.5	0.0	54.7	24.4	24.4
IncremntDel:	0.6	0.4	0.4	0.4	0.0	3.5	4.3	0.1	0.0	0.3	0.5	0.5
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	67.1	66.6	66.6	51.0	0.0	56.9	69.1	25.6	0.0	55.0	24.9	24.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	67.1	66.6	66.6	51.0	0.0	56.9	69.1	25.6	0.0	55.0	24.9	24.9
LOS by Move:	E	E	E	D	A	E	E	C	A	E	C	C
HCM2k95thQ:	3	3	3	13	0	21	12	20	0	4	35	35

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background PM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real

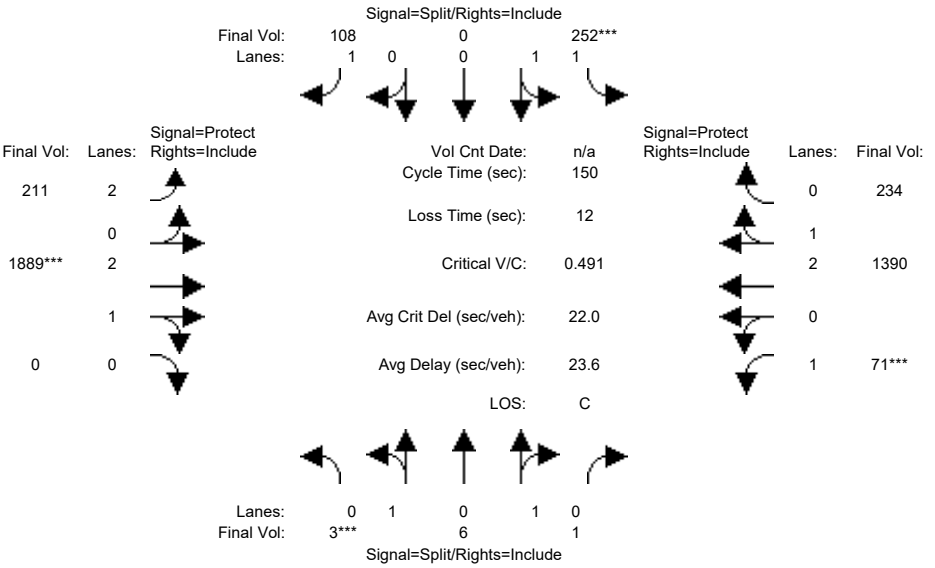


Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	9	9	7	254	4	108	213	1893	1	85	1390	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	9	7	254	4	108	213	1893	1	85	1390	234
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	9	7	254	4	108	213	1893	1	85	1390	234
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	9	9	7	254	4	108	213	1893	1	85	1390	234
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	9	7	254	4	108	213	1893	1	85	1390	234
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	9	7	254	4	108	213	1893	1	85	1390	234
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.93	0.95	0.92	0.83	0.98	0.95	0.92	0.99	0.95
Lanes:	0.72	0.72	0.56	1.97	0.03	1.00	2.00	2.99	0.01	1.00	2.55	0.45
Final Sat.:	1296	1296	1008	3495	55	1750	3150	5597	3	1750	4792	807
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.07	0.06	0.07	0.34	0.34	0.05	0.29	0.29
Crit Moves:	****			****				****		****		
Green Time:	10.0	10.0	10.0	20.2	20.2	20.2	20.4	94.2	94.2	13.5	87.4	87.4
Volume/Cap:	0.10	0.10	0.10	0.54	0.54	0.46	0.50	0.54	0.54	0.54	0.50	0.50
Uniform Del:	65.8	65.8	65.8	60.5	60.5	59.8	60.1	15.7	15.7	65.2	18.4	18.4
IncremntDel:	0.2	0.2	0.2	1.2	1.2	1.4	0.9	0.2	0.2	3.7	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Delay/Veh:	66.0	66.0	66.0	61.7	61.7	61.2	61.0	15.8	15.8	68.9	18.5	18.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	66.0	66.0	66.0	61.7	61.7	61.2	61.0	15.8	15.8	68.9	18.5	18.5
LOS by Move:	E	E	E	E	E	E	E	B	B	E	B	B
HCM2k95thQ:	1	1	1	12	12	10	11	28	28	9	26	26

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Bkgrd+Proj PM

Intersection #1005: Rengstorff Ave/Dwy & El Camino Real



Street Name:	Rengstorff Avenue/Dwy						El Camino Real					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Min. Green:	10	0	0	10	0	0	10	30	0	10	30	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Volume Module:												
Base Vol:	9	9	7	254	4	108	213	1893	1	85	1390	234
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	9	7	254	4	108	213	1893	1	85	1390	234
Added Vol:	-6	-3	-6	-2	-5	0	-2	-4	-11	-14	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	6	1	252	-1	108	211	1889	-10	71	1390	234
User Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
PHF Volume:	3	6	1	252	0	108	211	1889	0	71	1390	234
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	6	1	252	0	108	211	1889	0	71	1390	234
PCE Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
FinalVolume:	3	6	1	252	0	108	211	1889	0	71	1390	234
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.93	1.00	0.92	0.83	0.98	0.92	0.92	0.99	0.95
Lanes:	0.60	1.20	0.20	2.00	0.00	1.00	2.00	3.00	0.00	1.00	2.55	0.45
Final Sat.:	1080	2160	360	3550	0	1750	3150	5600	0	1750	4792	807
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.07	0.00	0.06	0.07	0.34	0.00	0.04	0.29	0.29
Crit Moves:	****			****				****		****		
Green Time:	10.0	10.0	10.0	20.2	0.0	20.2	20.2	96.2	0.0	11.6	87.5	87.5
Volume/Cap:	0.04	0.04	0.04	0.53	0.00	0.46	0.50	0.53	0.00	0.53	0.50	0.50
Uniform Del:	65.5	65.5	65.5	60.4	0.0	59.8	60.2	14.6	0.0	66.6	18.3	18.3
IncremntDel:	0.1	0.1	0.1	1.1	0.0	1.4	0.9	0.1	0.0	3.8	0.1	0.1
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delay Adj:	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Delay/Veh:	65.6	65.6	65.6	61.5	0.0	61.2	61.1	14.7	0.0	70.4	18.4	18.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	65.6	65.6	65.6	61.5	0.0	61.2	61.1	14.7	0.0	70.4	18.4	18.4
LOS by Move:	E	E	E	E	A	E	E	B	A	E	B	B
HCM2k95thQ:	1	1	1	12	0	10	11	27	0	8	26	26

Note: Queue reported is the number of cars per lane.

Appendix C

Volume Spreadsheet

Intersection Number: 1
Traffix Node Number: 1005
Intersection Name: Rengstorff Avenue & El Camino Real
Peak Hour: AM
Count Date: 10/18/18
Scenario: 5150 El Camino Real Residential
Date of Analysis: 11/20/18
Annual Growth Rate 2%
Number of Years 5

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	*Total*
INDEX	7	6	5	13	12	11	4	3	2	10	9	8	
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Existing Conditions	218	3	293	215	1516	53	0	0	2	4	1032	176	3512
Background Growth	23	0	30	22	158	6	0	0	0	0	107	18	364
Background Conditions	241	3	323	237	1674	59	0	0	2	4	1139	194	3876
Project Trips	0	-4	-1	0	0	-11	17	7	29	-12	-4	6	27
Existing + Project	218	-1	292	215	1516	42	17	7	31	-8	1028	182	3539
Background + Project	241	-1	322	237	1674	48	17	7	31	-8	1135	200	3903

Intersection Number: 2
Traffix Node Number: 2
Intersection Name: Distel Drive & El Camino Real
Peak Hour: AM
Count Date: 11/13/18
Scenario: 5150 El Camino Real Residential
Date of Analysis: 11/20/18
Annual Growth Rate 2%
Number of Years 5

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	*Total*
INDEX	7	6	5	13	12	11	4	3	2	10	9	8	
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Existing Conditions	1	0	0	2	1818	104	215	0	64	52	1019	18	3293
Background Growth	0	0	0	0	189	11	22	0	7	5	106	2	342
Background Conditions	1	0	0	2	2007	115	237	0	71	57	1125	20	3635
Project Trips	0	0	0	0	16	16	-8	0	0	0	-8	0	16
Existing + Project	1	0	0	2	1834	120	207	0	64	52	1011	18	3309
Background + Project	1	0	0	2	2023	131	229	0	71	57	1117	20	3651

Intersection Number: 3
Traffix Node Number: 3
Intersection Name: Clark Avenue & El Camino Real
Peak Hour: AM
Count Date: 11/13/18
Scenario: 5150 El Camino Real Residential
Date of Analysis: 11/20/18
Annual Growth Rate 2%
Number of Years 5

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	*Total*
INDEX	7	6	5	13	12	11	4	3	2	10	9	8	
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Existing Conditions	2	0	0	0	1763	112	226	0	0	172	1126	27	3428
Background Growth	0	0	0	0	183	12	24	0	0	18	117	3	357
Background Conditions	2	0	0	0	1946	124	250	0	0	190	1243	30	3785
Project Trips	0	0	0	0	-8	0	-3	0	0	7	16	0	12
Existing + Project	2	0	0	0	1755	112	223	0	0	179	1142	27	3440
Background + Project	2	0	0	0	1938	124	247	0	0	197	1259	30	3797

Intersection Number: 1
Traffix Node Number: 1005
Intersection Name: Rengstorff Avenue & El Camino Real
Peak Hour: PM
Count Date: 11/03/16
Scenario: 5150 El Camino Real Residential
Date of Analysis: 11/20/18
Annual Growth Rate 2%
Number of Years 5

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	*Total*
INDEX	7	6	5	13	12	11	4	3	2	10	9	8	
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Existing Conditions	98	4	230	212	1259	77	6	8	8	1	1715	193	3811
Background Growth	10	0	24	22	131	8	1	1	1	0	178	20	396
Background Conditions	108	4	254	234	1390	85	7	9	9	1	1893	213	4207
Project Trips	0	-5	-2	0	0	-14	-6	-3	-6	-11	-4	-2	-53
Existing + Project	98	-1	228	212	1259	63	0	5	2	-10	1711	191	3758
Background + Project	108	-1	252	234	1390	71	1	6	3	-10	1889	211	4154

Intersection Number: 2
Traffix Node Number: 2
Intersection Name: Distel Drive & El Camino Real
Peak Hour: PM
Count Date: 11/13/18
Scenario: 5150 El Camino Real Residential
Date of Analysis: 11/20/18
Annual Growth Rate 2%
Number of Years 5

