

APPENDIX N

Local Transportation Assessment

LOCAL TRANSPORTATION ASSESSMENT
THE CONCORDIA COLLECTION AT
CYPRESS POINT
Oceanside, California
October, 2021

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Assessment (LTA) to determine and evaluate the potential effects to the local roadway system due to the proposed Concordia Collection at Cypress Point project, consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020. This City document provides guidance for the preparation of LTAs to identify any off-site infrastructure improvements in the project vicinity that may be triggered with the development of the project as well as to analyze site access and circulation and evaluate the local multi-model network available to serve to project.

The Project site is located at the terminus of Pala Road and Los Arbolitos Boulevard in the City of Oceanside. The Project proposes the development of 54 single family homes. Access is proposed via Pala Road.

The Project is calculated to generate 540 daily trips with 42 trips during the AM peak hour (13 inbound/ 29 outbound trips) and 53 trips during PM peak hour (37 inbound/ 16 outbound trips).

The LTA study area includes five intersections and five street segments. The analysis determines the transportation impacts of the Project in existing and near-term cumulative conditions. Three cumulative projects were identified and added to near-term cumulative conditions.

Per the City of Oceanside's thresholds for the determination of the need for roadway improvements, and the analysis methodology presented in this report, roadway improvements are not required since the increase in Project related delay does not exceed the allowable thresholds.

The Project is consistent with the City's adopted General Plan and is calculated to generate fewer than 1,000 ADT. Therefore, per the City's *Traffic Impact Analysis Guidelines*, a Transportation VMT CEQA Analysis is not required and was therefore not prepared for this Project.

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LOCAL TRANSPORTATION ASSESSMENT
THE CONCORDIA COLLECTION AT CYPRESS POINT
Oceanside, California
October, 2021

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has prepared this Local Transportation Assessment (LTA) to assess the potential impacts associated with the Concordia Collection at Cypress Point project (Project) in the City of Oceanside. The Project site is located at the terminus of Pala Road and Los Arbolitos Boulevard in the City of Oceanside. The Project proposes the development of 54 single family homes. This report addresses the potential transportation impacts and effects from the proposed Project.

The following sections are included in this report:

- Project Description
- CEQA VMT Screening Process
- Local Transportation Assessment Methodology & Thresholds
- Existing Conditions Description
- Analysis of Existing Conditions
- Cumulative Projects
- Project Trip Generation/Distribution/Assignment
- Analysis of Existing Conditions Plus Project Conditions
- Analysis of Near-Term Conditions
- Pedestrian, Transit and Bicycle Mobility
- Access Assessment
- Conclusions

2.0 PROJECT DESCRIPTION

The Project site (APN 158-301-46-00) is a vacant parcel of approximately 7.3 acres recently purchased from the City of Oceanside, located west of Los Arbolitos Boulevard at the Aspen Street and Pala Road intersections. The site is bordered on the north and west by the San Luis Rey River and on the south and east by existing residential developments.

This property is zoned RS-Single family residential, corresponding with the General Plan designation of SFD-R. Surrounding areas are zoned open space in the areas adjacent to the river, and a variety of residential zones, including RS, RM-A, RM-B, and RH, in the nearby neighborhoods. Commercial zones are located alongside Highway 76, which is less than a mile south of the project site.

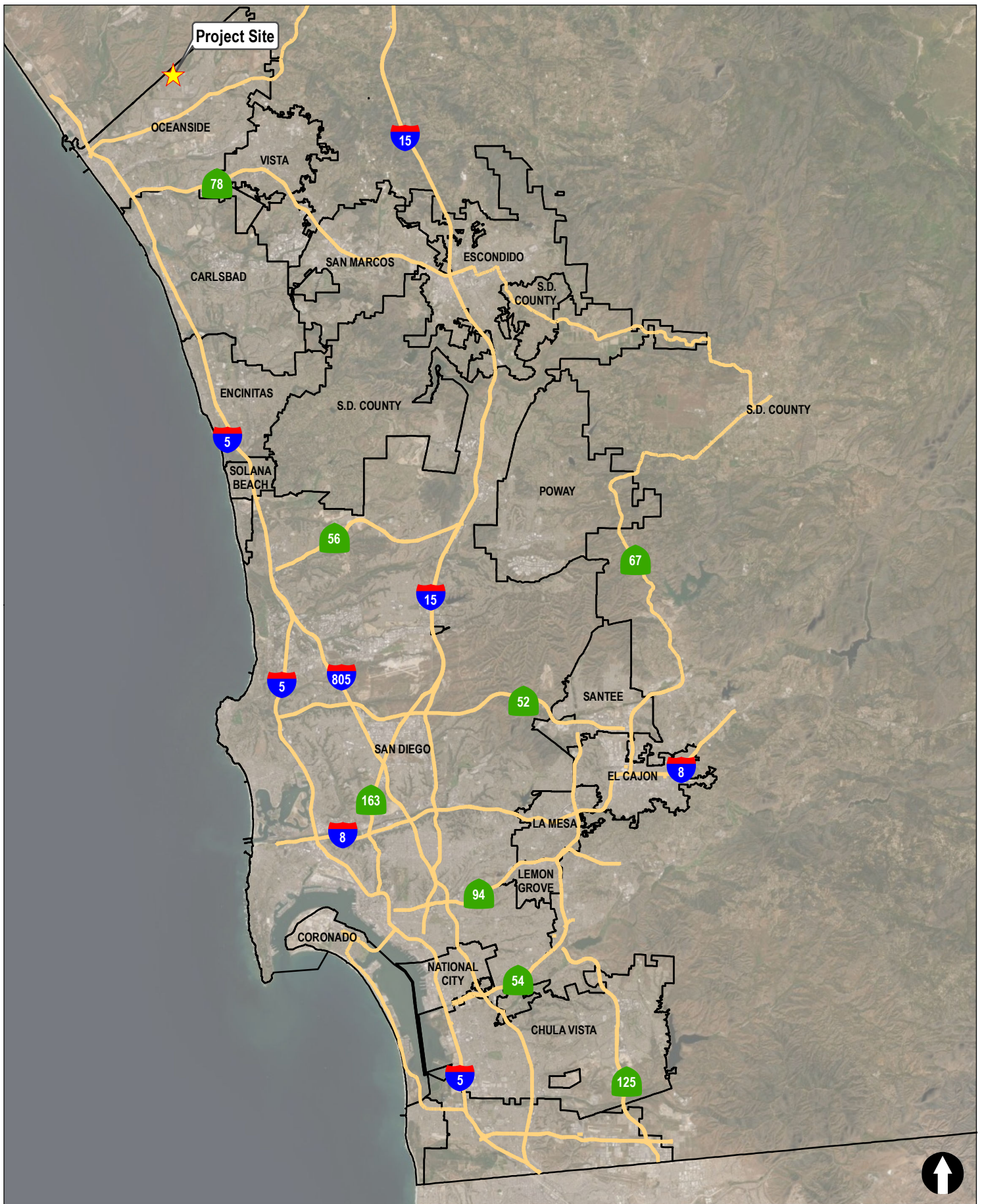
2.1 Site Access

The Project includes 54 single-family homes ranging from about 1,200 to 1,700 square feet located around a private loop road within the Project site. Site access is proposed to be taken from a westerly extension of Pala Road at the southern edge of the Project site. A gated, emergency only access point would be available via Aspen Street, at the midpoint of the Project on the east side. Both public road entries lead to the private road with frontage for residences and guest parking areas with a total of 38 spaces.

Sidewalk improvements proposed for Aspen Street include extending the curb, gutter, and sidewalk on both sides leading into the Project site with ADA-accessible corner curbs. Similarly, Pala Road will have sidewalk improvements extending the curb, gutter, and sidewalk on the north side with a cul-de-sac turnaround at the Project's main entry gate. Multiple dirt trails extend along the western Project boundary to connect the public to the 13-acres of open space to the north of the Project. A 5-foot curb, gutter, and sidewalk surround the homes on the interior side of the loop road, with an additional sidewalk along the Pala Road extension into the Project site that connects with corner curbs to the inner loop sidewalk.

Each residence will include a two-car garage, with driveways designed to allow for two full size parked cars, effectively allowing for parking for four cars per home.

Figure 2-1 shows the Project's Vicinity Map and **Figure 2-2** shows a more detailed Project Area Map. **Figure 2-3** shows the Project's site plan.



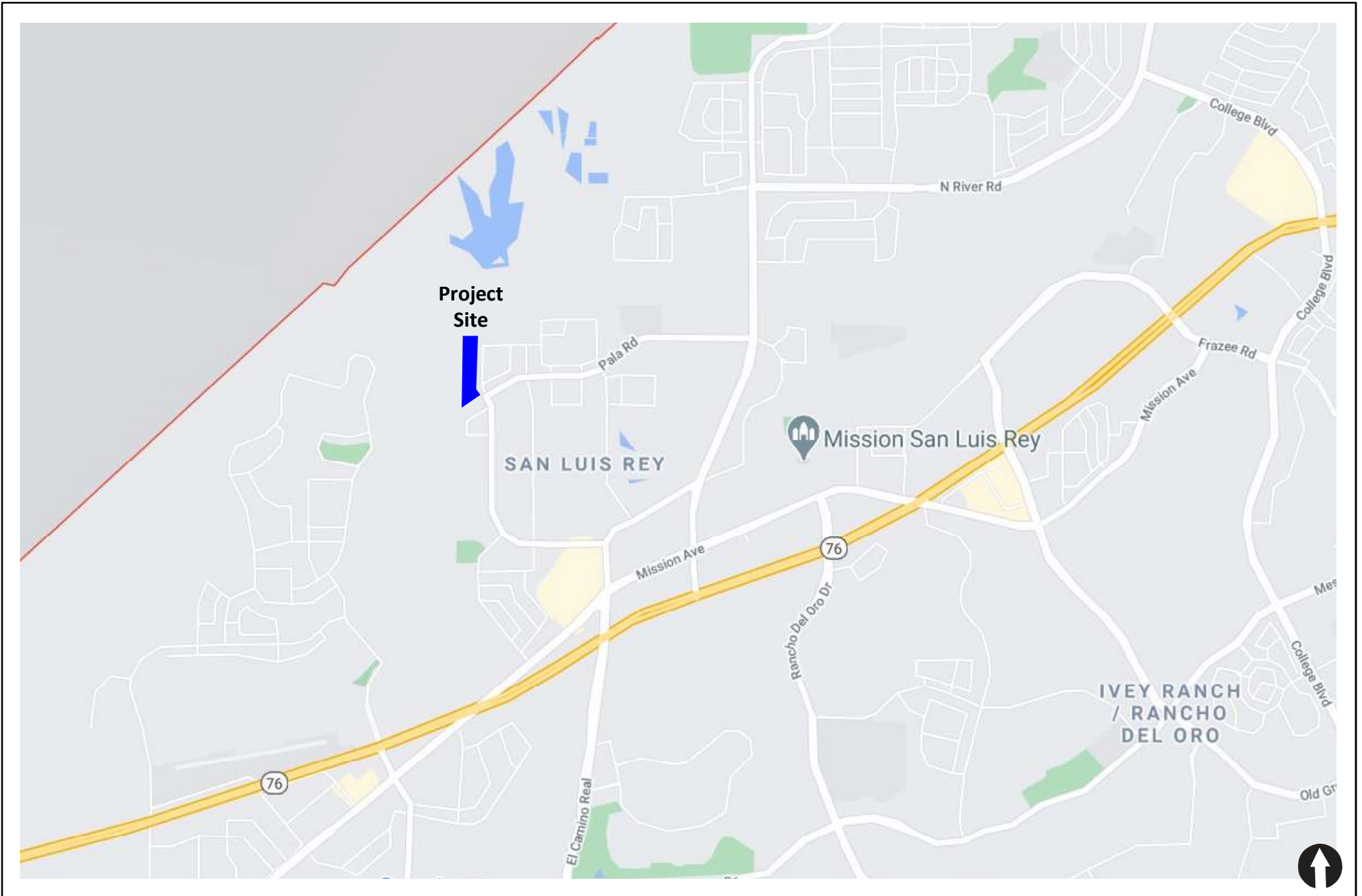
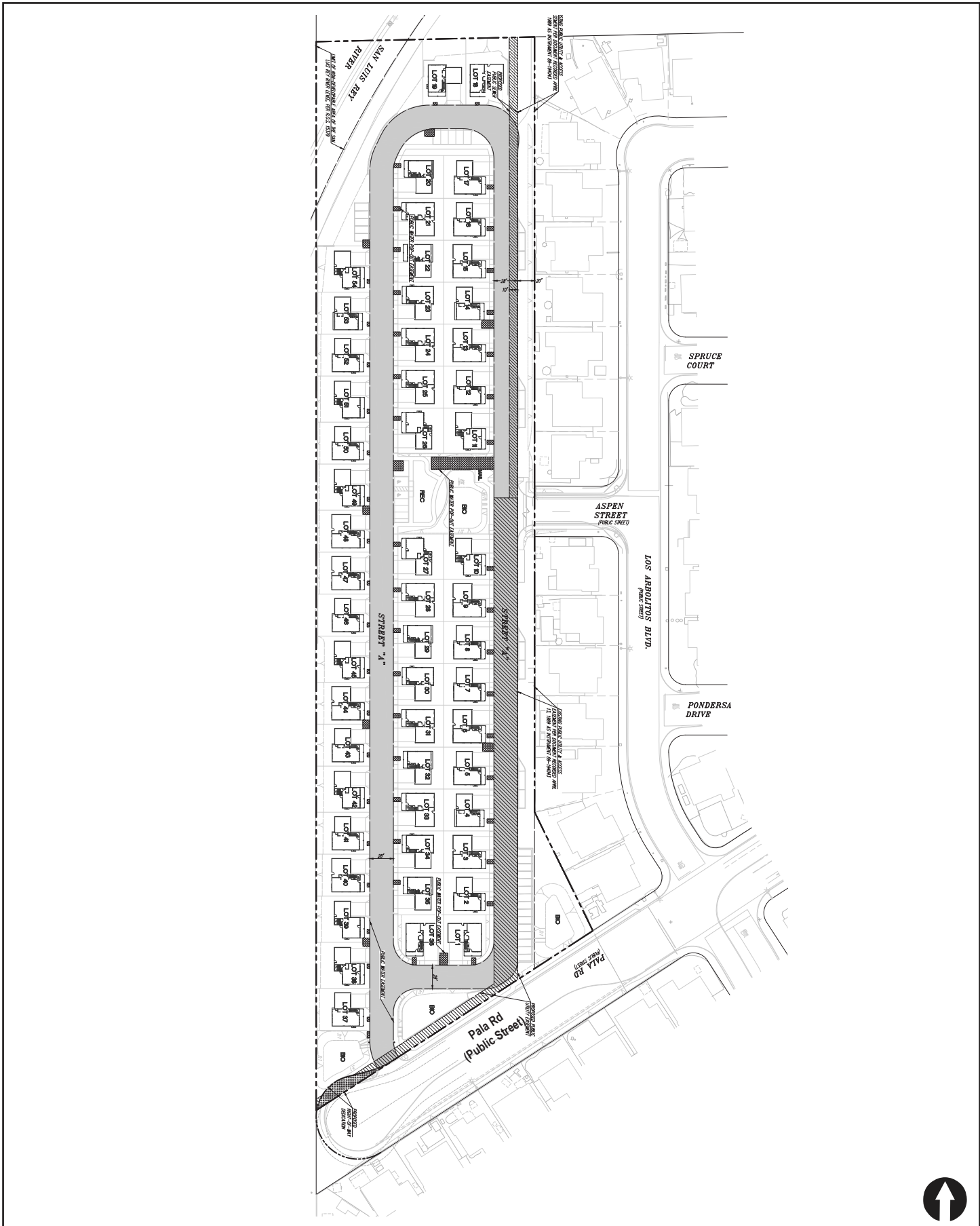


Figure 2-2
Project Area Map



3.0 CEQA VMT SCREENING PROCESS

An assessment was conducted to determine the impacts on Vehicle Miles Traveled (VMT) for the Project. This assessment utilizes methodologies presented within the Governor's Office of Planning and Research (OPR) Technical Advisory developed to assist with implementation of Senate Bill 743 (SB 743), which resulted in a shift in the measure of effectiveness for determining transportation impacts from Level of Service (LOS) and vehicular delay to VMT. VMT analyses are required in all California Environmental Quality Act (CEQA) documents as of July 1, 2020.