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	*Total*
INDEX	7	6	5	13	12	11	4	3	2	10	9	8	
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Existing Conditions	0	0	1	5	1190	60	100	0	50	28	1754	18	3206
Background Growth	0	0	0	1	124	6	10	0	5	3	183	2	334
Background Conditions	0	0	1	6	1314	66	110	0	55	31	1937	20	3540
Project Trips	0	0	0	0	-7	-1	-2	0	0	0	-13	0	-23
Existing + Project	0	0	1	5	1183	59	98	0	50	28	1741	18	3183
Background + Project	0	0	1	6	1307	65	108	0	55	31	1924	20	3517

Intersection Number: 3
Traffix Node Number: 3
Intersection Name: Clark Avenue & El Camino Real
Peak Hour: PM
Count Date: 11/13/18
Scenario: 5150 El Camino Real Residential
Date of Analysis: 11/20/18
Annual Growth Rate 2%
Number of Years 5

	Movements												
	North Approach			East Approach			South Approach			West Approach			
Scenario:	RT	TH	LT	RT	TH	LT	RT	TH	LT	RT	TH	LT	*Total*
INDEX	7	6	5	13	12	11	4	3	2	10	9	8	
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
User Adjustment	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Existing Conditions	9	0	0	2	1238	57	119	0	0	142	1848	84	3499
Background Growth	1	0	0	0	129	6	12	0	0	15	192	9	364
Background Conditions	10	0	0	2	1367	63	131	0	0	157	2040	93	3863
Project Trips	0	0	0	0	-13	0	-2	0	0	-1	-7	0	-23
Existing + Project	9	0	0	2	1225	57	117	0	0	141	1841	84	3476
Background + Project	10	0	0	2	1354	63	129	0	0	156	2033	93	3840

Appendix D

Fehr & Peers Parking Study

City of Palo Alto

Multi-Family Residential Development (Rental) Parking Rate Study

Prepared for:
City of Palo Alto

August 2018

SJ16-1668

FEHR PEERS

Table of Contents

Appendices

List of Figures

List of Tables

This page is intentionally left blank.

Executive Summary

Fehr & Peers conducted this study to provide the City of Palo Alto with parking demand rate data for rental multi-family residential developments (apartments) including market rate, affordable, and senior housing projects at sites located at varying distances to fixed rail transit stations and/or major bus routes. The following was observed regarding the nine sites in Palo Alto and the survey results:

- The Affordable Housing complexes have a higher proportion of two and three-bedroom units, the Market Rate complexes generally have more one-bedroom than two+ bedroom units, and the Senior Housing complexes are comprised of primarily one-bedroom units.
- On a per-unit basis, the lowest parking demand rates were observed at the Senior Housing complexes and the highest at Affordable Housing complexes. On a per bedroom basis, the Affordable and Senior Housing sites had comparable rates while Market Rate units had the highest rates.
- Resident experiences at The Marc indicate that residents prefer to park at the apartment complex instead of on the street and that residents view having available parking/empty spaces any time of day as the "right amount of parking." (Therefore, a complex where the supply is closer to the peak demand may be viewed as having "too little" parking since vacant spaces may be hard to find or inconvenient.)

Fehr & Peers used the survey results to develop parking supply rates. A conservative approach was taken to develop the rates to reflect community concerns regarding neighborhood parking intrusion.

Affordable Housing:

- 1.0 parking space per studio and per 1-bedroom unit
- 2.0 parking spaces per 2-bedroom or larger unit

Reserved parking, if provided, could be limited to one space per unit to maximize parking space availability.

Market Rate Housing:

- 1.0 parking space per studio and per 1-bedroom unit
- 2.0 parking spaces per 2-bedroom or larger unit

Reserved parking, if provided, could be limited to one space per unit to maximize parking space availability.

Senior Housing:

- 0.75 spaces per unit

This page is intentionally left blank.

1. Introduction

This study was conducted to provide the City of Palo Alto with parking rate data for rental multi-family residential developments (apartments) including market rate, affordable, and senior housing projects at sites located at varying distances to fixed rail transit stations and major bus routes. This study includes information from available reports, documents, studies, and the results of surveys conducted as part of this study. Fehr & Peers obtained the results of previous surveys conducted at various apartment complexes in the South Bay, and included them for informational purposes. Parking supply rates based on the Palo Alto survey results are provided at the conclusion of this report.

This page is intentionally left blank.

2. Available Reports and Studies

Fehr & Peers reviewed several reports and studies that included parking demand rates for multi-family market rate, affordable, and senior residential developments in the Bay Area near rail stations (Caltrain, Bay Area Rapid Transit (BART), and light rail transit (LRT)). Industry standard parking generation sources and studies from Los Angeles and San Diego that include parking data for affordable housing were also reviewed. These reports and studies are:

- Santa Clara Valley Transportation Authority's (VTA's) A Parking Utilization Survey of Transit-Oriented Development Residential Properties in Santa Clara County
- Metropolitan Transportation Commission's (MTC's) Reforming Parking Policies to Support Smart Growth
- Transform's GreenTRIP Parking Database
- Robert Cervero, et al, University of California Transportation Center, UCTC Research Paper No. 882 Are TODs Over-Parked?
- Los Angeles Department of City Planning's Local Trip Generation Study
- City of San Diego's San Diego Affordable Housing Parking Study
- Institute of Transportation Engineers, Parking Generation, 4th edition

These reports and the general results that are applicable to parking demand rates for the City of Palo Alto are summarized in the following sections.

A Parking Utilization Survey of Transit-Oriented Development Residential Properties in Santa Clara County

This research project was completed by Santa Clara Valley Transportation Authority (VTA) and San Jose State University in 2010. Twelve TOD residential properties near light rail and Caltrain stations in Santa Clara County were surveyed as part of the study. (A table from this report summarizing the results included in **Appendix A**.) The study does not specify whether the surveyed properties are market rate, affordable, or senior housing; it is likely that they are market rate properties. The parking supply rates ranged from 1.31 to 2.31 spaces per unit with an average of 1.68 spaces per unit, whereas the peak parking demand rates ranged from 0.84 to 1.54 spaces per unit with an average of 1.31 spaces per unit. The study found that the parking supply exceeded the parking demand at every site surveyed indicating that the code requirements for the city they are located in may be too high. This research project shows overall that parking demand at residences near a transit station is less than current zoning code requirements.

Reforming Parking Policies to Support Smart Growth

The Metropolitan Transportation Commission (MTC) developed this handbook to help city officials, politicians, and planners with the planning and implementation of parking policies and programs that will support transit–oriented development (TOD). The document is intended to allow users to explore potential parking strategies that have been shown to work in different types of communities, identify best practices about policies and programs, and establish implementation guidelines to best gain the support of the public. It includes representative parking requirements for four types of land uses in five different location types. The rates for residential units in suburban centers/town centers range from 1.00 to 1.50 spaces per unit. Although the report does not differentiate among market rate, affordable, or senior housing, it is likely that these rates are for market rate properties.

TransForm's GreenTRIP Parking Database

TransForm's GreenTRIP Parking Database (http://database.greentrip.org/) is a compilation of data gathered at approximately 80 multi-family residential sites in the San Francisco Bay Area. It includes the building location, place type (e.g. transit town center or city center), type of residence (family, senior, diverse abilities, condominium), percent of units below market rate, number of units, number of parking spaces, parking utilization, parking supply rate, parking demand rate, and traffic reduction strategies in place. The database can provide insight into why parking use fluctuates based on location, transit access, and TDM strategies.

The GreenTRIP Parking Database allows data filtering for the study site parameters listed above. For the all-residential, senior housing study sites in Santa Clara County, parking demand rates range from 0.27 to 0.71 spaces per unit. For the all-residential, non-senior housing study sites that are 50 to 100% below market rate (affordable housing) in Santa Clara County, parking demand rates range from 0.96 to 1.34 spaces per unit.

Some other relevant example results are:

- 801 Alma in Palo Alto (0.3 miles from a Caltrain station) with 50 units, 60 parking spaces (1.20 spaces per unit), and a peak parking demand of 1.02 spaces per unit,
- Madera Apartments in Mountain View (0.1 miles from a Caltrain station) with 203 units, 279 parking spaces (1.37 spaces per unit), and a peak parking demand of 0.88 spaces per unit, and
- Arbor Terrace Apartments in Sunnyvale (0.2 miles from a VTA Rapid 522 stop) with 175 units, 359 parking spaces (2.05 spaces per unit), and a peak parking demand of 1.37 spaces per unit

Are TODs Over-Parked

Robert Cervero at the University of California Transportation Center (UCTC) led this study with the University of California, Berkeley. The study finds that parking demand rates for residential units at transit-oriented developments (TODs) in the San Francisco Bay Area ranged from 0.74 to 1.69 spaces per unit, averaging 1.20 spaces per unit. For all surveyed sites, the average parking supply was 1.59 spaces per dwelling unit. (A table from this report summarizing the results is included in **Appendix A**.) The study does not specify whether the surveyed properties are market rate, affordable, or senior housing; based on a review of the survey locations, most, if not all, are market rate properties. Varying development contexts explains the range in peak parking demand rates. Well-established sites with complementary land uses (such as office, restaurant, health club, hotel, and retail uses) had lower parking demand rates, while less dense and less diverse sites had higher parking demand rates.