The City of Oceanside utilizes the Institute of Transportation Engineers (ITE) *San Diego Regional Guidelines* (May 2019) to establish thresholds and methodology for VMT analysis. Based on the recommendations of ITE for the San Diego region, a VMT analysis for CEQA is not required for projects consistent with the City's adopted General Plan and calculated to generate less than 1,000 Average Daily Trips (ADT). This is based on keeping consistent with the thresholds previously used and *SANDAG's Not So Brief Guide Trip Generation* (2002). These thresholds are based on the understanding that SANDAG trip generation rates differ from ITE trip generation rates which OPR's recommendations are based on.

The City's adopted General Plan represents the vision and goals the City has for the community. VMT analysis is not needed for projects that support these goals and generate fewer than 1,000 ADT, as noted in Table 3 of the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (August 2020). The Project is consistent with the City's adopted General Plan and is calculated to generate fewer than 1,000 ADT, as further discussed in *Section 8*. Therefore, a Transportation VMT CEQA Analysis is not required and was therefore not prepared for this Project.

4.0 LOCAL TRANSPORTATION ASSESSMENT METHODOLOGY & THRESHOLDS

A Project-Specific Local Transportation Assessment was prepared that analyzes automobile delay and LOS. The LOS analysis was conducted to identify Project effects on the roadway operations in the Project study area and to recommend Project improvements to address noted deficiencies; however, the CEQA impact significance determination for the proposed Project is based only on VMT and not on LOS.

The proposed Project generates over 200 ADT but less than 1,000 ADT (see *Section 8.1*) and is consistent with the City's adopted General Plan. Therefore, a Local Transportation Assessment (LTA) was prepared consistent with City guidelines.

4.1 Study Area

The following study area was developed based on the anticipated assignment of Project traffic and locations which will carry the most Project traffic, per City of Oceanside staff coordination and scoping meetings. The study area meets and exceeds the trip-based criteria from the City's guidelines, which state that:

- All signalized intersections and project driveways shall be analyzed if the project will add 50 or more new peak hour trips in either direction.
- All unsignalized intersections and project driveways shall be analyzed if the project will add 50 or more new peak hour trips in either direction.
- All freeway ramp intersections and signalized ramp meters shall be analyzed if the project all 20 or more new peak hour trips in either direction.

INTERSECTIONS

1. Los Arbolitos Boulevard / Pala Road
2. Fredricks Avenue / Pala Road
3. Fredricks Avenue / Los Arbolitos Boulevard
4. N. El Camino Real / Los Arbolitos Boulevard
5. N. El Camino Real / Mission Avenue

STREET SEGMENTS

Pala Road

1. Los Arbolitos Boulevard to Fredricks Avenue

Fredricks Avenue

2. Los Arbolitos Boulevard to Pala Road

Los Arbolitos Boulevard

3. Pala Road to Fredricks Avenue
4. Fredricks Avenue to N. El Camino Real

N. El Camino Real

5. Los Arbolitos Boulevard to Mission Avenue

4.2 Analysis Scenarios

This study includes analysis of the following scenarios:

- Existing Conditions
- Existing Conditions Plus Project
- Existing Conditions Plus Near-Term Cumulative Projects
- Existing Conditions Plus Near-Term Cumulative Projects Plus Project

4.3 Analysis Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of Service provides an index to the operational qualities of a roadway segment or an intersection. Level of Service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of Service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

4.3.1 Intersections

Intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 10) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

4.3.2 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Oceanside's *Circulation Element Roadway Classification LOS & Capacity* table (Table 12 in the *City of Oceanside Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020). This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The roadway classification table is attached in *Appendix B*.

4.4 Thresholds for the Determination of the Need for Roadway Improvements

The City of Oceanside uses the published SANTEC/ITE guidelines to establish thresholds and methodology for this Local Transportation Assessment (LTA). *Table 4-1* below indicates when a project's effect on the roadway system is considered to justify the need for roadway improvements. That is, if a project's traffic effect causes the values in this table to be exceeded, roadway improvements should be considered as follows on a case-by-case basis:

- Improvements should be consistent with the General Plan
- Improvements for transit, bike and pedestrian facilities should be given priority in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG.

- Projects in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG, that are consistent with the General Plan at the time of project application, should not be denied due to the inability to provide roadway improvements (i.e., existing right of way is constrained, etc.)

TABLE 4-1
CITY OF OCEANSIDE
DETERMINATION OF THE NEED FOR ROADWAY IMPROVEMENTS

Level of Service with Project ^a	Allowable Change Due to Project Effect	
	Roadway Segments	Intersections
	V/C	Delay (sec.)
E & F	0.02	2.0

Source: SANTEC/ITE *Guidelines for Traffic Impact Studies in the San Diego Region*, May 2019.

Footnotes:

- a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for roadways and intersections is generally “D” (“C” for undeveloped or not densely developed locations per jurisdiction definitions).

General Notes:

- V/C = Volume to Capacity Ratio
- Delay = Average stopped delay per vehicle measured in seconds for intersections.

5.0 EXISTING VEHICULAR CONDITIONS

Effective evaluation of the traffic effects associated with the proposed Project requires an understanding of the existing transportation system within the project area. *Figure 5-1* shows an existing conditions diagram, including intersections and lane configurations.

5.1 Existing Street Network

The following is a description of the existing street network in the study area. The roadway classifications are based on field observations and a review of the Oceanside Circulation Element.

EL CAMINO REAL is classified as a 4-Lane Major Arterial between Los Arbolitos Boulevard and Mesa Drive on the *City of Oceanside Circulation Element*. It is currently constructed as a 4-lane divided roadway, with a raised center median south of Mission Avenue. The posted speed limit is 40 mph from Los Arbolitos Boulevard to Mission Avenue and 45 mph from Mission Avenue to Mesa Drive. On-street parking is not permitted, and Class II bicycle lanes are provided south of Mission Avenue.

LOS ARBOLITOS BOULEVARD is an unclassified roadway on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane undivided roadway with a two-way left-turn lane between El Camino Real and Pala Road. Bike lanes are not provided within the study area and the posted speed limit is 30 mph. On-street parking and sidewalks are provided on both sides of the roadway.

PALA ROAD is classified as a 2-Lane Collector on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane roadway with a continuous two-way left turn lane. Class II bike lanes and sidewalks are provided in both directions within the study area. On-street parking is permitted along certain parts of the street and the posted speed limit is 35 mph.

FREDRICKS AVENUE is an unclassified roadway on the *City of Oceanside Circulation Element*. It is currently constructed as a 2-lane undivided roadway. Bike lanes are not provided and the posted speed limit is 25 mph. On-street parking and sidewalks are provided on both sides of the roadway.

5.2 Existing Traffic Volumes

Daily segment counts and peak hour (7:00-9:00 AM and 4:00-6:00 PM) intersection turning movement counts were conducted in October 2020 within the Project study area. Due to the ongoing Covid-19 pandemic, which has altered traffic patterns, a growth rate of 20% was applied to the October 2020 traffic counts in order to replicate pre-pandemic traffic levels. This growth rate is based on historical traffic data. Daily traffic counts were compared between the pre- and post-Covid time frames to assist in determining the proper factor. Additional information on how this rate was calculated is included in *Appendix A*.

Figure 5-2 shows the Existing Traffic Volumes. *Appendix A* contains the manual count sheets and signal timing plans.

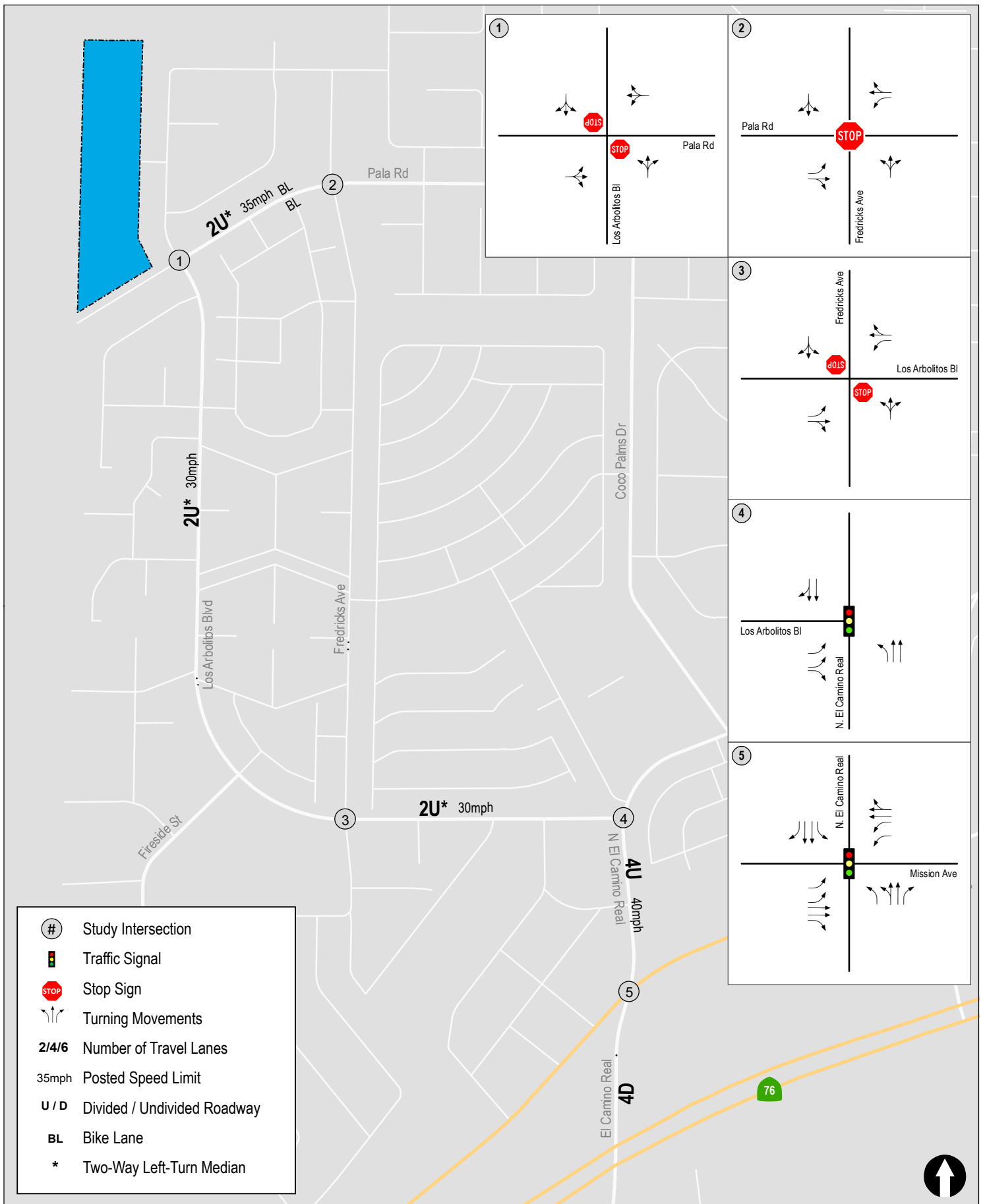


Figure 5-1

Existing Conditions Diagram

Cypress Point

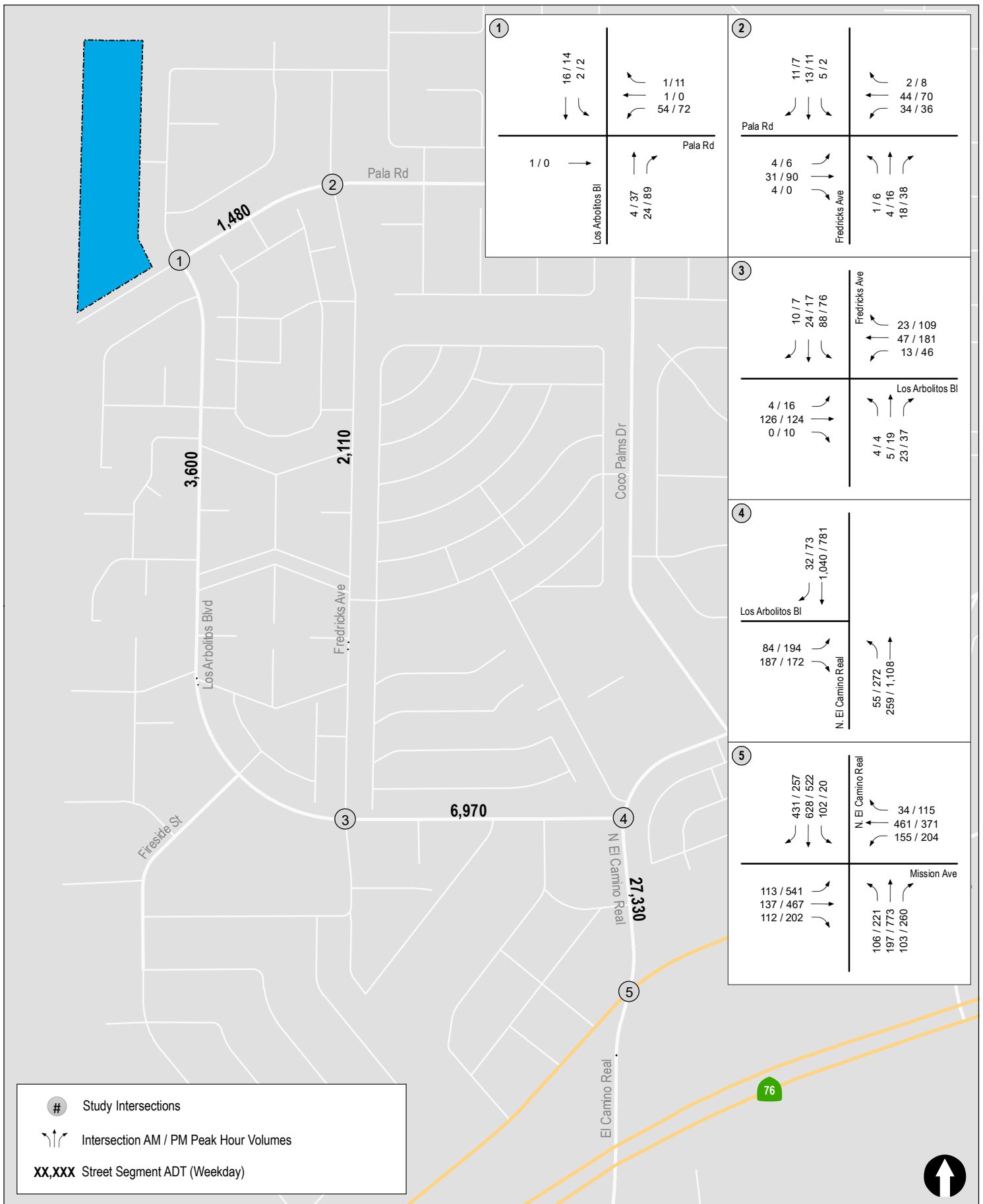


Figure 5-2

Existing Conditions Traffic Volumes

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Analysis

Table 6-1 summarizes the peak hour intersection operations under Existing Conditions in the study area. As shown, the study area intersections are calculated to currently operate acceptably at LOS D or better during the AM and PM peak hours.

Appendix C contains the Existing Conditions intersection analysis worksheets.

6.2 Daily Street Segment Operations

Table 6-2 summarizes the Existing Conditions street segment operations along the study area roadways. As shown, the study area street segments are calculated to currently operate acceptably at LOS C or better.

TABLE 6-1
EXISTING CONDITIONS INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay ^a	LOS ^b
1. Los Arbolitos Boulevard / Pala Road	MSSC ^c	AM	8.3	A
		PM	8.5	A
2. Fredricks Avenue / Pala Road	AWSC ^d	AM	8.3	A
		PM	8.4	A
3. Fredricks Avenue / Los Arbolitos Boulevard	MSSC ^c	AM	12.1	B
		PM	18.0	C
4. N. El Camino Real / Los Arbolitos Boulevard	Signal	AM	11.6	B
		PM	12.8	B
5. N. El Camino Real / Mission Avenue	Signal	AM	25.0	C
		PM	38.8	D

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. MSSC = Minor Street Stop Controlled. Worst-Case delay reported.
- d. AWSC = All Way Stop Controlled Intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

**TABLE 6-2
EXISTING CONDITIONS STREET SEGMENT OPERATIONS**

Street Segment	Functional Classification	Capacity (LOS D) ^a	Existing		
			ADT ^b	LOS ^c	V/C ^d
Pala Road Los Arbolitos Boulevard to Fredricks Avenue	2-Lane Collector w/ TWLTL ^e	13,000	1,480	A	0.114
Fredricks Avenue Los Arbolitos Boulevard to Pala Road	2-Lane Collector	9,000	2,110	A	0.2347
Los Arbolitos Boulevard Pala Road to Fredricks Avenue	2-Lane Collector w/ TWLTL	13,000	3,600	A	0.277
Fredricks Avenue to N. El Camino Real	2-Lane Collector w/ TWLTL	13,000	6,970	B	0.536
N. El Camino Real Los Arbolitos Boulevard to Mission Avenue	4-Lane Major	35,000	27,330	C	0.781

Footnotes:

- a. Capacities based on City of Oceanside *Circulation Element Roadway Classification LOS & Capacity* table (See Appendix B).
- b. Average Daily Traffic Volumes.
- c. Level of Service.
- d. Volume to Capacity ratio.
- e. TWLTL = Two-Way Left-Turn Lane.

7.0 CUMULATIVE PROJECTS

7.1 Summary of Cumulative Projects

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. Based on information from City of Oceanside staff, the projects presented in **Table 7-1** were identified for inclusion in the near-term cumulative analysis. **Appendix G** includes additional information on the cumulative projects.

Figure 7-1 shows the Cumulative Projects only traffic volumes on the existing street network.

TABLE 7-1
CUMULATIVE PROJECTS

Project Name	Type of Development	Project Size	ADT
1. Ocean Kamp ^a	Hotel Multi-Family Residential Commercial / Retail	150 Rooms 350 DU 63,000 SF	9,520
2. Mission Flats	Multi-Family Residential Commercial / Retail	137 DU 4,200 SF	990
3. Oceanpointe Multi-Family	Multi-Family Residential	158 DU	1,264

Footnotes:

- a. 50% of the Ocean Kamp project assumed to be constructed and occupied under near-term conditions.

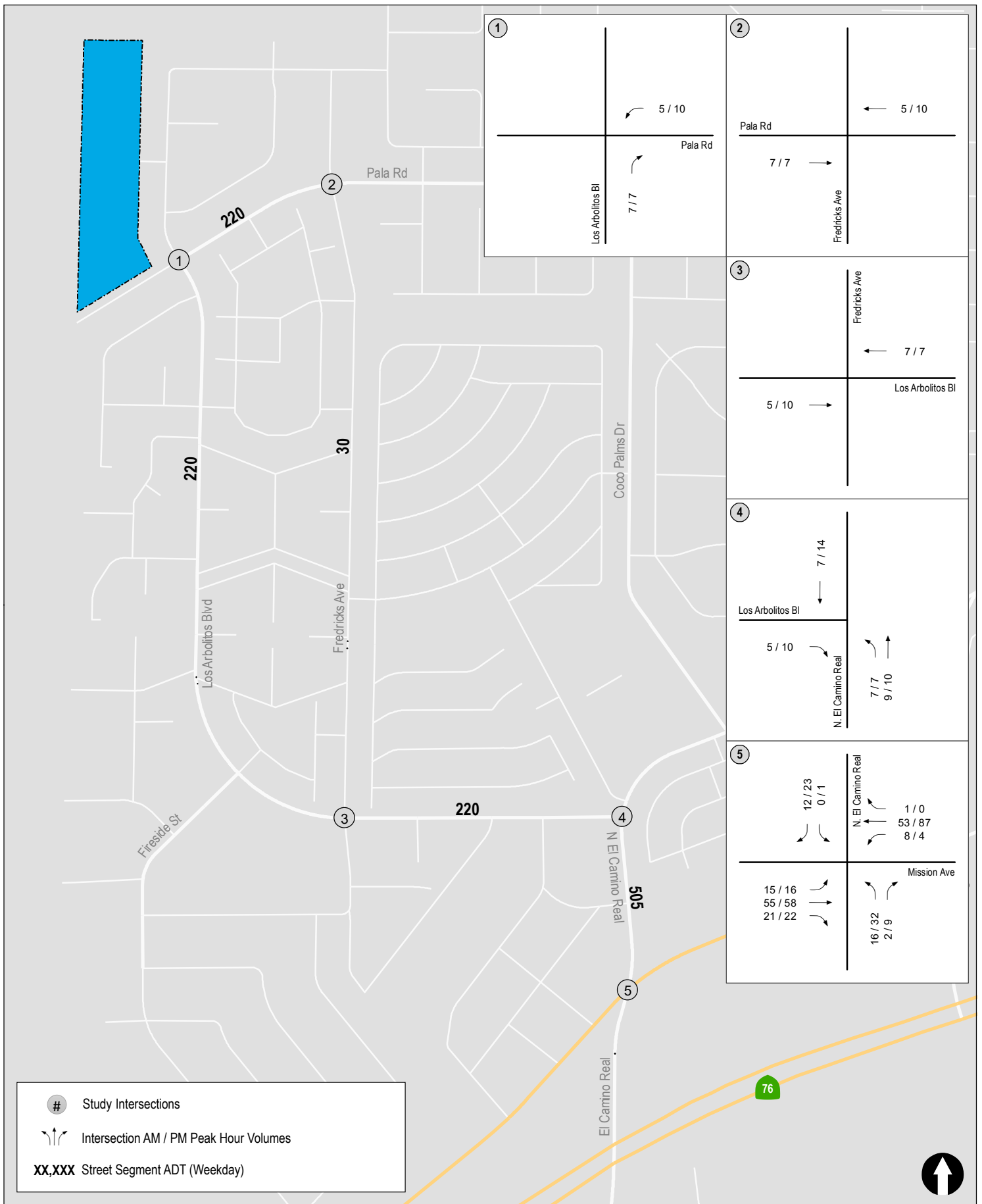


Figure 7-1

Total Cumulative Traffic Volumes

8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

8.1 Trip Generation

Trip generation rates were obtained from the (Not So) *Brief guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) by SANDAG. The “Residential, Single Family Detached (average 3-6 DU/acre)” trip rate was used to estimate the Project trip generation.

Table 8-1 summarizes the trip generation for the Project. As shown in *Table 8-1*, the Project is calculated to generate 540 daily trips with 42 trips during the AM peak hour (13 inbound/ 29 outbound trips) and 53 trips during PM peak hour (37 inbound/ 16 outbound trips).

TABLE 8-1
PROJECT TRIP GENERATION

Use	Quantity	Daily Trip Ends (ADT) ^a		AM Peak Hour				PM Peak Hour			
		Rate ^b	Volume	% of ADT	In:Out Split	Volume		% of ADT	In:Out Split	Volume	
						In	Out			In	Out
Residential – Single Family Detached	54 DU	10/DU	540	8%	30:70	13	29	10%	70:30	37	16

Footnotes:

- b. Average Daily Trips
- c. Trip Generation Rate from the SANDAG’s *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, 2002*.

8.2 Trip Distribution and Assignment

Project traffic was distributed to the street system based on existing traffic patterns in the area, the Project’s proximity to freeways and arterials, locations of retail, places of employment, schools, and other shopping opportunities. 100% of the Project trips were assigned to western leg of the Los Arbolitos Boulevard / Pala Road intersection, which will form the Project’s only day-to-day access point.

Figure 8-1 shows the distribution of the Project trips. **Figure 8-2** shows the Project traffic volumes. **Figure 8-3** shows the Existing + Project traffic volumes.