Los Angeles Trip Generation Study

In 2015 Fehr & Peers conducted a parking study in conjunction with a trip generation study for the Los Angeles Department of City Planning. The study surveyed 42 affordable housing sites inside and outside Transit Priority Areas (TPAs) in Los Angeles (20 inside a TPA, 22 outside a TPA). The study compared the observed parking demand rates to the Los Angeles Municipal Code (LAMC) parking requirements. All observed parking demand rates were lower than LAMC requirements. (A table from this report summarizing the results is attached.) Some relevant parking rates and results are:

- Affordable family housing within a TPA (8 surveyed) have a parking supply rate of 1.15 spaces per unit and a peak parking demand rate of 0.85 spaces per unit
- Affordable family housing outside a TPA (6 surveyed) have a parking supply rate of 1.17 spaces per unit and a peak parking demand rate of 0.82 spaces per unit
- Affordable senior housing within a TPA (5 surveyed) have a parking supply rate of 0.60 spaces per unit and a peak parking demand rate of 0.44 spaces per unit
- Affordable senior housing outside a TPA (8 surveyed) have a parking supply rate of 0.70 spaces per unit and a peak parking demand rate of 0.48 spaces per unit

San Diego Affordable Housing Parking Study

In 2011 the City of San Diego conducted a parking study for affordable housing in various contexts throughout the city. The study documented parking rates for 21 housing developments to develop a citywide parking demand model. Variables considered includes walkability, access to transit, and housing type (e.g. single-family, senior, etc.). The parking study concluded that parking demand for affordable projects is about one half of typical rental units in San Diego, with almost half of all units surveyed having

no vehicle. Higher parking demand was generally associated with larger unit size and higher income for affordable housing developments. (A table from this report summarizing the results is attached.) In all projects surveyed, the amount of peak parking used was less than the amount supplied. Some relevant parking rates are:

- Villa Harvey Mandel Affordable Rentals located 1,500 feet from the 12th & Imperial Transit Center in San Diego with 90 units, 26 parking spaces (0.29 spaces per unit), and a peak parking demand of 0.28 spaces per unit
- Windwood Village Apartments in San Diego (not located near major transit service) with 92 units, 195 parking spaces (2.10 spaces per unit), and a peak parking demand of 1.56 spaces per unit
- Renaissance Senior Apartments in San Diego with 96 units, 103 parking spaces (1.07 spaces per unit), and a peak parking demand of 0.39 spaces per unit

Parking Generation, 4th Edition

The Institute of Transportation Engineers published Parking Generation, 4th edition in 2004 to provide parking demand rates for various land uses based on survey data collected in primarily suburban, low-density areas. While the report does not provide authoritative findings, recommendations, or standards on parking demand, it is often referenced by planners and designers in making parking supply estimations and decisions. Some relevant results are:

- Low/Mid-Rise Apartment (Land Use 221) has an average weekday peak parking demand of 1.23 spaces per dwelling unit in suburban context and 0.42 spaces per dwelling unit in urban context
- Residential Condominium/Townhouse (Land Use 230) has an average peak parking demand of 1.38 spaces per dwelling unit in suburban context
- Senior Adult Housing – Attached (Land Use 252) has an average peak period parking demand of 0.59 spaces per dwelling unit

City of Palo Alto Municipal Code

The City of Palo Alto Municipal Code, Chapter 18.52 *Parking and Loading Requirements* outlines the current parking supply requirements for multi-family residential units. Based on Table 1 in Section 18.52.040 *Off-Street Parking, Loading and Bicycle Facility Requirements*, market-rate multi-family residential complexes should have:

- 1.25 parking spaces per studio unit,
- 1.5 parking spaces per 1-bedroom unit,
- 2 parking spaces per 2-bedroom or larger unit, and
- 1 guest parking space per project plus 10% of total number of units (for projects exceeding 3 units).

Additionally, the following parking supply reductions may be taken:

- Housing for seniors may be reduced by up to 50% of the total spaces required for the site, subject to submittal and approval of a parking analysis justifying the reduction.
- Affordable housing may be reduced by up to 20% for low income units, up to 30% for very low income units, and 40% for extremely low income and single room occupancy units. The reduction shall consider proximity to transit and support services and traffic demand management measures may be required.
- Up to 20% reduction for housing near transit facilities and approval of a Transportation Demand Management (TDM) program.

This page is intentionally left blank.

3. Parking Surveys

Fehr & Peers gathered the results of previous parking surveys for multi-family residential developments within and near Palo Alto and conducted new parking surveys. This section presents the survey methodology and results.

Previous Parking Surveys

The results of previous parking surveys conducted for multi-family developments in the South Bay from other Fehr & Peers studies, TransForm, and studies conducted by other consultants were compiled. Available information about each site, such as the number of units, walking distance to the nearest rail station, type of rail service, peak parking demand, and parking supply and demand rates, is presented in **Table 1**. **Figure 1** shows the locations of each development. All developments are market-rate, except for Madera Apartments in Mountain View which has seven affordable-housing units and 196 market-rate units.

Some of the developments may not be directly applicable to Palo Alto but the information can be used for comparison purposes. The parking supply rates ranged from 0.92 to 2.09 spaces per unit and the parking demand rates ranged from 0.56 to 1.41 spaces per unit, which indicates that the developments generally had enough parking to meet demand. The highest parking demand rate is from a complex that is not near a rail station or major bus route, suggesting that complexes far from transit may require more parking than those close to transit.

The peak demands were approximately 20 percent lower than the parking supply for all but one of the complexes, Avalon Towers on the Peninsula. It has a low parking supply rate of 1.24 spaces per unit and is 0.8 miles from the closest Caltrain station. Several complexes had parking supplies that are 40 to 60 percent higher than their peak demands.

Table 1: Available Multi-Family Residential Parking Survey Results

Name of Complex	Address	Distance to Rail Station	Type of Rail	Number of Units				No. of Occupied Units	Supply			Demand				Over-supply [1]
				1 BR	2 BR	3+ BR	Total Units (Bedrooms)		No. of Spaces	Rate Per Unit	Rate Per Bedroom	Peak Parking Demand	Rate Per Unit	Rate Per Occupied Unit	Rate Per Bedroom	
801 Alma	801 Alma St., Palo Alto	0.3 miles	Caltrain (Palo Alto)	10	24	16	50 (106)	50	60	1.20	0.57	51	1.02	1.02	0.48	18%
Park Place Apartments	851 Church St., Mountain View	0.7 miles	Caltrain/ LRT (Mountain View)	181	186	6	373 (571)	n/a	511	1.37	0.89	339	0.91	n/a	0.59	51%
Avalon Mountain View	1600 Villa St., Mountain View	0.8 miles	Caltrain/ LRT (Mountain View)	117	75	56	248 (435)	n/a	426	1.72	0.98	301	1.21	n/a	0.69	42%
AvalonBay Creekside	151 Calderon Ave., Mountain View	0.4 miles	Caltrain/ LRT (Mountain View)	n/a	n/a	n/a	294 (n/a)	288	436	1.48	n/a	365	1.24	1.27	n/a	19%
Avalon Towers on the Peninsula, (ATOP)	2400 West El Camino Real, Mountain View	0.8 miles	Caltrain/ LRT (Mountain View)	90	115	6	211 (338)	203	262	1.24	0.78	258	1.22	1.27	0.76	2%
Madera Apartments	455 W. Evelyn Ave, Mountain View	0.2 miles	Caltrain/ LRT (Mountain View)	116	87	0	203[2] (290)	n/a	342	1.68	1.18	214	1.05	n/a	0.74	60%

Table 1: Available Multi-Family Residential Parking Survey Results

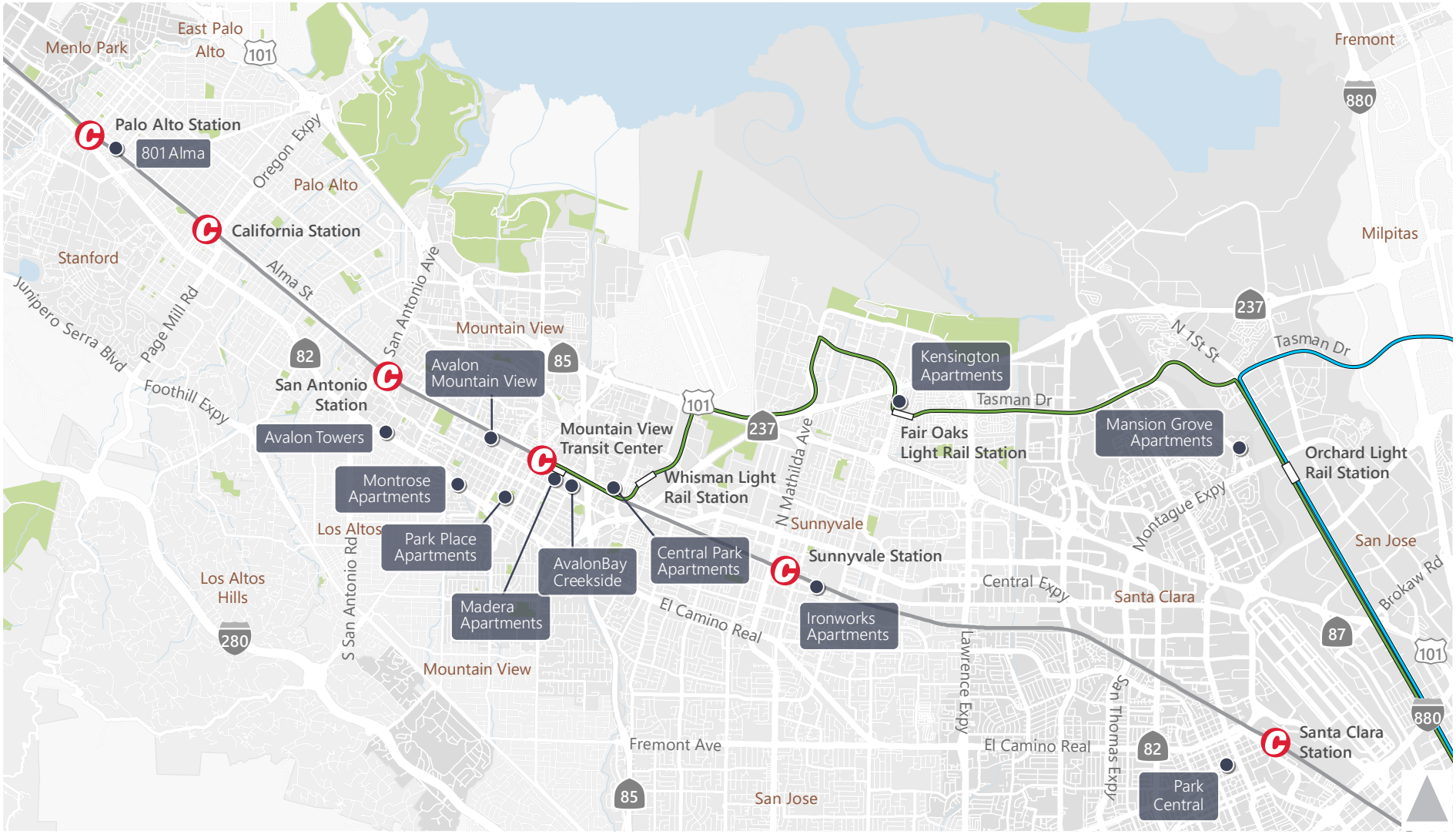
Name of Complex	Address	Distance to Rail Station	Type of Rail	Number of Units				No. of Occupied Units	Supply			Demand				Over-supply [1]
				1 BR	2 BR	3+ BR	Total Units (Bedrooms)		No. of Spaces	Rate Per Unit	Rate Per Bedroom	Peak Parking Demand	Rate Per Unit	Rate Per Occupied Unit	Rate Per Bedroom	
Central Park Apartments	100 N. Whisman Rd., Mountain View	0.3 miles	LRT (Whisman)	68	204	82	354 (722)	n/a	696	1.97	0.96	490	1.38	n/a	0.68	42%
Kensington Apartments	1220 N. Fair Oaks Ave., Sunnyvale	0.2 miles	LRT (Fair Oaks)	n/a	n/a	n/a	186 (n/a)	182	317	1.70	n/a	262	1.41	1.44	n/a	21%
Park Central Apartments	1050 Benton St., Santa Clara	0.7 miles	Caltrain/LRT (Santa Clara)	85	88	0	173 (261)	n/a	345	1.99	1.32	219	1.27	n/a	0.84	58%
Mansion Grove Apartments	502 Mansion Park Dr., Santa Clara	0.9 miles	LRT (Orchard)	502	494	4	1,000 (1,502)	n/a	1,670	1.67	1.11	1,317	1.32	n/a	0.88	27%
Ironworks Apartments (North)	457 E. Evelyn Ave., Sunnyvale	0.4 miles	Caltrain (Sunnyvale)	7	72	38	117 (265)	n/a	244	2.09	0.92	148	1.26	n/a	0.56	65%
Ironworks Apartments (South)	388 E. Evelyn Ave., Sunnyvale	0.4 miles	Caltrain (Sunnyvale)	44	23	0	67 (90)	n/a	109	1.63	1.21	54	0.81	n/a	0.60	91%