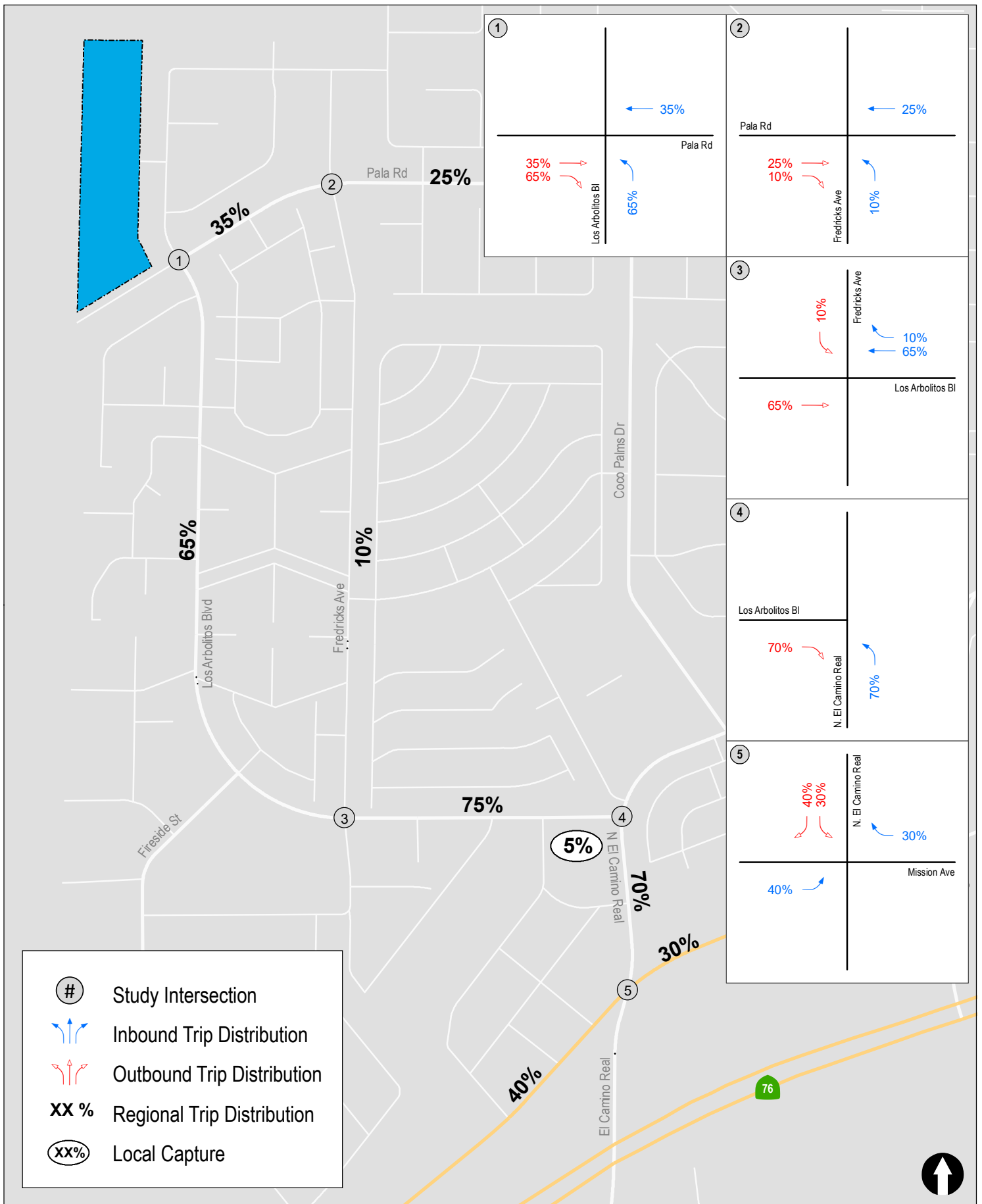


Figure 8-1

Project Traffic Distribution

CYPRESS POINT

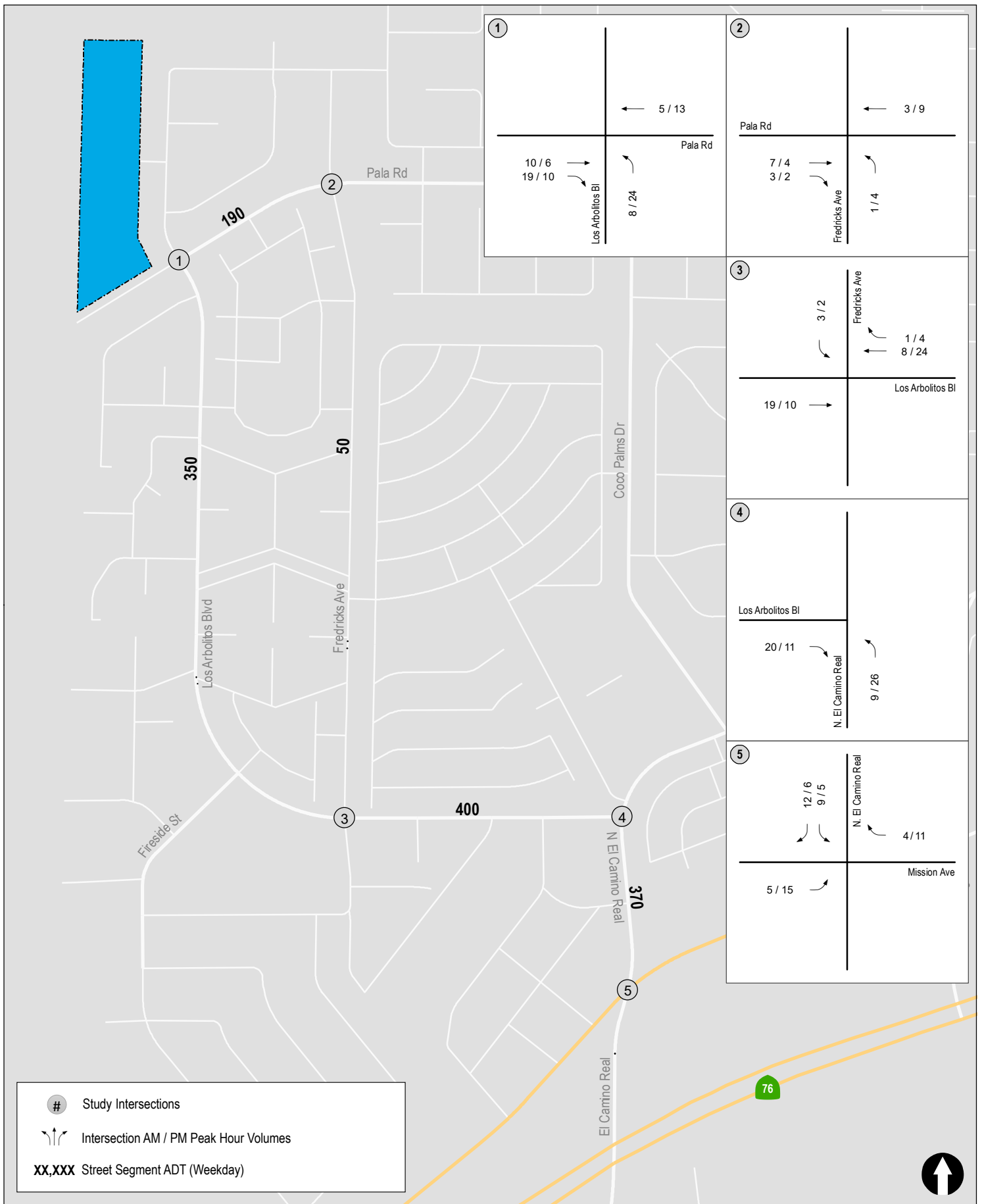


Figure 8-2

Project Traffic Volumes

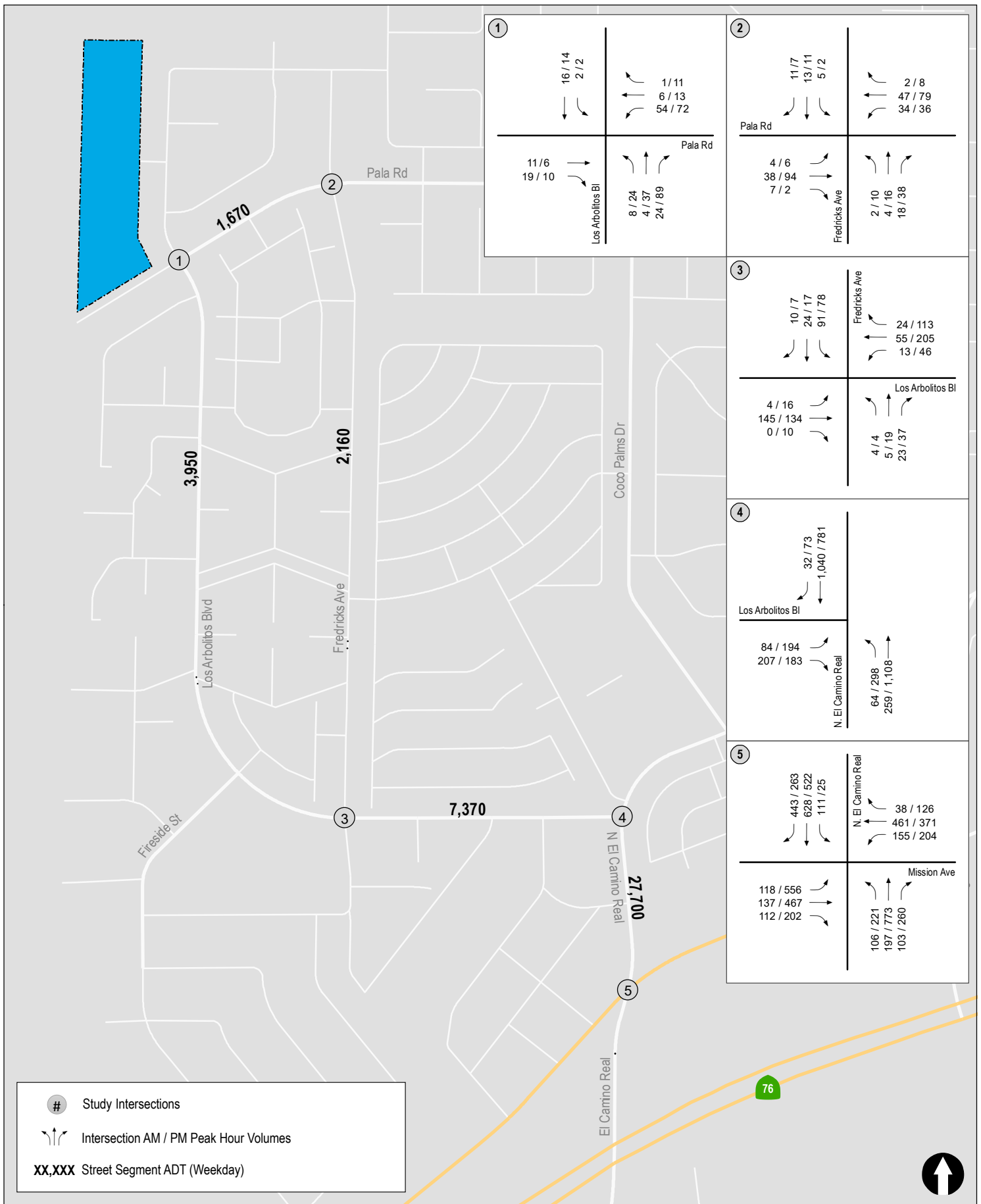


Figure 8-3

Existing Conditions Plus Project Traffic Volumes

9.0 ANALYSIS OF EXISTING CONDITIONS PLUS PROJECT

9.1 Peak Hour Intersection Analysis

Table 9-1 summarizes the peak hour intersection operations under Existing Conditions Plus Project in the study area. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips and therefore, based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required.

Appendix D contains the Existing Conditions Plus Project intersection analysis worksheets.

9.2 Daily Street Segment Operations

Table 9-2 summarizes the Existing Conditions Plus Project street segment operations along the study area roadways. As shown, the study area street segments are calculated to continue to operate acceptably at LOS C or better with the addition of Project trips and therefore, based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required.

**TABLE 9-1
EXISTING CONDITIONS PLUS PROJECT INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing		Existing Plus Project		Delay Δ^c	Improvement Required?
			Delay ^a	LOS ^b	Delay	LOS		
1. Los Arbolitos Boulevard / Pala Road	MSSC ^d	AM	8.3	A	10.8	B	2.5	No
		PM	8.5	A	10.3	B	1.8	
2. Fredricks Avenue / Pala Road	AWSC ^e	AM	8.3	A	8.3	A	0.0	No
		PM	8.4	A	8.5	A	0.1	
3. Fredricks Avenue / Los Arbolitos Boulevard	MSSC ^d	AM	12.1	B	12.6	B	0.5	No
		PM	18.0	C	19.4	C	1.4	
4. N. El Camino Real / Los Arbolitos Boulevard	Signal	AM	11.6	B	12.4	B	0.8	No
		PM	12.8	B	13.6	B	0.8	
5. N. El Camino Real / Mission Avenue	Signal	AM	25.0	C	25.4	C	0.4	No
		PM	38.8	D	40.5	D	1.7	

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Δ denotes the increase in delay due to Project.
- d. MSSC = Minor Street Stop Controlled. Worst-Case delay reported.
- e. AWSC = All Way Stop Controlled Intersection.

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

**TABLE 9-2
EXISTING CONDITIONS PLUS PROJECT STREET SEGMENT OPERATIONS**

Street Segment	Capacity (LOS D) ^a	Existing			Existing Plus Project			V/C Δ ^c	Improvement Required?
		ADT ^b	LOS ^c	V/C	ADT	LOS	V/C		
Pala Road									
Los Arbolitos Boulevard to Fredricks Avenue	13,000	1,480	A	0.114	1,670	A	0.128	0.014	No
Fredricks Avenue									
Los Arbolitos Boulevard to Pala Road	9,000	2,110	A	0.234	2,160	A	0.240	0.006	No
Los Arbolitos Boulevard									
Pala Road to Fredricks Avenue	13,000	3,600	A	0.277	3,950	A	0.304	0.027	No
Fredricks Avenue to N. El Camino Real	13,000	6,970	B	0.536	7,380	C	0.568	0.032	No
N. El Camino Real									
Los Arbolitos Boulevard to Mission Avenue	35,000	27,330	C	0.781	27,710	C	0.792	0.011	No

Footnotes:

- a. Capacities based on City of Oceanside *Circulation Element Roadway Classification LOS & Capacity* table (See Appendix B).
- b. Average Daily Traffic Volumes.
- c. Level of Service
- d. Δ denotes the increase in V/C due to Project.

10.0 ANALYSIS OF NEAR-TERM CONDITIONS

The following section presents the analysis of study area intersections and street segments under Near-Term conditions without and with the proposed Project.

10.1 Near-Term Traffic Volumes

Existing Conditions Plus Near-Term Cumulative Projects traffic volumes were calculated by adding the cumulative projects traffic volumes onto the Existing traffic volumes. Existing Conditions Plus Near-Term Cumulative Projects Plus Project traffic volumes were calculated by then adding the Project traffic volumes.

Figure 10–1 shows the Existing Conditions Plus Near-Term Cumulative Projects traffic volumes. **Figure 10–2** shows the Existing Conditions Plus Near-Term Cumulative Projects Plus Project traffic volumes.

10.2 Existing Conditions Plus Near-Term Cumulative Projects

10.2.1 Peak Hour Intersection Analysis

Table 10–1 summarizes the peak hour intersection operations under Existing Conditions Plus Near-Term Cumulative Projects. As shown, the study area intersections are calculated to operate acceptably at LOS D or better during the AM and PM peak hours.

Appendix E contains the Existing Conditions Plus Near-Term Cumulative Projects intersection analysis worksheets.

10.2.2 Daily Street Segment Operations

Table 10–2 summarizes the Existing Conditions Plus Near-Term Cumulative Projects street segment operations along the study area roadways. As shown, the study area street segments are calculated to operate acceptably at LOS C or better.

10.3 Existing Conditions Plus Near-Term Cumulative Projects Plus Project

10.3.1 Peak Hour Intersection Analysis

Table 10–1 summarizes the peak hour intersection operations under Existing Conditions Plus Near-Term Cumulative Projects Plus Project conditions. As shown, the study area intersections are calculated to continue to operate acceptably at LOS D or better during the AM and PM peak hours with the addition of Project trips and therefore, based on the City of Oceanside’s traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required.

Appendix F contains the Existing Conditions Plus Near-Term Cumulative Projects Plus Project intersection analysis worksheets.

10.3.2 Daily Street Segment Operations

Table 10–2 summarizes the Existing Conditions Plus Near-Term Cumulative Projects Plus Project street segment operations along the study area roadways. As shown, the study area street segments

are calculated to continue to operate acceptably at LOS C or better with the addition of Project trips and therefore, based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, roadway improvements are not required.

**TABLE 10-1
NEAR-TERM INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Near-Term		Near-Term plus Project		Delay Δ^c	Improvement Required?
			Delay ^a	LOS _b	Delay	LOS		
1. Los Arbolitos Boulevard / Pala Road	MSSC ^d	AM	8.3	A	11.0	B	2.7	No
		PM	8.6	A	11.2	B	2.6	
2. Fredricks Avenue / Pala Road	AWSC ^e	AM	8.3	A	8.3	A	0.0	No
		PM	8.5	A	8.6	A	0.1	
3. Fredricks Avenue / Los Arbolitos Boulevard	MSSC ^d	AM	12.3	B	12.8	B	0.5	No
		PM	18.5	C	20.0	C	1.5	
4. N. El Camino Real / Los Arbolitos Boulevard	Signal	AM	11.9	B	12.7	B	0.8	No
		PM	13.2	B	14.0	B	0.8	
5. N. El Camino Real / Mission Avenue	Signal	AM	26.6	C	27.0	C	0.4	No
		PM	46.4	D	48.7	D	2.3	

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. Δ denotes the increase in delay due to Project.
- d. MSSC = Minor Street Stop Controlled. Worst-Case delay reported.
- e. AWSC = All Way Stop Controlled Intersection

SIGNALIZED		UNSIGNALIZED	
DELAY/LOS THRESHOLDS		DELAY/LOS THRESHOLDS	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 55.0	D	25.1 to 35.0	D
55.1 to 80.0	E	35.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

**TABLE 10-2
NEAR-TERM STREET SEGMENT OPERATIONS**

Street Segment	Capacity (LOS D) ^a	Near-Term			Near-Term Plus Project			V/C Δ ^c	Improvement Required?
		ADT ^b	LOS ^c	V/C	ADT	LOS	V/C		
Pala Road									
Los Arbolitos Boulevard to Fredricks Avenue	13,000	1,700	A	0.131	1,890	A	0.145	0.014	No
Fredricks Avenue									
Los Arbolitos Boulevard to Pala Road	9,000	2,140	A	0.238	2,190	A	0.243	0.005	No
Los Arbolitos Boulevard									
Pala Road to Fredricks Avenue	13,000	3,820	A	0.294	4,170	A	0.321	0.027	No
Fredricks Avenue to N. El Camino Real	13,000	7,190	C	0.553	7,600	C	0.585	0.032	No
N. El Camino Real									
Los Arbolitos Boulevard to Mission Avenue	35,000	27,835	C	0.795	28,215	C	0.806	0.011	No

Footnotes:

- a. Capacities based on City of Oceanside *Circulation Element Roadway Classification LOS & Capacity* table (See Appendix B).
- b. Average Daily Traffic Volumes.
- c. Level of Service
- d. Δ denotes the increase in V/C due to Project.

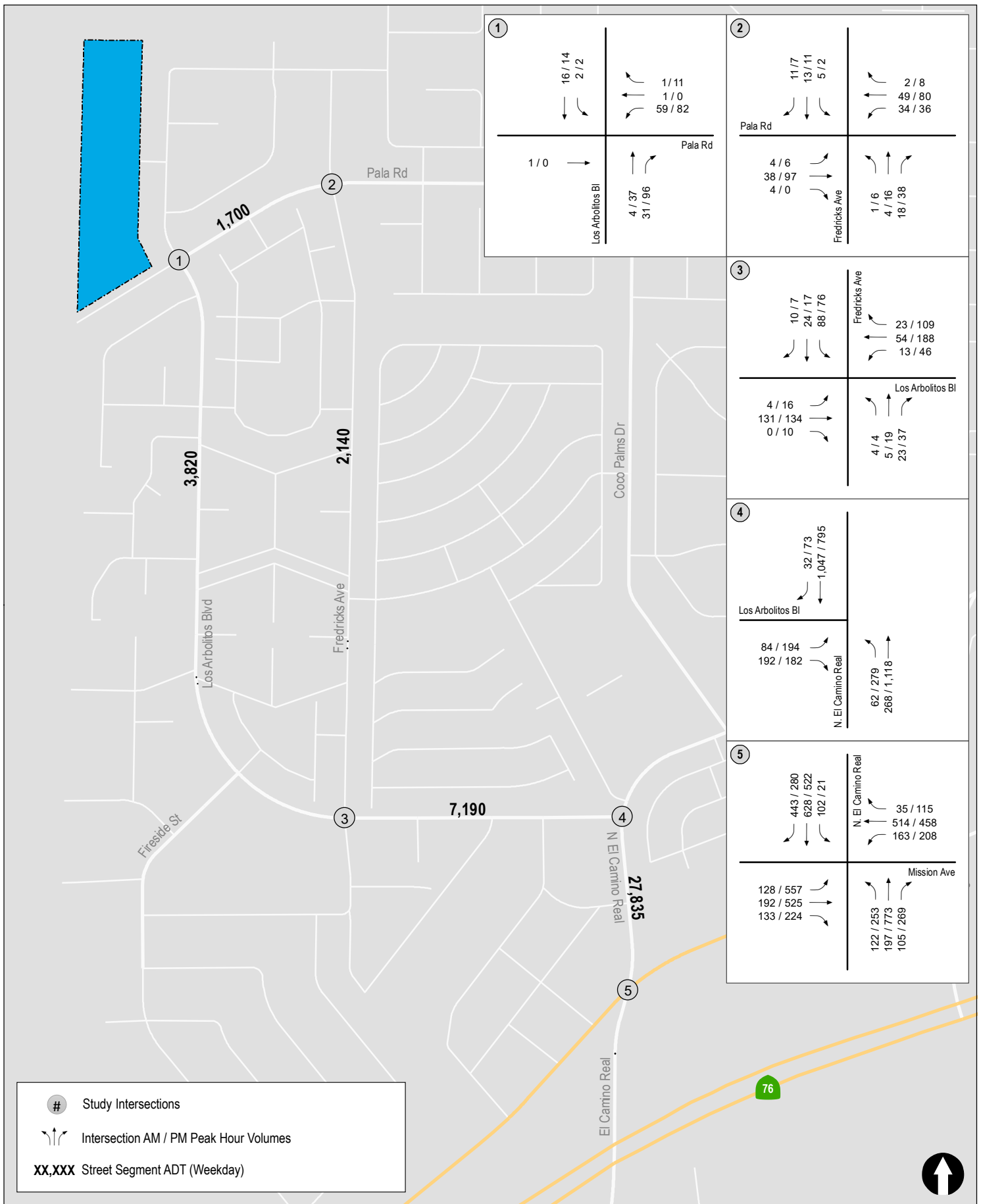


Figure 10-1

Existing Conditions Plus Near-Term Cumulative Projects Traffic Volumes

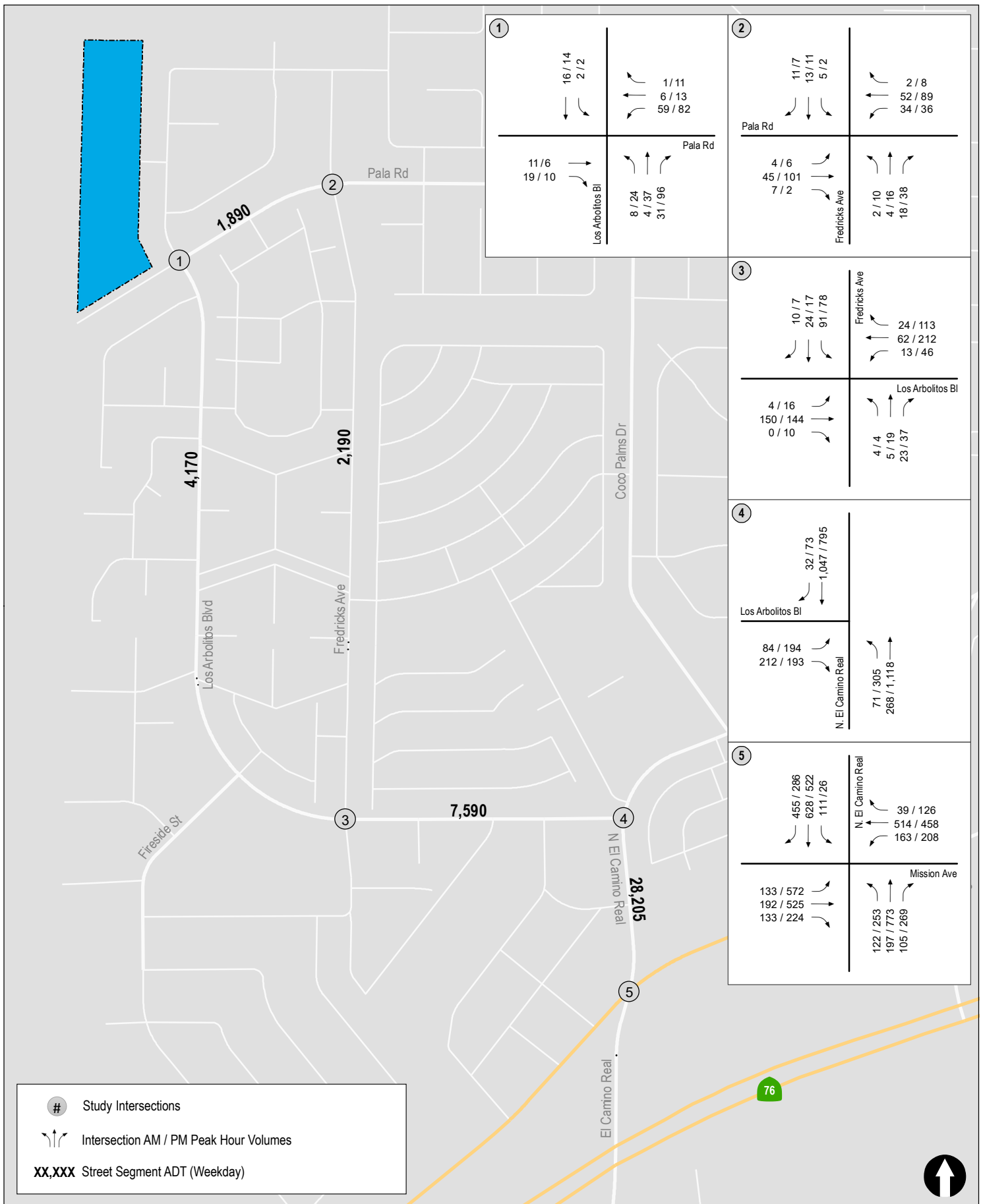


Figure 10-2

Existing Conditions Plus Near-Term Cumulative Projects Plus Project Traffic Volumes

11.0 PEDESTRIAN, TRANSIT AND BICYCLE MOBILITY

11.1 Bicycle and Pedestrian Access

There are currently Class II bike lanes in each direction of travel on Pala Road, Mission Avenue, and El Camino Real (south of Mission Avenue) in the vicinity of the Project site, consistent with the *Oceanside General Plan Circulation Element*, September 2012.

Sidewalks are provided in each direction of travel along the following roadways: Los Arbolitos Boulevard, Pala Road, Fredricks Avenue, El Camino Real, and Mission Avenue.

11.2 Transit Access

The Project area is provided transit service via the North County Transit District (NCTD). There are 12 bus routes operated by the NCTD in Oceanside. The routes that operate near the Project area are 303, 309, and 311. Bus stops within a 1-mile radius of the Project site include the stops located at Pala Road & Fredricks Avenue, Los Arbolitos Boulevard & Orr Street, and El Camino Real & Mission Avenue. A summary of bus routes 303, 309, and 311 is provided below.

Appendix H shows the bus route schedules and average headways.

Route 303 has endpoints at the Oceanside Transit Center and the Vista Transit Center. Route 303 serves the following major corridors: Mission Avenue, Douglas Drive, N. River Road, and N. Santa Fe Avenue. Route 303 has a weekday frequency of 15 minutes.

Route 309 has endpoints at College Boulevard Town Center North and Encinitas Station. Route 309 serves the following major corridors: El Camino Real, and Douglas Drive. Route 309 has a weekday frequency of 30 minutes.

Route 311 has endpoints at the San Luis Rey Transit Center and the Rancho Del Oro Transit Station. Route 311 serves the following major corridors: Douglas Drive, El Camino Real, Mission Avenue, and Rancho Del Oro Drive. Route 311 has a weekday frequency of 30 minutes to 1 hour.

12.0 ACCESS ASSESSMENT

The Project site is located at the terminus of Pala Road / Los Arbolitos Boulevard intersection. The Project's day-to-day driveway will form the western leg of this intersection. The intersection is currently constructed as a "T" intersection, with the northbound and southbound approaches stop controlled. Once the Project is developed, the intersection will continue to be two-way stop controlled, with the northbound and southbound movements required to stop, and "free" eastbound and westbound movements. As shown in *Tables 9-1* and *10-1*, the intersection of Pala Road and Los Arbolitos Boulevard is calculated to operate at LOS B or better under all "with Project" analysis scenarios.

As noted above, the Project proposes to add the fourth leg to the Pala Road / Los Arbolitos Boulevard intersection, which is currently two-way stop controlled. A cursory all-way/multi-way stop control warrant was conducted to determine whether a change to the intersection control type is needed.

Based on guidance from the *California MUTCD 2014 Edition*, multi-way stop control can be useful as a safety measure at intersections if certain traffic conditions exist. Safety conditions associated with multi-way stops include pedestrians, bicyclists, and all road users expecting other road users to stop. Multi-way stop control is used where the volume of traffic on the intersecting roads is approximately equal. The following criteria should be considered in the engineering study for a multi-way stop sign installation:

- A. Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
- B. Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.
- C. Minimum volumes:
 1. ***The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and***
 2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but
 3. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.
- D. Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.

Criterion *C.1*, “the vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day”, was used as a cursory indicator of whether installation of multi-way stop control would be warranted at the intersection. As shown on *Figure 10-2*, the total vehicular volume entering the intersection from both the major and minor street approaches (total of all four approaches) under “Near-Term with Project” conditions is 157 / 295 trips during the AM/PM peak hours, respectively. The AM/PM peak hours are the hours of the day that correspond with peak commuter activity and are expected to have the highest amount of traffic. The minimum traffic volume criterion is not met during the AM or PM peak hour and therefore multi-way stop control is not warranted at the Pala Road / Los Arbolitos Boulevard intersection.

The existing intersection striping will be revised when the Project develops the western leg of the Pala Road / Los Arbolitos Boulevard intersection, most notably for the westbound to southbound movement, which does not have any conflicting movements under existing conditions.

A gated, emergency only access point is proposed via Aspen Street at Los Arbolitos Boulevard.

13.0 CONCLUSIONS

Based on the City of Oceanside's traffic thresholds and methodology summarized in *Section 4*, and the analysis presented in this report, roadway improvements are not required since the increase in Project related delay does not exceed the allowable thresholds.

The Project is consistent with the City's adopted General Plan and is calculated to generate fewer than 1,000 ADT. Therefore, a Transportation VMT CEQA Analysis is not required based on City guidelines.

TECHNICAL APPENDICES
THE CONCORDIA COLLECTION AT
CYPRESS POINT
Oceanside, California
October, 2021

LLG Ref. 3-20-3287

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APPENDIX A
INTERSECTION AND SEGMENT COUNT
GROWTH RATE FACTOR CALCULATIONS

Intersection Turning Movement - Peak Hour Vehicle Count



Location:	#01	File Name:	ITM-20-037-01
Intersection:	Los Arbolitos Boulevard & Pala Road	Project:	LLG Ref. 3-20-3287
Date of Count:	Wednesday, October 07, 2020	Oceanside	

AM	Los Arbolitos Boulevard Southbound			Pala Road Westbound			Los Arbolitos Boulevard Northbound			Pala Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	4	0	18	0	0	0	1	10	0	0	0	33
7:15	0	1	0	11	0	0	0	1	5	0	0	0	18
7:30	1	2	0	7	1	1	0	1	5	0	0	0	18
7:45	1	6	0	9	0	0	0	0	0	0	0	0	16
8:00	2	4	0	6	0	2	0	2	5	0	0	0	21
8:15	0	6	0	8	0	2	0	1	6	0	1	0	24
8:30	1	6	0	5	0	0	0	2	5	0	0	0	19
8:45	0	0	0	5	0	0	0	1	4	0	0	0	10
Total	5	29	0	69	1	5	0	9	40	0	1	0	159
Approach%	14.7	85.3	-	92.0	1.3	6.7	-	18.4	81.6	-	100.0	-	
Total%	3.1	18.2	-	43.4	0.6	3.1	-	5.7	25.2	-	0.6	-	

AM Intersection Peak Hour: 07:00 to 08:00

Volume	2	13	-	45	1	1	-	3	20	-	-	-	85
Approach%	13.3	86.7	-	95.7	2.1	2.1	-	13.0	87.0	-	-	-	
Total%	2.4	15.3	-	52.9	1.2	1.2	-	3.5	23.5	-	-	-	
PHF			0.54			0.65			0.52			#DIV/0!	0.00

PM	Los Arbolitos Boulevard Southbound			Pala Road Westbound			Los Arbolitos Boulevard Northbound			Pala Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	1	4	0	9	0	1	0	6	12	0	0	0	33
16:15	0	5	0	15	0	3	0	8	15	0	0	0	46
16:30	2	4	0	12	0	4	0	8	22	0	0	0	52
16:45	0	2	0	13	0	1	0	8	16	0	0	0	40
17:00	0	1	0	20	0	1	0	7	21	0	0	0	50
17:15	0	3	0	8	0	0	0	6	13	0	0	0	30
17:30	1	2	1	14	0	3	0	4	9	0	0	1	35
17:45	2	4	1	6	1	1	0	7	14	0	1	0	37
Total	6	25	2	97	1	14	0	54	122	0	1	1	323
Approach%	18.2	75.8	6.1	86.6	0.9	12.5	-	30.7	69.3	-	50.0	50.0	
Total%	1.9	7.7	0.6	30.0	0.3	4.3	-	16.7	37.8	-	0.3	0.3	

PM Intersection Peak Hour: 16:15 to 17:15

Volume	2	12	-	60	-	9	-	31	74	-	-	-	188
Approach%	14.3	85.7	-	87.0	-	13.0	-	29.5	70.5	-	-	-	
Total%	1.1	6.4	-	31.9	-	4.8	-	16.5	39.4	-	-	-	
PHF			0.58			0.82			0.88			#DIV/0!	0.00

Intersection Turning Movement - Bicycle & Pedestrian Count



Location: #01	File Name: ITM-20-037-01
Intersection: Los Arbolitos Boulevard & Pala Road	Project: LLG Ref. 3-20-3287
Date of Count: Wednesday, October 07, 2020	Oceanside

AM	Los Arbolitos Boulevard Southbound				Pala Road Westbound				Los Arbolitos Boulevard Northbound				Pala Road Eastbound				Totals		
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle	
7:00	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	
7:15	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:30	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	2	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	3	1	
8:30	0	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	2	2	
8:45	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	3	1	
Ped Total	4				1				1				4				10		
Bike Total		0	2	0		0	1	1		0	2	0		0	0	0		6	