Table 1: Available Multi-Family Residential Parking Survey Results

Name of Complex	Address	Distance to Rail Station	Type of Rail	Number of Units				No. of Occupied Units	Supply			Demand				Over-supply [1]
				1 BR	2 BR	3+ BR	Total Units (Bedrooms)		No. of Spaces	Rate Per Unit	Rate Per Bedroom	Peak Parking Demand	Rate Per Unit	Rate Per Occupied Unit	Rate Per Bedroom	
Montrose Apartments	1720 W. El Camino Real, Mountain View	1.4 miles	Caltrain/LRT (Mountain View)	148	80	0	228 (308)	n/a	354	1.55	1.15	219	0.96	n/a	0.71	62%

Source: Fehr & Peers, TransForm, and Hexagon Transportation Consultants.

1. Oversupply = (Supply – Demand) / Demand
2. Madera Apartments has seven affordable-housing units and 196 market-rate units.



Surveyed Sites
Caltrain Station
Caltrain Route
LRT Station
Light Rail Train (902)
Light Rail Train (901)

Figure 1

Previous Parking Study Locations

\\Fpsj03.fpainc.local\data\Projects_SJ16_Projects\SJ16_1668_Palo_Alto_On_Call\Phase 12 - TO11, Multifamily Parking Demand\Graphics\GIS\MXD\SJ16_1668_Fig0x_Parking Study Locations.mxd

New Parking Surveys

During November and December, 2017, surveys were conducted at nine apartment complexes in Palo Alto to measure their parking demand during various days of the week and times of day. The sites were re-surveyed in June and July, 2018.

Selected Survey Sites

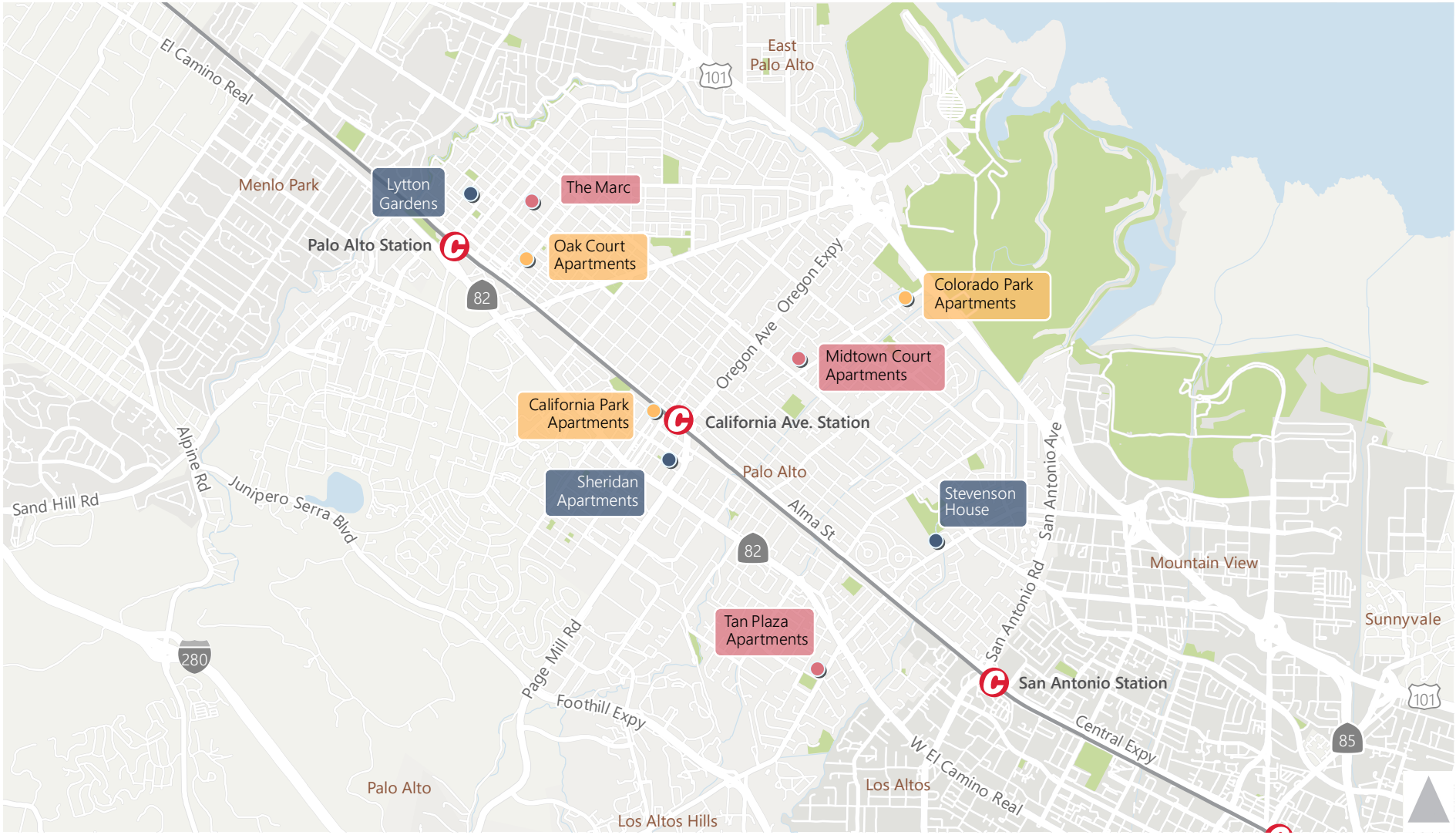
The nine multi-family complexes were selected in concert with City staff based on development type (i.e. Market Rate, Affordable Housing, or Senior Community) and distance from transit, where transit is defined as fixed rail stations (primarily Caltrain stations) and/or major bus routes (primarily El Camino Real) so that the effects of transit proximity can be discerned. **Table 2** lists the locations of the properties along with their types and distance-to-transit categories. **Table 3** shows their locations in relation to nearby Caltrain stations (Palo Alto, California, and San Antonio). Distances are based on the shortest pedestrian or bicycle route measured from the complex to the nearest Caltrain station as calculated by Google Maps (typically from the middle of the apartment complex to the closest pedestrian/bicyclist entrance of the Caltrain station).

Table 2: Selected Multi-Family Complexes

Type	Near Transit (<0.5 miles)	Mid-Distance to Transit (0.5 to 1.0 miles)	Far from Transit (>1.0 miles)
Affordable Housing	California Park Apartments *(2301 Park Boulevard)*	Oak Court Apartments *(845 Ramona Street)*	Colorado Park Apartments *(1141 Colorado Avenue)*
Market Rate Housing[2]	--	The Marc *(501 Forest Avenue)*	Midtown Court Apartments *(2721 Midtown Court)*
			Tan Plaza Apartments *(580 Arastradero Road)*
Senior Housing	Sheridan Apartments[1] *(360 Sheridan Avenue)*	Lytton Gardens *(330 Everett Avenue)*	Stevenson House *(455 E. Charleston Road)*

Source: Fehr & Peers, 2018.

1. Sheridan Apartments is an affordable housing complex for senior & disabled residents. For the purposes of this analysis, Sheridan Apartments was considered as a Senior Housing complex.
2. Distances thresholds for "Near Transit," "Mid-Distance to Transit," and "Far from Transit" categories were revised after selecting the properties. Because of this revision, there are no Market Rate Housing complexes "Near Transit" and two Market Rate Housing complexes "Far from Transit."



New Parking Survey Locations

- Affordable Housing
- Market Rate Housing
- Senior Housing

- Caltrain Station
- Caltrain Route

Figure 2

New Parking Survey Locations

N:\Projects_SJ16_Projects\SJ16_1668_Palo_Alto_On_Call\Phase 12 - TO11, Multifamily Parking Demand\Graphics\GIS\MXD\SJ16_1668_Fig0x_Parking Study Locations.mxd

Each of the observed sites are described below:

- **Affordable Housing**
  - *California Park Apartments* is directly west of the California Avenue Caltrain Station on Park Boulevard. The complex is bordered by non-residential land uses, although single-family and multi-residential units are nearby. The complex is also within walking and biking of many restaurants, several grocery stores, and other amenities. The complex has unassigned, uncovered parking spaces for residents only. Street parking is restricted to two hours maximum between 8:00 am and 5:00 pm, Monday through Friday.