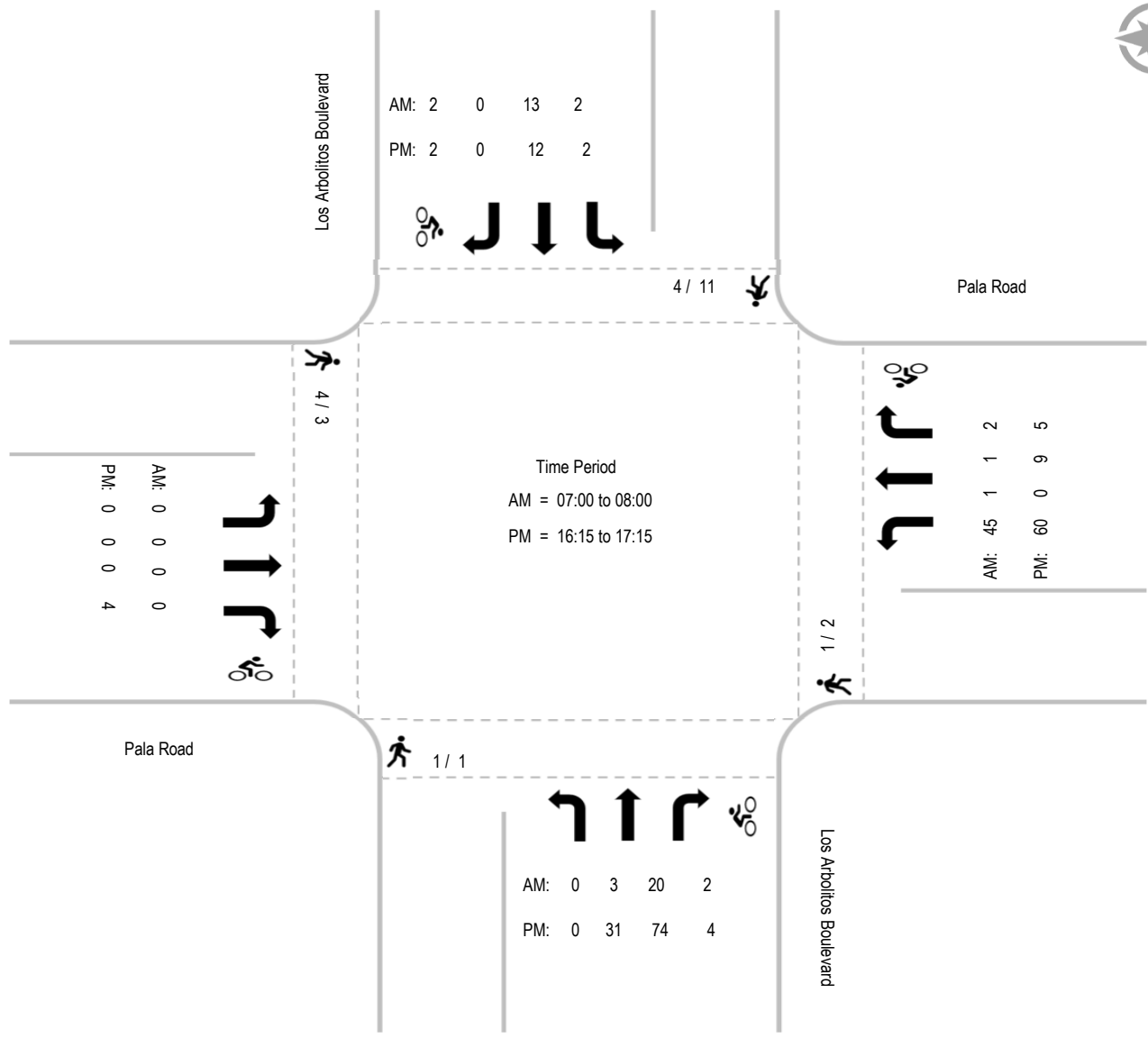
PM	Los Arbolitos Boulevard Southbound				Pala Road Westbound				Los Arbolitos Boulevard Northbound				Pala Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
16:15	1	1	0	0	0	0	0	2	0	0	0	0	0	0	1	0	1	4
16:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
17:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
17:15	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1
17:30	2	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	5	1
17:45	4	0	0	0	1	0	2	0	0	0	1	0	1	0	1	0	6	4
Ped Total	11				2				1				3				17	
Bike Total		1	1	0		1	2	2		0	2	2		0	4	0		15

Intersection Turning Movement - Peak Hour Summary



Location: #01
 Intersection: Los Arbolitos Boulevard & Pala Road
 Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-037-01
 Project: LLG Ref. 3-20-3287
 Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count



Location:	#02	File Name:	ITM-20-037-02
Intersection:	Fredricks Avenue & Pala Road	Project:	LLG Ref. 3-20-3287
Date of Count:	Wednesday, October 07, 2020		Oceanside

AM	Fredricks Avenue Southbound			Pala Road Westbound			Fredricks Avenue Northbound			Pala Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	2	2	4	8	13	0	0	1	5	1	8	0	44
7:15	0	2	2	8	8	0	1	1	5	0	5	0	32
7:30	0	5	1	4	7	1	0	1	4	1	7	1	32
7:45	2	2	2	8	9	1	0	0	1	1	6	2	34
8:00	0	2	1	5	7	1	1	1	3	1	6	0	28
8:15	1	0	2	4	9	0	1	1	9	0	8	0	35
8:30	0	2	1	8	6	1	0	1	5	0	4	0	28
8:45	0	3	0	5	5	0	1	3	1	0	4	0	22
Total	5	18	13	50	64	4	4	9	33	4	48	3	255
Approach%	13.9	50.0	36.1	42.4	54.2	3.4	8.7	19.6	71.7	7.3	87.3	5.5	
Total%	2.0	7.1	5.1	19.6	25.1	1.6	1.6	3.5	12.9	1.6	18.8	1.2	

AM Intersection Peak Hour: 07:00 to 08:00

Volume	4	11	9	28	37	2	1	3	15	3	26	3	142
Approach%	16.7	45.8	37.5	41.8	55.2	3.0	5.3	15.8	78.9	9.4	81.3	9.4	
Total%	2.8	7.7	6.3	19.7	26.1	1.4	0.7	2.1	10.6	2.1	18.3	2.1	
PHF			0.75			0.80			0.68			0.89	0.00

PM	Fredricks Avenue Southbound			Pala Road Westbound			Fredricks Avenue Northbound			Pala Road Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	2	0	6	12	1	1	2	7	2	11	0	44
16:15	0	4	2	7	14	2	1	3	9	2	15	0	59
16:30	0	1	0	6	16	1	1	3	9	1	23	0	61
16:45	1	0	1	9	13	4	2	4	7	0	15	0	56
17:00	1	4	3	8	15	0	1	3	7	2	22	0	66
17:15	0	3	0	4	8	0	0	3	9	2	11	0	40
17:30	1	1	1	8	16	2	0	1	6	0	10	0	46
17:45	3	1	0	3	6	1	0	7	10	1	18	0	50
Total	6	16	7	51	100	11	6	26	64	10	125	0	422
Approach%	20.7	55.2	24.1	31.5	61.7	6.8	6.3	27.1	66.7	7.4	92.6	-	
Total%	1.4	3.8	1.7	12.1	23.7	2.6	1.4	6.2	15.2	2.4	29.6	-	

PM Intersection Peak Hour: 16:15 to 17:15

Volume	2	9	6	30	58	7	5	13	32	5	75	-	242
Approach%	11.8	52.9	35.3	31.6	61.1	7.4	10.0	26.0	64.0	6.3	93.8	-	
Total%	0.8	3.7	2.5	12.4	24.0	2.9	2.1	5.4	13.2	2.1	31.0	-	
PHF			0.53			0.91			0.96			0.83	0.00

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #02	File Name: ITM-20-037-02
	Intersection: Fredricks Avenue & Pala Road	Project: LLG Ref. 3-20-3287
	Date of Count: Wednesday, October 07, 2020	Oceanside

AM	Fredricks Avenue Southbound				Pala Road Westbound				Fredricks Avenue Northbound				Pala Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0
7:15	0	0	0	0	1	0	1	0	1	0	0	0	0	0	1	0	2	2
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
8:00	1	0	0	0	2	0	1	0	4	0	0	0	0	0	0	0	7	1
8:15	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0
8:30	0	0	0	0	2	0	0	0	0	0	3	0	0	0	1	0	2	4
8:45	0	0	3	0	2	2	0	0	0	0	0	2	0	0	0	0	2	7
Ped Total	2				7				10				4				23	
Bike Total		0	3	0		2	2	0		0	3	2		0	2	0		14

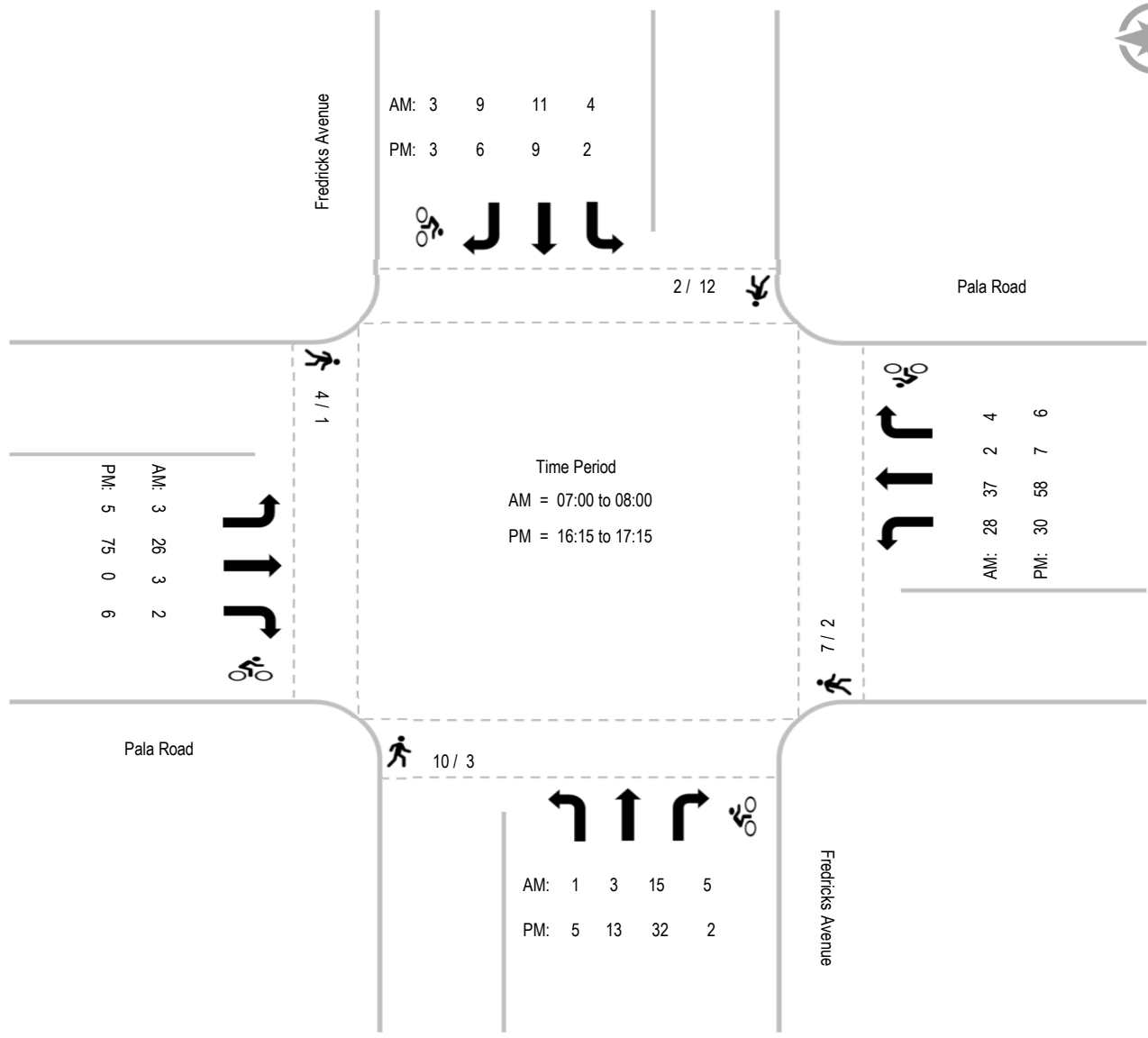
PM	Fredricks Avenue Southbound				Pala Road Westbound				Fredricks Avenue Northbound				Pala Road Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
16:15	1	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	1	6
16:30	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	3
16:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17:00	3	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	4	1
17:15	2	0	0	1	1	0	0	0	1	0	0	0	0	1	0	0	4	2
17:30	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	2
17:45	4	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	6	2
Ped Total	12				2				3				1				18	
Bike Total		0	1	2		2	4	0		0	1	1		1	5	0		17

Intersection Turning Movement - Peak Hour Summary



Location: #02
 Intersection: Fredricks Avenue & Pala Road
 Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-037-02
 Project: LLG Ref. 3-20-3287
 Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #03	File Name: ITM-20-037-03
	Intersection: Fredricks Avenue & Los Arbolitos Boulevard	Project: LLG Ref. 3-20-3287
	Date of Count: Wednesday, October 07, 2020	Oceanside

AM	Fredricks Avenue Southbound			Los Arbolitos Boulevard Westbound			Fredricks Avenue Northbound			Los Arbolitos Boulevard Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	9	5	1	2	9	6	0	1	5	0	22	0	60
7:15	25	6	2	1	7	11	0	1	5	1	26	0	85
7:30	18	7	3	3	11	1	1	2	5	0	30	0	81
7:45	13	2	1	2	9	3	1	0	4	0	24	0	59
8:00	17	5	2	5	12	4	1	1	5	2	25	0	79
8:15	9	2	0	4	9	9	0	0	4	0	23	0	60
8:30	15	2	1	3	9	9	0	1	2	0	15	0	57
8:45	8	1	1	3	5	5	1	1	2	1	14	0	42
Total	114	30	11	23	71	48	4	7	32	4	179	0	523
Approach%	73.5	19.4	7.1	16.2	50.0	33.8	9.3	16.3	74.4	2.2	97.8	-	
Total%	21.8	5.7	2.1	4.4	13.6	9.2	0.8	1.3	6.1	0.8	34.2	-	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	73	20	8	11	39	19	3	4	19	3	105	-	304
Approach%	72.3	19.8	7.9	15.9	56.5	27.5	11.5	15.4	73.1	2.8	97.2	-	
Total%	24.0	6.6	2.6	3.6	12.8	6.3	1.0	1.3	6.3	1.0	34.5	-	
PHF			0.77			0.82			0.81			0.90	0.00

PM	Fredricks Avenue Southbound			Los Arbolitos Boulevard Westbound			Fredricks Avenue Northbound			Los Arbolitos Boulevard Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	18	2	1	11	37	15	1	3	6	1	28	0	123
16:15	11	2	1	12	31	32	1	2	8	2	18	2	122
16:30	25	0	0	11	32	19	2	2	9	3	26	0	129
16:45	9	1	2	8	37	28	1	4	12	2	26	3	133
17:00	16	6	3	7	42	20	0	7	4	2	27	2	136
17:15	13	7	1	12	40	24	0	3	6	6	24	3	139
17:30	18	1	2	8	25	28	2	0	12	0	22	1	119
17:45	14	3	3	8	43	29	0	9	2	3	20	0	134
Total	124	22	13	77	287	195	7	30	59	19	191	11	1035
Approach%	78.0	13.8	8.2	13.8	51.3	34.9	7.3	31.3	61.5	8.6	86.4	5.0	
Total%	12.0	2.1	1.3	7.4	27.7	18.8	0.7	2.9	5.7	1.8	18.5	1.1	

PM Intersection Peak Hour: 16:30 to 17:30

Volume	63	14	6	38	151	91	3	16	31	13	103	8	537
Approach%	75.9	16.9	7.2	13.6	53.9	32.5	6.0	32.0	62.0	10.5	83.1	6.5	
Total%	11.7	2.6	1.1	7.1	28.1	16.9	0.6	3.0	5.8	2.4	19.2	1.5	
PHF			0.83			0.92			0.74			0.94	0.00

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #03	File Name: ITM-20-037-03
	Intersection: Fredricks Avenue & Los Arbolitos Boulevard	Project: LLG Ref. 3-20-3287
	Date of Count: Wednesday, October 07, 2020	Oceanside

AM	Fredricks Avenue Southbound				Los Arbolitos Boulevard Westbound				Fredricks Avenue Northbound				Los Arbolitos Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	1	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0	3	2
7:15	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	2	1
7:30	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	4	0
7:45	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	0
8:00	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	2	1
8:15	4	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	7	0
8:30	2	0	0	0	1	0	0	2	2	0	0	0	0	0	1	0	5	3
8:45	1	0	2	0	3	1	0	0	2	0	0	0	0	0	0	0	6	3
Ped Total	12				11				10				1				34	
Bike Total		0	2	0		1	0	4		0	1	0		0	2	0		10