  - *Oak Court Apartments* is in a residential area of Palo Alto south of the University Avenue downtown area among other multi-family residential complexes and single-family homes. The complex is within walking and biking distance of the University Avenue downtown area, as well as other various grocery stores and amenities. Access to the Palo Alto Caltrain Station is provided on both the east and west sides of the Caltrain tracks, and the station is accessible via both local streets and bicycle and pedestrian paths. The complex has assigned, underground parking for residents only. Street parking is available on most adjacent blocks and is time-restricted for all users except those with residential permits. (Permits are for multiple residential complexes including Oak Court Apartments.)

  - *Colorado Park Apartments* is in a residential area of Palo Alto southeast of the US 101/Oregon Expressway interchange and is surrounded by single-family and multi-family residential units. The complex is within walking and biking distance to several schools and parks, but it is not within walking distance to any restaurants, grocery stores, or other amenities. (The Midtown Shopping Center, the nearest shopping center, is approximately 0.7 miles from the complex.) The complex has assigned parking in a residents-only surface-level lot. Most of the parking is covered, but a portion of the spaces are uncovered. Colorado Avenue, the only street bordering the complex, has unrestricted street parking near the site.

- **Market Rate Housing**
  - *The Marc* is in a mixed residential/commercial area of Palo Alto near the University Avenue downtown area. A mix of residential units and commercial units surround the complex. The complex is within walking and biking distance of the University Avenue downtown are, as well as other stores and amenities. Access to the Palo Alto Caltrain Station is provided on both the east and west sides of the Caltrain tracks, and the station is accessible via both local streets and bicycle and pedestrian paths. All parking spaces are assigned to residents, although parking is partially in a gated garage and partially in a surface-level lot. Street

parking is restricted to two hours maximum between 8:00 am and 5:00 pm, Monday through Friday.

- *Midtown Court Apartments* is directly north of the Midtown Shopping Center in Palo Alto. The complex shares driveways with another apartment complex and is surrounded by both residential units and commercial land uses. The complex is within walking and biking distance of many restaurants, a grocery store, and other amenities. Access to the California Avenue Caltrain Station is somewhat impeded because the complex is on the opposite side of Caltrain tracks as the station. The complex has both assigned and unassigned parking spaces in a surface lot, with both covered and uncovered spaces. Minimal street parking surrounds the complex, although the parking lot at the Midtown Shopping Center does not restrict parking outside of business hours.

- *Tan Plaza Apartments* is in a primarily residential area of Palo Alto near the intersection of El Camino Real and Arastradero Road. The complex is near mostly residential buildings and some hotel and retail land uses. The complex is within biking distance to select restaurants and stores to the south along El Camino Real. The complex has a gated surface lot for residents only, and all spaces are assigned and covered. Clemo Avenue south of the complex has unrestricted street parking.

- **Senior Housing**
  - *Sheridan Apartments* is in a residential area of Palo Alto to the south of the California Avenue downtown area. The complex is near several multi-family residential complexes. It is also within walking and biking distances to restaurants and various amenities on California Avenue. The complex has a resident-only surface lot with assigned parking. Street parking is available on most adjacent blocks and is time-restricted for all users except those with residential permits. (Permits are for multiple residential complexes including Sheridan Apartments.)

  - *Lytton Gardens* is in a partially residential, partially commercial area of Palo Alto to the north of the University Avenue downtown area. The complex is next to multi-family residential areas, restaurants, and retail land uses. The complex is within walking and biking distance to the University Avenue downtown area. The complex has gated, assigned, underground parking for residents. Street parking is available on adjacent blocks and is time-restricted for all users except those with residential permits. (Permits are for multiple residential complexes including Lytton Gardens.) Additionally, there is a parking lot near the complex that is reserved for other multi-family residential complexes and retail shops.

- *Stevenson House* is in a residential area of Palo Alto near the intersection of Charleston Road and Middlefield Road. The complex is near primarily single-family residential homes and elementary schools. A small shopping center with restaurants and a grocery store is within walking and biking distance of the complex. The complex has assigned parking spaces for residents in a surface lot. Some of the parking spaces are covered. Street-parking is available on the east side of Charleston Road for residents with parking permits.

All observed sites have dedicated parking facilities for residents, visitors, and staff where the number of parked vehicles could be counted (no private one and two-car garages). No observed sites offer unbundled parking. The number of units by bedroom count, number of parking spaces, and parking supply rates per unit and per bedroom are presented in **Table 4.** The properties also have at least 45 units, with unit occupancy at or above 95%.

Methodology & Results

This section summarizes the survey methods and results.

Parking Inventories

A parking inventory was conducted at each selected survey site to verify the parking supply. The inventory included counts of the numbers of spaces and how they were identified, e.g., reserved, visitor, staff, office, Americans with disabilities Act (ADA)-compliant, etc. Spaces that had no identification were designated as "general". The parking inventories are presented in **Table 3**.

The parking requirements per City code are also presented. Many of the sites have fewer on-site spaces than the code requirements. If complexes provide less parking than the code requirements and parking occurs on adjacent streets, this may contribute to a perception of the city code being too low.

Table 3: Parking Inventories at Survey Sites

Name of Complex	Number of Parking Stalls								Required Parking Supply[1]
	General	Reserved	ADA-Compliant	Visitor	Office/ Staff/ Vendor	Future Neighbor	EV	Total	
Affordable Housing									
California Park Apartments	67	-	3	-	-	-	-	**70**	**76[2]**
Oak Court Apartments	-	85	2	20	-	-	-	**107**	**87[2]**
Colorado Park Apartments	-	86	2	-	2	-	-	**90**	**99[2]**
Market Rate Housing									
The Marc	-	153	2	-	-	-	2	**157**	**172[3]**
Midtown Court Apartments	58	10	-	-	1	-	-	**69**	**83**
Tan Plaza Apartments	65	10	2	-	2	5	-	**84**	**127**
Senior Housing									
Sheridan Apartments	-	20	1	-	-	-	-	**21**	**47[4]**
Lytton Gardens	3	38	5	5	-	-	-	**51**	**42[4]**
Stevenson House	35	2	3	6	4	-	-	**50**	**97[4]**

Notes:
1. Required parking supplies were calculated using the City of Palo Alto's parking requirements.
2. Per the City of Palo Alto's parking requirements, a 20% parking reduction was applied to affordable housing with low income units.
3. Per the City of Palo Alto's parking requirements, a 20% parking reduction was applied to market-rate housing nearest to transit.
4. Per the City of Palo Alto's parking requirements, a 50% parking reduction was applied to senior housing complexes.

Source: Fehr & Peers, 2018.

Parking Occupancy Surveys

Parking occupancy surveys were conducted in November and December, 2017 to count the numbers of parked vehicles on-site by space type on a weekday (Tuesday, Wednesday, or Thursday) at three time periods (midday, evening, and late night - after midnight) and on a weekend day at two time periods (midday and late night). An additional round of parking occupancy surveys was conducted in June and July, 2018 on a weekday during the late-night period to capture total on-site and potential on-street parking demand.

The summarized results showing the numbers of parked vehicles, parking demand rates per unit, per occupied unit, and per bedroom are in **Table 4**. The peak (highest) on-site parking demand survey results are shown. The peak demand rates are based on the highest observed on-site demand plus the highest observed on-street demand. It should be noted that it is difficult to discern whether the vehicles parked on street are associated with the apartment complex or with other homes or land uses in the area. All of the on-street parked vehicles are included in the demand rates yielding conservative results. (More detailed survey results are included in **Appendix B**.)

Most of the complexes achieved their peak parking demand on weekdays during the late night period. Two had identical peak parking demands during the late night period on weekdays and on weekends (California Park Apartments and Tan Plaza). One of the senior housing complexes reached its peak parking demand during the late night weekend period (Stevenson House).

Only three of the complexes, Oak Court Apartments, Lytton Courtyard, and Stevenson House, have designated visitor spaces. Oak Court Apartment has 20 visitor spaces and the number of vehicles parked in those spaces remained at 6 or 7 throughout the survey period. Lytton Courtyard has 5 visitor spaces with 1 or 2 parked vehicles. The number of vehicle in the six visitor spaces at Stevenson House ranged from 2 to 5.

Table 4: New Multi-Family Residential Parking Survey Results

Name of Complex	Distance to Rail Station (Nearest Caltrain Station)	Number of Units				No. of Occupied Units	Supply			Peak Demand		Demand Rates (Per Unit)		Demand Rates (Per Bedroom)		Over-Supply Range[3,4]
		1 BR	2 BR	3+ BR	Total Units (Total Bedrooms)		No. of Spaces	Supply Rate per Unit	Supply Rate per Bedroom	On-Site [2]	On-Street [1,2]	On-Site [2]	On-Site & On-Street[2]	Rate Per Bedroom (On-Site) [2]	Rate Per Bedroom (On-Site & On-Street)[2]	
Affordable Housing																
California Park Apts.	0.1 mi. (CA)	1	31	13	45 (102)	45	70	1.56	0.69	49	19	1.09	1.51	0.48	0.67	3-43%
Oak Court Apts.	0.6 mi. (PA)	9	18	26	53 (123)	53	107	2.02	0.87	66	12	1.25	1.47	0.54	0.63	37-62%
Colorado Park Apts.	1.8 mi. (CA)	8	24	28	60 (140)	60	90	1.50	0.64	78	13	1.30	1.52	0.56	0.65	0-15%
Market Rate Housing																
The Marc	0.7 mi. (PA)	70	44	4	118 (170)	114	157	1.33	0.92	93	5	0.82	0.86	0.55	0.58	60-69%
Midtown Court Apts.	1.1 mi. (CA)	31	15	0	46 (61)	44	69	1.50	1.13	46	13	1.05	1.34	0.75	0.97	17-50%
Tan Plaza Apts.	1.5 mi. (SA)	6	50	5	61 (121)	60	84	1.38	0.69	70	14	1.17	1.40	0.58	0.69	0-20%
Senior Housing																
Sheridan Apts.	0.3 mi. (CA)	57	0	0	57 (57)	57	21	0.37	0.37	20	3	0.35	0.40	0.35	0.40	0-5%
Lytton Gardens	0.5 mi. (PA)	51	0	0	51 (51)	51	51	1.00	1.00	35	0	0.69	0.69	0.69	0.69	46%
Stevenson House	1.2 mi. (SA)	120	0	0	120 (120)	120	50	0.42	0.42	41	0	0.34	0.34	0.34	0.34	22%

Notes: Complexes are color coded by distance to transit, with darker colors indicating higher distance to transit.