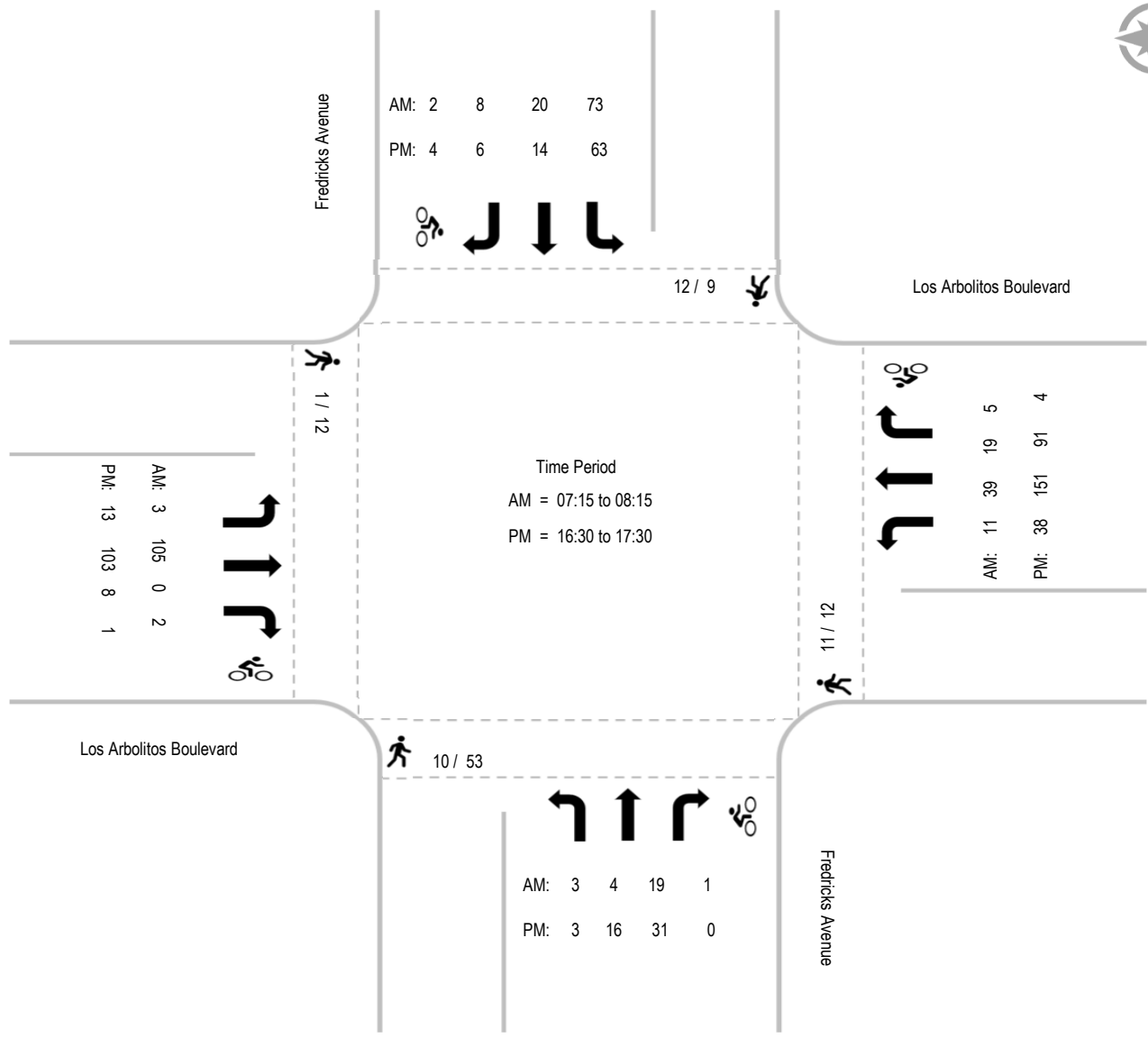
PM	Fredricks Avenue Southbound				Los Arbolitos Boulevard Westbound				Fredricks Avenue Northbound				Los Arbolitos Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	5	0	0	0	3	0	0	0	8	0
16:15	1	0	0	0	2	0	1	0	3	0	0	0	2	0	0	0	8	1
16:30	1	1	0	0	0	0	0	0	6	0	0	0	1	0	0	0	8	1
16:45	1	0	0	0	2	0	0	0	7	0	0	0	2	0	0	0	12	0
17:00	1	2	1	0	0	0	0	1	8	0	0	0	2	0	0	0	11	4
17:15	1	0	0	0	7	0	0	0	1	0	0	0	0	0	0	0	9	0
17:30	3	0	0	0	1	0	1	0	14	0	0	0	0	0	1	0	18	2
17:45	1	0	0	0	0	0	0	1	9	0	0	0	2	0	0	0	12	1
Ped Total	9				12				53				12				86	
Bike Total		3	1	0		0	2	2		0	0	0		0	1	0		9

Intersection Turning Movement - Peak Hour Summary



Location: #03
Intersection: Fredricks Avenue & Los Arbolitos Boulevard
Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-037-03
Project: LLG Ref. 3-20-3287
 Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count



Location:	#04 A	File Name:	ITM-20-037-04 A
Intersection:	N. El Camino Real / Los Arbolitos Boulevard	Project:	LLG Ref. 3-20-3287
Date of Count:	Wednesday, October 07, 2020		Oceanside

AM	N. El Camino Real Southbound			- Westbound			N. El Camino Real Northbound			Los Arbolitos Boulevard Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	178	6	0	0	0	11	39	0	17	0	29	280
7:15	0	224	1	0	0	0	12	41	0	17	0	38	333
7:30	0	229	0	0	0	0	11	54	0	10	0	45	349
7:45	0	244	6	0	0	0	10	61	0	21	0	28	370
8:00	0	170	20	0	0	0	13	60	0	22	0	45	330
8:15	0	184	5	0	0	0	11	67	0	26	0	40	333
8:30	0	155	12	0	0	0	12	59	0	20	0	31	289
8:45	0	174	7	0	0	0	9	46	0	17	0	26	279
Total	0	1558	57	0	0	0	89	427	0	150	0	282	2563
Approach%	-	96.5	3.5	-	-	-	17.2	82.8	-	34.7	-	65.3	
Total%	-	60.8	2.2	-	-	-	3.5	16.7	-	5.9	-	11.0	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	-	867	27	-	-	-	46	216	-	70	-	156	1,382
Approach%	-	97.0	3.0	-	-	-	17.6	82.4	-	31.0	-	69.0	
Total%	-	62.7	2.0	-	-	-	3.3	15.6	-	5.1	-	11.3	
PHF			0.89			#DIV/0!			0.90			0.84	0.00

PM	N. El Camino Real Southbound			- Westbound			N. El Camino Real Northbound			Los Arbolitos Boulevard Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	140	24	0	0	0	23	189	0	53	0	54	483
16:15	0	126	30	0	0	0	25	189	0	45	0	30	445
16:30	0	166	18	0	0	0	43	246	0	46	0	62	581
16:45	0	145	26	0	0	0	43	208	0	53	0	45	520
17:00	0	148	18	0	0	0	56	247	0	46	0	41	556
17:15	0	147	11	0	0	0	56	216	0	31	0	31	492
17:30	0	166	17	0	0	0	46	242	0	43	0	41	555
17:45	0	190	15	0	0	0	69	218	0	42	0	30	564
Total	0	1228	159	0	0	0	361	1755	0	359	0	334	4196
Approach%	-	88.5	11.5	-	-	-	17.1	82.9	-	51.8	-	48.2	
Total%	-	29.3	3.8	-	-	-	8.6	41.8	-	8.6	-	8.0	

PM Intersection Peak Hour: 17:00 to 18:00

Volume	-	651	61	-	-	-	227	923	-	162	-	143	2,167
Approach%	-	91.4	8.6	-	-	-	19.7	80.3	-	53.1	-	46.9	
Total%	-	30.0	2.8	-	-	-	10.5	42.6	-	7.5	-	6.6	
PHF			0.87			#DIV/0!			0.95			0.88	0.00

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #04 A	File Name: ITM-20-037-04 A
	Intersection: N. El Camino Real / Los Arbolitos Boulevard	Project: LLG Ref. 3-20-3287
	Date of Count: Wednesday, October 07, 2020	Oceanside

AM	N. El Camino Real Southbound				- Westbound				N. El Camino Real Northbound				Los Arbolitos Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
7:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
8:30	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1
8:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	1				0				0				6				7	
Bike Total		0	1	0		0	0	0		0	1	0		0	0	0		2

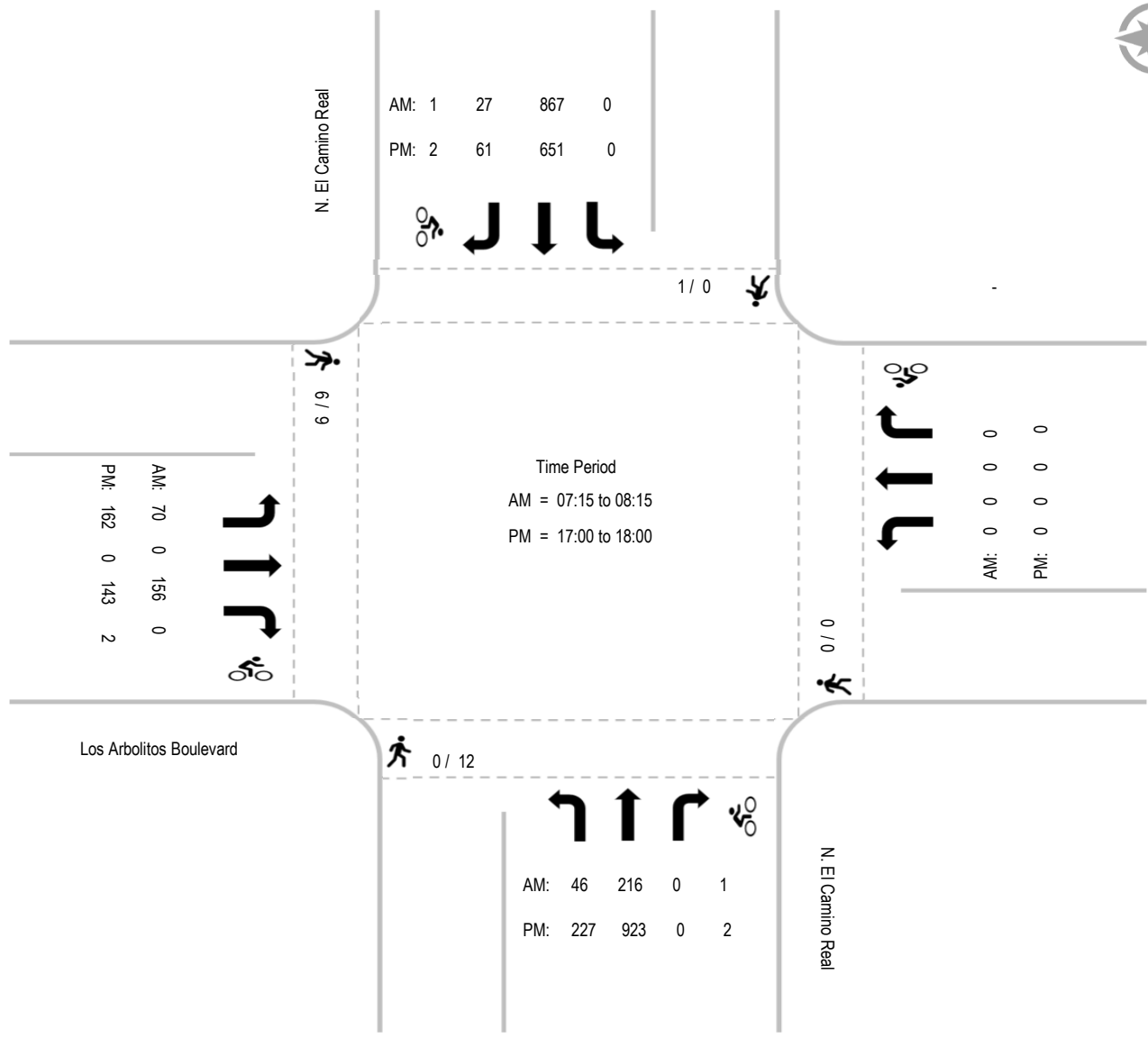
PM	N. El Camino Real Southbound				- Westbound				N. El Camino Real Northbound				Los Arbolitos Boulevard Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	4	1
16:15	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	3	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	1	0	0	0	0	3	1	0	0	0	0	0	0	3	2
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
17:15	0	0	0	0	0	0	0	0	5	0	1	0	4	0	0	0	9	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Ped Total	0				0				12				9				21	
Bike Total		0	1	1		0	0	0		1	1	0		1	0	1		6

Intersection Turning Movement - Peak Hour Summary



Location: #04 A
 Intersection: N. El Camino Real / Los Arbolitos Boulevard
 Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-037-04 A
 Project: LLG Ref. 3-20-3287
 Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count



Location: #04 B	File Name: ITM-20-037-04 B
Intersection: N. El Camino Real / Santa Clara	Project: LLG Ref. 3-20-3287
Date of Count: Wednesday, October 07, 2020	Oceanside

AM	N. El Camino Real Southbound			- Westbound			N. El Camino Real Northbound			Santa Clara Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	0	179	0	0	0	0	2	42	0	2	0	5	230
7:15	0	222	0	0	0	0	1	57	0	3	0	4	287
7:30	0	227	0	0	0	0	0	67	0	3	0	6	303
7:45	0	242	0	0	0	0	3	81	0	1	0	8	335
8:00	0	187	2	0	0	0	2	82	0	1	0	4	278
8:15	0	133	0	0	0	0	1	91	0	3	0	3	231
8:30	0	163	2	0	0	0	5	77	0	2	0	5	254
8:45	0	173	1	0	0	0	4	61	0	3	0	7	249
Total	0	1526	5	0	0	0	18	558	0	18	0	42	2167
Approach%	-	99.7	0.3	-	-	-	3.1	96.9	-	30.0	-	70.0	
Total%	-	70.4	0.2	-	-	-	0.8	25.7	-	0.8	-	1.9	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	-	878	2	-	-	-	6	287	-	8	-	22	1,203
Approach%	-	99.8	0.2	-	-	-	2.0	98.0	-	26.7	-	73.3	
Total%	-	73.0	0.2	-	-	-	0.5	23.9	-	0.7	-	1.8	
PHF			0.91			#DIV/0!			0.87			0.83	0.00

PM	N. El Camino Real Southbound			- Westbound			N. El Camino Real Northbound			Santa Clara Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	0	161	2	0	0	0	8	231	0	4	0	5	411
16:15	0	151	3	0	0	0	11	225	0	3	0	3	396
16:30	0	175	4	0	0	0	10	281	0	1	0	10	481
16:45	0	165	3	0	0	0	8	256	0	6	0	9	447
17:00	0	165	1	0	0	0	7	277	0	4	0	4	458
17:15	0	160	5	0	0	0	9	253	0	1	0	2	430
17:30	0	174	2	0	0	0	7	281	0	3	0	4	471
17:45	0	201	1	0	0	0	10	257	0	1	0	3	473
Total	0	1352	21	0	0	0	70	2061	0	23	0	40	3567
Approach%	-	98.5	1.5	-	-	-	3.3	96.7	-	36.5	-	63.5	
Total%	-	37.9	0.6	-	-	-	2.0	57.8	-	0.6	-	1.1	

PM Intersection Peak Hour: 17:00 to 18:00

Volume	-	700	9	-	-	-	33	1,068	-	9	-	13	1,832
Approach%	-	98.7	1.3	-	-	-	3.0	97.0	-	40.9	-	59.1	
Total%	-	38.2	0.5	-	-	-	1.8	58.3	-	0.5	-	0.7	
PHF			0.88			#DIV/0!			0.96			0.69	0.00

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #04 B	File Name: ITM-20-037-04 B
	Intersection: N. El Camino Real / Santa Clara	Project: LLG Ref. 3-20-3287
	Date of Count: Wednesday, October 07, 2020	Oceanside