1. Only a portion of the on-street parked vehicles are associated with the apartment complex.
2. On-site demand represents the higher peak demand observed of the two studies. On-street demand is from the new study only. Entire on-street demand included in demand rates.
3. Oversupply = (Supply – Demand) / Demand
4. Because it is not possible to determine how many on-street vehicles are generated by the complex, Oversupply Range represents the minimum (100% of on-street parking is generated by the complex) and maximum (0% of on-street parking is generated by the complex) oversupplies. If no on-street parking was observed, one oversupply percent is given.

Sources: City of Palo Alto, Fehr & Peers.

Resident Intercept Surveys

The Planning and Transportation Commission requested that resident intercept surveys be conducted to gauge residents' perspectives on parking conditions. One property, The Marc, allowed Fehr & Peers staff to conduct a survey on June 21, 2018. Two staff members went to the complex and recorded resident responses to the following three questions:

- What is your overall sense of the parking supply at this complex? (Too much parking, too little parking, or about the right amount of parking)
- How do you feel about parking in the garage compared to on-street parking/parking in neighboring lots?
- How do you feel about using the parking structure/lot at this complex? Do you feel safe using the parking structure/lot at this complex?

Seven residents (four female and three male) agreed to be interviewed. Overall, residents feel like the parking supply at The Marc is about right, although one resident mentioned that the parking structure is "packed" sometimes. All residents preferred parking in the complex instead of parking on the street. Several residents mentioned that they prefer parking in the complex because they have their own reserved space, while others stated that parking on the street is a "hassle." All residents also reported that they feel safe parking at the complex. One male resident mentioned that there is occasionally homeless activity near the parking complex. **Appendix C** shows the full responses of the resident intercept surveys.

The Marc showed low parking lot occupancy during the previous (57%) and new (62%) parking surveys, indicating that the parking supply is more than adequate. The Marc also had assigned parking for most residents and showed the lowest number of on-street vehicles of all observed Market Rate and Affordable Housing complexes.

Data Analysis

The parking occupancy surveys results were reviewed and statistical analyses were performed, including a multi-variant linear regression analysis, to determine the correlation between the peak parking demand and the number of dwelling units (categorized by number of bedrooms) and total number of bedrooms, and to determine whether distance to transit had any statistical significance. In addition the highest peak demand rates for each category were reviewed. The conversion of parking demand rates to parking supply rates is discussed in the next chapter.

Statistical Analyses

The best statistical analysis results regarding peak parking demand compared to the number of units are summarized below. These equations should be used with caution due to the low sample size.

Affordable Housing

Peak Parking Demand = 1.33 (X_1) + 1.52 (X_{2+}), where

X_1 = Number of one-bedroom units and
X_{2+} = Number of two (or more)-bedroom units

The results are inconclusive regarding distance to transit.

Market-Rate Housing

Not accounting for distance to transit:

Peak Parking Demand = 0.56 (X_1) + 1.42 (X_{2+}), where

X_1 = Number of one-bedroom units and
X_{2+} = Number two (or more)-bedroom units

Accounting for distance to transit:

Peak Parking Demand = 0.67 (X) + 27.88 (Y), where

X = Total number of units
Y = Walking distance to closest rail station in miles

Senior Housing

Peak Parking Demand = 0.40 (X_1), where

X_1 = Number of one-bedroom units

The results are inconclusive regarding distance to transit.

Highest Demand Rates

To ensure that a sufficient amount of parking is provided parking demand rates used in selecting the parking supply are based on 85th percentile rates, not average rates. Since the number of survey sites is low, the highest rate for each category would represent the 85th percentile rate. Therefore, the highest of the peak

parking demand rates for each category is used, not the average of the rates, to develop parking supply rates. The highest rates and the range of rates for each category are presented in **Table 5**.

Table 5: Peak Parking Demand Rates by Housing Type

Housing Type	Range of Peak Parking Demand ratess		Maximum Peak Parking Demand Rate	
	Spaces per Unit	*Spaces per Bedroom*	*Spaces per Unit*	*Spaces per Bedroom*
Affordable Housing	1.47-1.52	0.63-0.67	**1.52**	**0.67**
Market Rate Housing	0.86-1.40	0.58-0.97	**1.40**	**0.97**
Senior Housing	0.34-0.69	0.34-0.69	**0.69**	**0.69**

Source: Fehr & Peers.

General Observations

Some general observations regarding the survey sites and results are presented below:

- The Affordable Housing complexes have a higher proportion of two and three-bedroom units, the Market Rate complexes have more one-bedroom then two+ bedroom units, and the Senior Housing complexes are comprised of primarily one-bedroom units.
- On a per-unit basis, the lowest parking demand rates were observed at the Senior Housing complexes and the highest at Affordable Housing complexes. On a per bedroom basis, the Affordable and Senior Housing sites had comparable rates while Market Rate units had the highest rate.
- Resident experiences at The Marc indicate that residents prefer to park at the apartment complex instead of on the street and that residents view always having available parking/empty spaces as the right amount of parking. (Therefore, a complex where the supply is closer to the peak demand may be viewed as having "too little" parking.)

4. Conclusions

The information contained in this report, primarily the results of the parking surveys conducted at complexes in Palo Alto, were used develop parking supply rates. The rates are based on the goal of the parking supply being adequate to accommodate the peak demand on site to minimize intrusion into surrounding neighborhoods. Parking supply rates are typically about 10 percent higher than the anticipated peak demand to account for demand variations, to reduce the amount of vehicular circulation to locate the last vacant spaces, and to limit over-supplies. Parking supply rates for each of the apartment categories were selected based on the highest surveyed parking demand including both on-site and on-street spaces and the statistical analysis results. These rates include guest parking. Applying the resulting supply rates to the survey sites would result in supplies exceeding the parking demand by over 20 percent in most cases. Therefore these supply rates would minimize parking intrusion.

The supply rates and discussions on how they were derived are presented below:

Affordable Housing:

- 1.0 parking space per studio and per 1-bedroom unit
- 2.0 parking spaces per 2-bedroom or larger unit

Reserved parking, if provided, could be limited to one space per unit to maximize parking space availability.

All three of the survey sites have similar parking demand rates on both a per-unit and per-bedroom basis. The linear regression analysis indicates that the per unit demand rate is similar regardless of the number of bedrooms. This is primarily due to the low proportion of one-bedroom units and higher number of two and three-bedroom units to accommodate families (and their limited effect on parking demand). Therefore the parking rate is 2.0 spaces per unit with two or more bedrooms to acknowledge the higher parking demand associated with the larger units. The rate of 1.0 space per studio/one-bedroom unit was selected as it is the minimum acceptable supply rate. A higher rate is not needed as it would result in an oversupply.

Market Rate Housing:

- 1.0 parking space per studio and per 1-bedroom unit
- 2.0 parking spaces per 2-bedroom or larger unit

Reserved parking, if provided, could be limited to one space per unit to maximize parking space availability.

The market rate sites showed more variation in parking demand rates, especially on a per-bedroom basis. The linear regression analysis indicated demand rates in proportion with the number of bedrooms. On average these complexes are an even mix of one and two-bedroom units with few three-bed-room units. The parking rates of 1.0 space per studio/one-bedroom unit and 2.0 spaces per unit with two or more bedroom, even though identical to the Affordable Housing rates, maintain the magnitude of rate increase in the linear regression but set the minimum rate at 1.0 space per unit.

Senior Housing:

- 0.75 spaces per unit

All of the Senior Housing survey sites comprised one-bedroom units. The highest demand rate was 0.69 spaces per unit and per bedroom. This rate was used to develop the parking supply rate.

Appendix A:
Summary Tables from Previous Parking Studies

Summary Table from "A Parking Utilization Survey of Transit-Oriented Development Residential Properties in Santa Clara County"

TABLE 6.1 Survey Data

Site	Housing		Parking			Parking Utilization Ratio	Parking Demand Rate	Parking Supply Rate	Over Supply (%)	Distance to Nearest Station
	Total Units	Occupied Units	Total Spaces	Utilized Spaces	Unused Spaces	(Utilized Spaces / Total Spaces)	(Utilized Spaces / Occupied Units)	(Total Spaces / Total Units)	(Supply - Demand) / Supply	(Feet)
1	294	288	438	365	73	0.83	1.27	1.49	15	2,500
2	306	294	568	439	129	0.77	1.49	1.86	19	3,060
4+	924	832	1,654	1,282	372	0.78	1.54	1.79	14	5,560
5	2,760	2,622	4,605	3,409	1,196	0.74	1.30	1.67	22	2,400
6	186	182	317	262	55	0.83	1.44	1.70	16	1,040
11*	93	93	122	99	23	0.81	1.06	1.31	19	1,060
13	210	200	373	271	102	0.73	1.36	1.78	24	1,330
14	104	100	240	148	92	0.62	1.48	2.31	36	1,500
16	115	113	186	132	54	0.71	1.17	1.62	28	130
18	176	174	338	241	97	0.71	1.38	1.92	28	690
20	250	242	387	287	100	0.74	1.19	1.55	23	730
21	383	383	523	320	203	0.61	0.84	1.37	39	3,930
Total	5,801	5,522	9,751	7,255	2,496					
Average	483	460	813	605	208	0.74	1.31	1.68	22	
Std. Dev.	751	709	1,258	936	324	0.07				

Notes

* Site 11 has an occupancy rate of 75% (it was the only survey site with an occupancy rate less than 90%).
  The total number of housing units and parking spaces were adjusted for Site 11 to reflect an occupancy rate of 100%.
  Total dwelling units: Calculation: 124 total units x 0.75 = 93
  Total parking spaces: Calculation: 163 total parking spaces x 0.75 = 122

+ The actual distance is shorter than the 5,560 feet shown here.
  See Section 5.5.2 and Figure 5.5 for more detail.

Summary Table from
“Are TODs Over-Parked?”

Site	Supply per Unit	Peak Demand per Unit	Demand: % diff. from Supply	Demand: % diff. from ITE Rate
Walnut Creek: Pleasant Hill BART Station				
Diablo Oaks	1.05	0.74	-29.5%	-38.3%
Iron Horse Park	1.42	0.80	-43.7%	-33.3%
Archstone Walnut Creek	1.12	0.92	-17.9%	-23.3%
Park Regency	1.47	1.06	-27.9%	-11.7%
Archstone Walnut Creek Stat.	1.29	1.09	-15.5%	-9.2%
Villa Montanaro	2.05	1.23	-40.0%	2.5%
San Leandro: Bayfair BART Station				
The Hamlet	1.28	1.07	-16.4%	-10.8%
Union City BART Station				
Verandas	1.50	1.11	-26.0%	-7.5%
Parkside	1.46	1.13	-22.6%	-5.8%
Fremont BART Station				
Presidio	1.82	1.23	-32.4%	2.5%
Watermark Place	1.84	1.27	-31.0%	5.8%
Mission Peaks	1.75	1.35	-22.9%	12.5%
Archstone Fremont	1.98	1.45	-26.8%	20.8%
Sun Pointe Village	1.98	1.47	-25.8%	22.5%
Park Vista Apartments	1.97	1.48	-24.9%	23.3%
Alborada	1.78	1.69	-5.1%	40.8%
ALL 16 EAST BAY STATIONS				
Weighted Average	1.59	1.20	-24.7%	0.0%

Figure 2. East Bay Results: Peak Parking Generation Rates (Parked Vehicles per Dwelling Unit) Relative to Supply Levels and ITE Standard

Summary Table from
“Los Angeles Trip Generation Study”

TABLE 3

Summary Table of Parking Analysis for Affordable Housing Sites in Los Angeles

(By Transit Priority Area and Affordable Housing Type)

Counts conducted May, June, and November 2016

TPA Area	Affordable Housing Type	Sample Size	Parking Demand Per Dwelling Unit	Parking Utilization
Inside	-	20	0.53	64%
Outside	-	22	0.56	63%
-	Family	14	0.84	72%
-	Seniors	13	0.46	71%
-	Special Needs	8	0.32	43%
-	Permanent Supportive	7	0.37	56%
Inside	Family	8	0.85	74%
Inside	Seniors	5	0.44	73%
Inside	Special Needs	4	0.20	34%
Inside	Permanent Supportive	3	0.29	64%
Outside	Family	6	0.82	70%
Outside	Seniors	8	0.48	69%
Outside	Special Needs	4	0.44	52%
Outside	Permanent Supportive	4	0.43	50%

LAMC for Comparison

	Parking Requirement per Unit
Apartments (LAMC 12.21A.4(a))	
<3 habitable rooms	1
3 habitable rooms	1.5
>3 habitable rooms	2
Projects with Affordable Housing Density Bonus - Option 1 (applies to all units, not just restricted units) (LAMC 12.22A.25(d)(1))	
0-1 bedroom	1
2-3 bedrooms	2
4 or more bedrooms	2.5
Projects with Affordable Housing Density Bonus - Option 2 (applies to restricted units only) (LAMC 12.22A.25(d)(2))	
restricted affordable units	1
restricted to low or very low income senior citizen or disabled	0.5
restricted affordable units in residential hotel	0.25

Summary Table from
“San Diego Affordable Housing Study”

Table 2. Comparison of Spaces Required Under Different Standards

A. Type	B. Project, # of units, special district (if any)	C. Spaces required under current code with no reductions for increases, or Centre City Planned District (if applicable)	D. Spaces required if reduction for "very low income" or "transit area adjustment" is applied	E. Spaces w/ all density bonus 143.0790 adjustments (transit area + very-low income)	F. Spaces required under Chapter 6 parking model, including visitor, staff and vacancy factor	G. Actual spaces supplied	H. Peak overnight parking occupancy (surveyed projects)
Studio	Via Harvey Mandel, 90 units, CCPD	22[2]	N/A	N/A	33	26	20
Family (large)	Beyer Courtyard, 60 units	153	136	108	114	118	19
	Windwood Village, 92 units	223	196	151	149	195	144
	Seabreeze Farms, 38 units	96	85	68	65	73	N/A
	Gateway Family, 42 units	108	96	76	62	92	N/A
Family (small)	Regency Center, 100 units	198	168	97	142	100	N/A
SRO	Island Inn, 197 units, CCPD	87[3]	N/A	N/A	43	86	52
	Studio 15, 275 units, CCPD	85[4]	N/A	N/A	61	55	N/A
Senior	Renaissance Seniors, 96 units	178	149	68	87	103	37
	San Diego Apartments, 16 units	28	23	10	13	4	N/A
	Horton House, 153	Conditional use	N/A	N/A	48	17	14

[1] The model assumed that the desired vacancy rate is 10%.
[2] Assuming classified as living unit, 50% AMI, or 0.2 spaces per unit; requirement for less or equal to 40% AMI is zero spaces.
[3] Assuming classified as living unit, 50% AMI or 0.2 spaces per unit; requirement for less or equal to 40% AMI is zero spaces.
[4] Assuming classified as living unit, 50% AMI or 0.2 spaces per unit; requirement for less or equal to 40% AMI is zero spaces.

Appendix B:

New Parking Survey Results

Palo Alto Parking Survey Results (By Housing Type)

Site	Total units	Occupied units	Capacity (Spaces)	Supply Rate	Maximum Demand[b]	*Weekday - (November & December 2017)* Midday Stalls Occupied	Midday Parking Occupancy	Midday Demand Rate[b]	Evening Stalls Occupied	Evening Parking Occupancy	Evening Demand Rate[b]	Late Stalls Occupied	Late Parking Occupancy	Late Demand Rate[b]	*Weekday - (June & July 2018)* Late Stalls Occupied	Late Parking Occupancy	Late Demand Rate[b]	Late Off-Site Parking Demand[a]	*Weekend (November & December 2017)* Midday Stalls Occupied	Midday Parking Occupancy	Midday Demand Rate[b]	Late Stalls Occupied	Late Parking Occupancy	Late Demand Rate[b]
California Park	45	45	70	1.56	1.09	19	0.27	0.42	28	0.40	0.62	41	0.59	0.91	49	0.70	1.09	19	27	0.39	0.60	41	0.59	0.91
Oak Court	53	53	107	2.02	1.25	36	0.34	0.68	43	0.40	0.81	66	0.62	1.25	62	0.58	1.17	12	46	0.43	0.87	59	0.55	1.11
Colorado Park	60	60	90	1.50	1.30	36	0.40	0.60	56	0.62	0.93	78	0.87	1.30	70	0.78	1.17	13	44	0.49	0.73	70	0.78	1.17
Affordable Average:				**1.69**	**1.21**	**--**	**0.34**	**0.57**	**--**	**0.47**	**0.79**	**--**	**0.69**	**1.15**	**--**	**0.69**	**1.14**	**--**	**--**	**0.43**	**0.73**	**--**	**0.64**	**1.06**
The Marc	118	114	157	1.33	0.82	59	0.38	0.52	64	0.41	0.56	90	0.57	0.79	93	0.59	0.82	5	59	0.38	0.52	79	0.50	0.69
Midtown Court	46	44	69	1.50	1.05	22	0.32	0.50	27	0.39	0.61	46	0.67	1.05	41	0.59	0.93	13	28	0.41	0.64	42	0.61	0.95
Tan Plaza	61	60	84	1.38	1.17	38	0.45	0.63	39	0.46	0.65	70	0.83	1.17	--	--	--	14	49	0.58	0.82	70	0.83	1.17
Market Rate Average:				**1.40**	**1.01**	**--**	**0.38**	**0.55**	**--**	**0.42**	**0.61**	**--**	**0.69**	**1.00**	**--**	**0.59**	**0.87**	**--**	**--**	**0.45**	**0.66**	**--**	**0.65**	**0.94**
Sheridan	57	57	21	0.37	0.35	17	0.81	0.30	19	0.90	0.33	20	0.95	0.35	17	0.81	0.30	3	16	0.76	0.28	18	0.86	0.32
Lytton	51	51	51	1.00	0.69	31	0.61	0.61	26	0.51	0.51	25	0.49	0.49	31	0.61	0.61	0	23	0.45	0.45	35	0.69	0.69
Stevenson	120	120	50	0.42	0.34	33	0.66	0.28	39	0.78	0.33	41	0.82	0.34	35	0.70	0.29	0	35	0.70	0.29	36	0.72	0.30
Senior Average:				**0.60**	**0.46**	**--**	**0.69**	**0.39**	**--**	**0.73**	**0.39**	**--**	**0.75**	**0.39**	**--**	**0.71**	**0.40**	**--**	**--**	**0.64**	**0.34**	**--**	**0.75**	**0.43**

Notes:

a. Only a portion of the on-street parked vehicles are associated with the apartment complex.

b. On-site demand rate per unit.

Appendix C:

Resident Intercept Survey Results

Resident Intercept Surveys - The Marc, 6/21/2018			
	Questions		
Gender	What is your overall sense of the parking supply at this complex? (Too much parking, too little parking, or about the right amount of parking)	How do you feel about parking in the garage compared to on-street parking/parking in neighboring lots?	How do you feel about using the parking structure at this complex? Do you feel safe using the parking structure at this complex?
Female	Fine, has a reserved space	In complex preferred, has own space	Yes, feels safe
Male	Fine, has a reserved space	In complex preferred, has own space, really does not like street parking	Feels safe, sometimes homeless activity around parking structure
Female	Right amount	She lives here with a designated spot, feels satisfied parking in structure	Yes, positive
Female	Right amount, has a reserved spot	Prefer to park in structure, on-street is a hassle as you have to move it constantly	Yes, positive
Male	Right amount	Prefer parking in garage	Yes, it is safe
Male	Right amount	Prefer parking at garage because of designated spaces	Yes, completely safe
Female	Sometimes it's packed, but most of the time the right amount. Never felt it's too little.	Prefers parking at garage, has a designated space, wont' get into hassle of finding on-street parking	Yes, completely safe

Appendix E

Fehr & Peers Rengstorff Avenue Driveway Assessment Memorandum

FEHR PEERS

MEMORANDUM

Date: November 7, 2018

To: Vahe Tashjian, Dutchints Development LLC

From: Ashley Brooks and Elynor Zhou, Fehr & Peers

Subject: Rengstorff Avenue Driveway Assessment for the Proposed Residential Development at 5150 El Camino Real in Los Altos, California

SJ18-1823

This memorandum documents the Rengstorff Avenue driveway assessment for the proposed residential development (the "Project") located at 5150 El Camino Real in Los Alto, California. The purpose of the assessment is to respond to City comments regarding the currently proposed geometry of the driveway, which forms the south leg of the Rengstorff Avenue /El Camino Real intersection. The City has requested a queuing analysis for inbound and outbound traffic to determine the need for exclusive right-turn lanes and an evaluation of the north-south alignment of the driveway with Rengstorff Avenue.

Project Description

The Project is located at 5150 El Camino Real in Los Altos, California. The approximately 3.79-acre Project site is located on the south side of El Camino Real (assuming El Camino Real runs in an east-west direction) at the intersection of El Camino Real and Rengstorff Avenue. The Project involves replacing the existing office buildings (with approximately 77,000 square feet of office space) with 172 condominiums and 24 townhomes.

The Project proposes to maintain the three existing driveways at the site: two right-in, right-out driveways and one signalized, full access driveway (also described as the Rengstorff Avenue driveway). The condominium parking will be provided underground with access via the signalized Rengstorff Avenue driveway and will include 234 spaces. The townhome parking will consist of 48 parking spaces and will be provided along the back side of the site (southern boundary). Access to the townhome parking will be provided via the right-in, right-out driveways.

Vehicle Trip Generation Estimates

Vehicle trip generation estimates for the Project are presented in the circulation memorandum dated August 21, 2018. **Table 1** is an abridged version of the trip generation table and shows the estimates for the condominiums that would have site access/egress via the Rengstorff Avenue driveway. The queuing analysis uses vehicle trips generated by the condominiums.

Table 1: Condominium Trip Generation

ITE Land Use Code	Land Use Type	Method[1]	Size	Type	Weekday Trips	AM Peak Hour Trips			PM Peak Hour Trips		
						Total	In	Out	Total	In	Out
Proposed Land Use											
220	Condos	Fit Curve Equation[1]	172	Unit	1,260	80	18	62	96	60	36

Notes: ksf = 1,000 square feet

1. ITE *Trip Generation Manual* (10th Edition) provides an average rates and best fit curve equations for trip generation estimates. The following equations were used for ITE Land Use 220: Multifamily Housing (Low-Rise):

Daily: T = 7.56 * X – 40.86
AM Peak Hour: Ln (T) = 0.95 Ln (X) – 0.51 (23% in, 77% out)
PM Peak Hour: Ln (T) = 0.89 Ln (X) – 0.02 (63% in, 37% out)

Where T is the number of trips generated and X is the development size.

Source: ITE *Trip Generation Manual* (10th Edition); Fehr & Peers, 2018.

Trip Assignment

The projected traffic volume at the El Camino Real/Rengstorff Avenue intersection is calculated by adding the condominium vehicle trips in Table 1 to the existing peak hour roadway volumes. The existing volumes are estimated from a 2012 field count at this intersection with a one percent annual growth factor applied to account for traffic growth between 2012 and 2018. Previous trips into and out of the Project site were replaced with the trip generation from the proposed Project. The inbound and outbound condominium vehicle trips are assigned to individual intersection movements based on existing travel patterns. The count data and volumes with and without the Project traffic are included in the Attachment.

Queuing Results

Queuing analyses are conducted to estimate the maximum queues of vehicles (the 95th percentile queues) during the AM and PM peak hours. The maximum queue lengths for the projected traffic volumes at the El Camino Real/Rengstorff Avenue intersection were estimated using the Synchro traffic operations analysis program and are presented in **Table 2**. During the AM peak hour, the maximum queue in the eastbound

shared through/right-turn lane on El Camino Real is approximately 125 feet, which is shorter than the distance between the Rengstorff driveway and the western project driveway. During the PM peak hour, the maximum queue length for this movement is about 250 feet. This queue length exceeds the distance between the Rengstorff driveway and the western driveway, but does not extend to the next upstream signalized intersection at Distel Drive. The northbound driveway approach with one combined left-turn/through/right-turn lane has an estimated queue length of 50 feet in both AM and PM peak hours. The maximum outbound queue of 50 feet (two vehicles) is within the available storage distance between El Camino Real and the first drive aisle in the underground parking garage. An exclusive right-turn lane would not be needed.

Table 2: Rengstorff Driveway Queuing Results (Synchro)

Intersection	Direction	95th Queue Length[1] (ft)	
		AM	PM
El Camino Real/Rengstorff Avenue	EBT/R	125	250
	NBL/T/R	50	50

Notes:
1. Queue length is rounded to the nearest 25 ft.

Source: Fehr & Peers, 2018.

Driveway / Rengstorff Avenue North-South Alignment

As currently designed, the driveway's outbound lane aligns with the middle of the two northbound receiving lanes and the inbound lane is approximately 10 feet to the left of the southbound through lane on Rengstorff Avenue. Recommendations to improve the alignment are:

1) Modify the driveway to improve alignment for inbound vehicles from southbound Rengstorff Avenue. If possible, the offset should be reduced to a maximum of six feet as shown in Figure 1.
2) Add edge line extension striping through the intersection to direct drivers into and out of the driveway.

Summary

This memorandum documents the results of the Rengstorff Avenue driveway assessment for the proposed residential development located at 5150 El Camino Real in Los Alto, California.

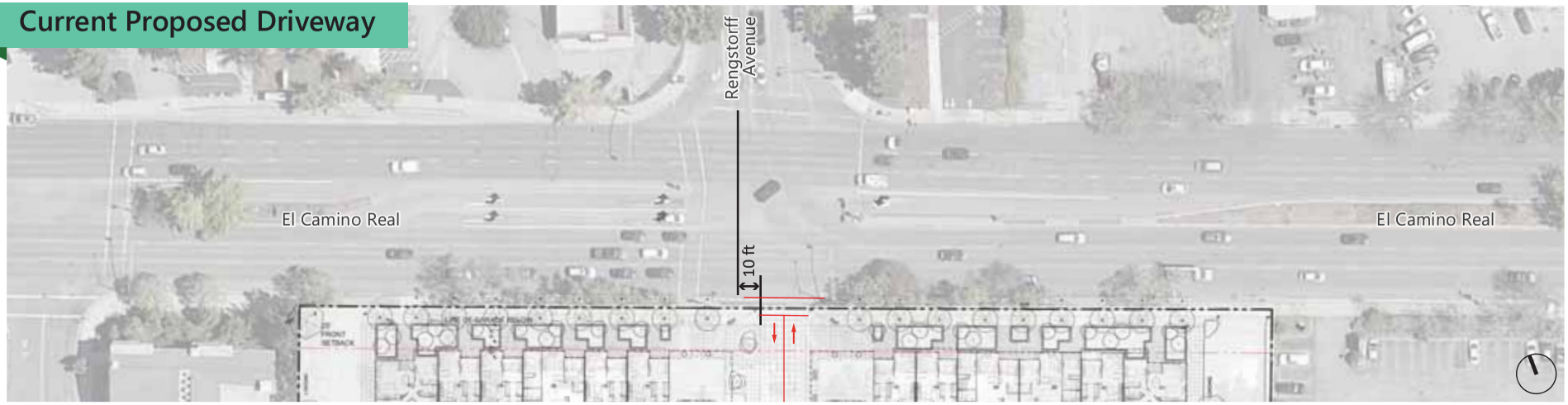
The maximum outbound queue at the Rengstorff Avenue driveway was found to be 50 feet (two vehicles) which is within the available storage distance between El Camino Real and the first drive aisle in the underground parking garage. An exclusive right-turn lane was found to be unnecessary. The maximum

queue in the eastbound through/right-turn lane from El Camino Real into the Project site was estimated to be 250 feet (10 vehicles). This eastbound queue can fit within the available storage area between the driveway and the next upstream intersection and a separate right-turn lane is not necessary.

The current driveway is located such that a southbound driver on Rengstorff Avenue traveling through the intersection and into the site would need to shift approximately 10 feet to the left to enter the driveway. This is a substantial amount of shift. Striping through the intersection or some other improvement is needed to direct drivers into the driveway. It is recommended that the driveway be no more than six feet offset from the southbound through lane. This can be accomplished by providing striping through the intersection, installing a center median, raised or other, on the south leg (driveway) of the intersection. These improvements would better align vehicles entering and exiting the site.

Attachment: El Camino Real/Rengstorff Avenue Volumes

Current Proposed Driveway



New Proposed Driveway

Figure 1

Current and New Proposed Driveway Geometry

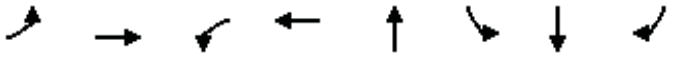
5150 El Camino Real

Attachment

El Camino Real/Rengstorff Avenue Data

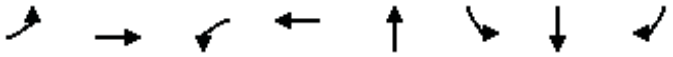
El Camino Real/Rengstorff Avenue Volumes

Peak Hour	Year	Rengstorff Ave.						El Camino Real						
		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	WBLU
AM	2012 Count	3	4	2	206	4	164	100	945	6	50	1574	193	0
	No Project	4	5	3	219	5	174	106	1002	7	53	1669	205	0
	With Project	34	6	22	219	2	174	106	1002	10	6	1669	205	10
PM	2012 Count	17	3	8	275	0	142	182	1789	0	59	1383	194	0
	No Project	19	4	9	292	0	151	193	1897	0	63	1466	206	0
	With Project	14	3	19	292	6	151	193	1897	23	31	1466	206	10



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	115	1100	18	2037	68	119	121	189
v/c Ratio	0.44	0.43	0.09	0.79	0.13	0.27	0.28	0.33
Control Delay	15.2	9.1	8.4	13.6	9.7	15.2	15.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	9.1	8.4	13.6	9.7	15.2	15.3	13.1
Queue Length 50th (ft)	11	74	3	177	10	28	29	37
Queue Length 95th (ft)	31	101	12	234	31	64	65	79
Internal Link Dist (ft)		158		124	695		673	
Turn Bay Length (ft)	160		195					150
Base Capacity (vph)	263	2585	203	2575	529	435	429	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.43	0.09	0.79	0.13	0.27	0.28	0.33

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	210	2087	45	1817	39	162	162	164
v/c Ratio	0.83	0.57	0.50	0.50	0.13	0.66	0.68	0.46
Control Delay	38.7	7.1	27.3	6.2	26.3	59.2	61.2	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	7.1	27.3	6.2	26.3	59.2	61.2	31.4
Queue Length 50th (ft)	42	202	11	156	12	128	128	68
Queue Length 95th (ft)	#143	231	62	180	45	#244	#250	140
Internal Link Dist (ft)		158		124	695		673	
Turn Bay Length (ft)	160		195					150
Base Capacity (vph)	295	4268	105	4210	303	245	237	354
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.49	0.43	0.43	0.13	0.66	0.68	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.