AM	N. El Camino Real Southbound				- Westbound				N. El Camino Real Northbound				Santa Clara Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	3	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Ped Total	0				0				1				12				13	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

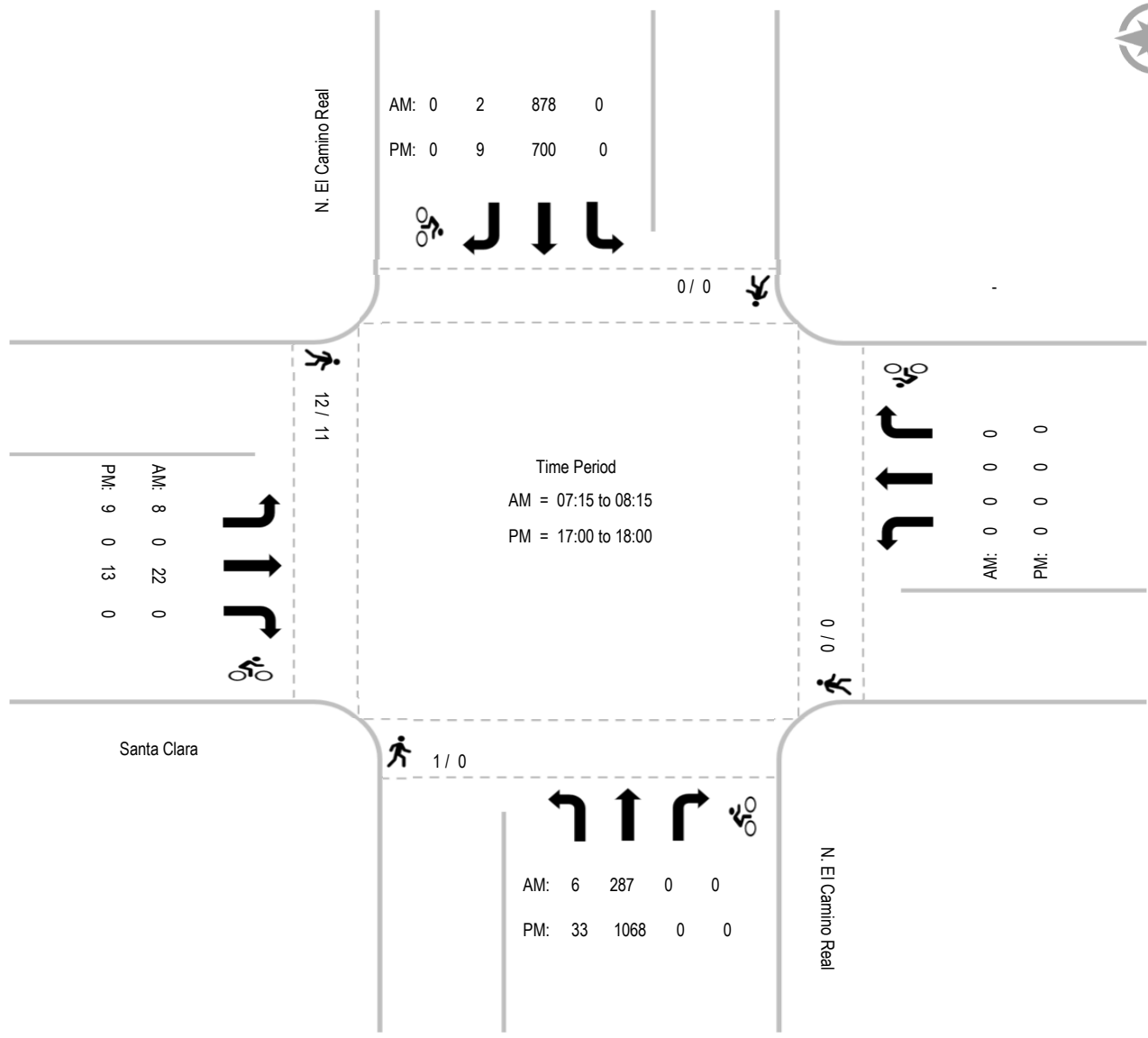
PM	N. El Camino Real Southbound				- Westbound				N. El Camino Real Northbound				Santa Clara Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	0				0				0				11				11	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary



Location: #04 B
 Intersection: N. El Camino Real / Santa Clara
 Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-037-04 B
 Project: LLG Ref. 3-20-3287
 Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count



Location:	#05	File Name:	ITM-20-037-05
Intersection:	N. El Camino Real / Mission Avenue	Project:	LLG Ref. 3-20-3287
Date of Count:	Wednesday, October 07, 2020		Oceanside

AM	N. El Camino Real Southbound			Mission Avenue Westbound			N. El Camino Real Northbound			Mission Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00	16	117	60	25	163	4	19	31	20	14	23	20	512
7:15	11	148	97	29	116	4	23	37	15	14	19	28	541
7:30	22	138	112	31	91	8	16	43	13	19	22	23	538
7:45	26	127	78	37	91	6	25	42	26	29	39	21	547
8:00	26	110	72	32	86	10	24	42	32	32	34	21	521
8:15	26	103	63	20	54	10	27	53	12	22	32	23	445
8:30	16	102	59	31	59	21	19	42	20	25	31	25	450
8:45	19	95	62	35	64	5	25	42	23	18	30	25	443
Total	162	940	603	240	724	68	178	332	161	173	230	186	3997
Approach%	9.5	55.1	35.4	23.3	70.2	6.6	26.5	49.5	24.0	29.4	39.0	31.6	
Total%	4.1	23.5	15.1	6.0	18.1	1.7	4.5	8.3	4.0	4.3	5.8	4.7	

AM Intersection Peak Hour: 07:15 to 08:15

Volume	85	523	359	129	384	28	88	164	86	94	114	93	2,147
Approach%	8.8	54.1	37.1	23.8	71.0	5.2	26.0	48.5	25.4	31.2	37.9	30.9	
Total%	4.0	24.4	16.7	6.0	17.9	1.3	4.1	7.6	4.0	4.4	5.3	4.3	
PHF			0.89			0.91			0.86			0.85	0.00

PM	N. El Camino Real Southbound			Mission Avenue Westbound			N. El Camino Real Northbound			Mission Avenue Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:00	28	93	58	57	93	23	48	136	48	85	94	47	810
16:15	44	103	49	43	77	14	51	122	39	99	92	50	783
16:30	55	118	53	50	66	22	62	163	54	110	81	35	869
16:45	50	115	58	39	91	29	40	147	64	85	86	49	853
17:00	42	94	54	49	76	25	37	154	40	130	108	43	852
17:15	24	108	49	32	76	20	45	180	59	126	114	41	874
17:30	47	113	63	36	55	22	33	147	42	127	117	31	833
17:45	35	106	74	44	89	32	37	160	49	94	86	0	806
Total	325	850	458	350	623	187	353	1209	395	856	778	296	6680
Approach%	19.9	52.1	28.0	30.2	53.7	16.1	18.0	61.8	20.2	44.4	40.3	15.3	
Total%	4.9	12.7	6.9	5.2	9.3	2.8	5.3	18.1	5.9	12.8	11.6	4.4	

PM Intersection Peak Hour: 16:30 to 17:30

Volume	171	435	214	170	309	96	184	644	217	451	389	168	3,448
Approach%	20.9	53.0	26.1	29.6	53.7	16.7	17.6	61.6	20.8	44.7	38.6	16.7	
Total%	5.0	12.6	6.2	4.9	9.0	2.8	5.3	18.7	6.3	13.1	11.3	4.9	
PHF			0.91			0.90			0.92			0.90	0.00

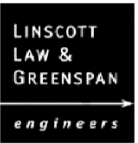
Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN <i>engineers</i>	Location: #05	File Name: ITM-20-037-05
	Intersection: N. El Camino Real / Mission Avenue	Project: LLG Ref. 3-20-3287
	Date of Count: Wednesday, October 07, 2020	Oceanside

AM	N. El Camino Real Southbound				Mission Avenue Westbound				N. El Camino Real Northbound				Mission Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
7:00	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	5	0
7:15	1	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	4	0
7:30	1	0	1	0	0	0	1	0	1	0	0	0	2	0	0	0	4	2
7:45	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
8:00	0	0	0	0	0	0	0	0	5	0	0	0	4	0	0	0	9	0
8:15	2	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	6	0
8:30	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1
8:45	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	2	1
Ped Total	6				0				13				16				35	
Bike Total		0	2	0		0	2	0		0	0	0		0	0	0		4

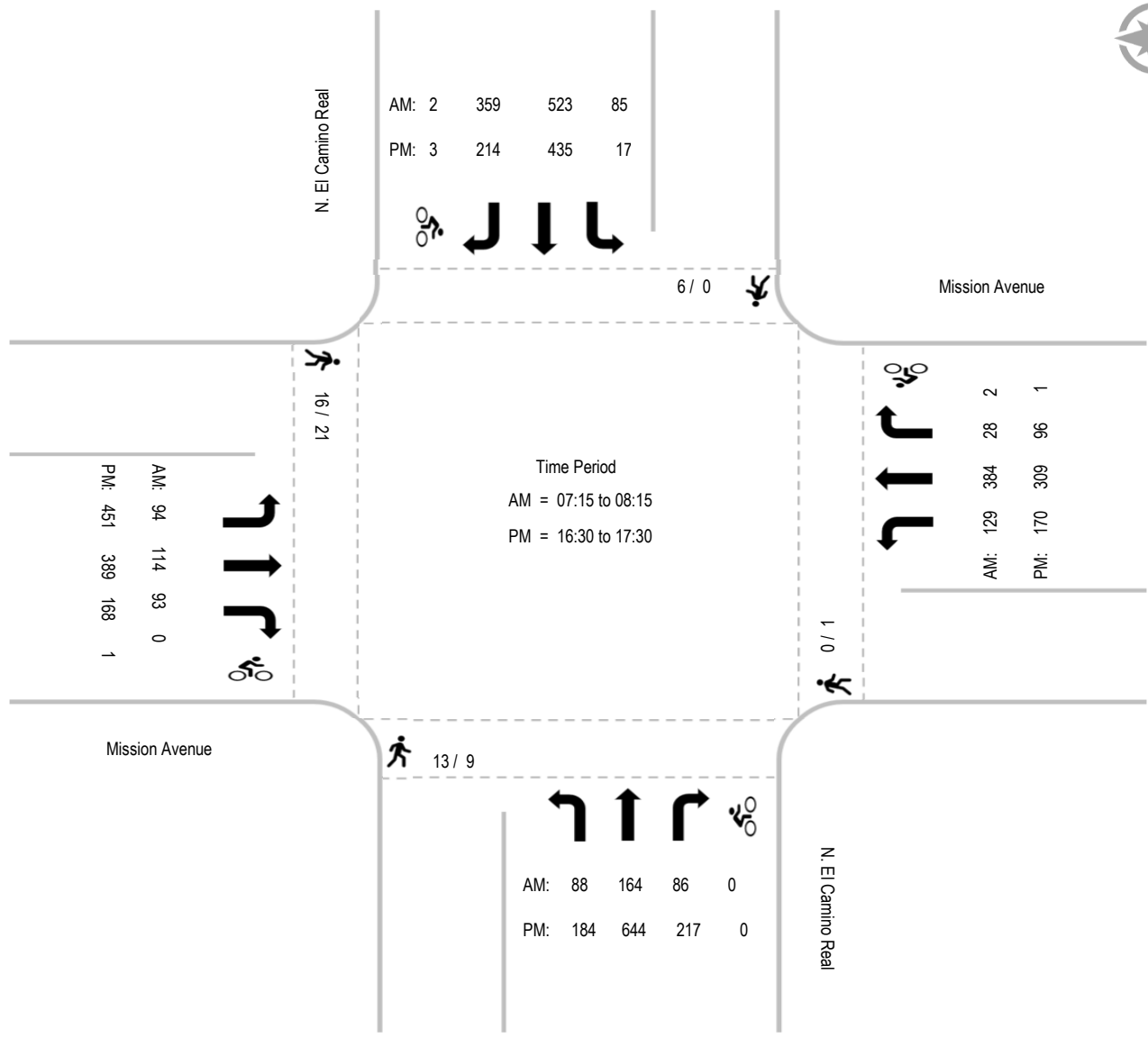
PM	N. El Camino Real Southbound				Mission Avenue Westbound				N. El Camino Real Northbound				Mission Avenue Eastbound				Totals	
	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	B-Left	B-Thru	B-Right	Ped	Bicycle
16:00	0	0	1	0	0	0	0	0	1	0	0	0	4	0	0	0	5	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
16:30	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1
16:45	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	5	0
17:00	0	0	0	0	1	0	0	0	3	0	0	0	2	0	0	0	6	0
17:15	0	0	0	0	0	0	1	0	1	0	0	0	4	0	0	0	5	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	2	1
17:45	0	0	0	1	0	0	0	0	2	0	0	0	2	0	0	0	4	1
Ped Total	0				1				9				21				31	
Bike Total		0	2	1		0	1	0		0	0	0		0	1	0		5

Intersection Turning Movement - Peak Hour Summary



Location: #05
 Intersection: N. El Camino Real / Mission Avenue
 Date of Count: Wednesday, October 07, 2020

File Name: ITM-20-037-05
 Project: LLG Ref. 3-20-3287
 Oceanside



Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Pala Road, between Los Arbolitos Boulevard and Fredricks Avenue**

Date: Wednesday, October 7, 2020		Total Daily Volume: 1232											Description: Total Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
4	5	3	2	7	25	51	80	53	65	55	64	80	66	90	82	126	120	88	56	42	36	17	15
3	1	0	0	1	3	8	26	18	13	18	21	24	16	28	21	23	46	27	15	14	9	2	1
1	1	0	1	2	4	9	17	16	18	12	13	20	15	19	9	36	18	20	12	11	5	4	8
0	0	1	0	2	11	18	18	10	20	10	12	24	14	19	26	37	29	21	13	9	12	3	4
0	3	2	1	2	7	16	19	9	14	15	18	12	21	24	26	30	27	20	16	8	10	8	2

Date: Wednesday, October 7, 2020		Total Daily Volume: 621											Description: Eastbound Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
1	4	3	1	5	14	17	28	25	31	21	40	41	34	43	39	67	66	55	28	21	20	7	10
1	1	0	0	1	2	6	9	10	2	5	11	9	7	8	12	13	25	17	8	8	4	0	1
0	1	0	0	2	1	3	4	7	6	6	8	13	8	9	4	16	10	9	7	5	3	4	4
0	0	1	0	1	6	4	8	4	16	4	10	15	9	12	13	21	13	16	4	3	5	1	3
0	2	2	1	1	5	4	7	4	7	6	11	4	10	14	10	17	18	13	9	5	8	2	2

Date: Wednesday, October 7, 2020		Total Daily Volume: 611											Description: Westbound Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
3	1	0	1	2	11	34	52	28	34	34	24	39	32	47	43	59	54	33	28	21	16	10	5
2	0	0	0	0	1	2	17	8	11	13	10	15	9	20	9	10	21	10	7	6	5	2	0
1	0	0	1	0	3	6	13	9	12	6	5	7	7	10	5	20	8	11	5	6	2	0	4
0	0	0	0	1	5	14	10	6	4	6	2	9	5	7	13	16	16	5	9	6	7	2	1
0	1	0	0	1	2	12	12	5	7	9	7	8	11	10	16	13	9	7	7	3	2	6	0

Linscott, Law & Greenspan, Engineers

4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Fredricks Avenue, between Los Arbolitos Boulevard and Pala Road**

Date: Wednesday, October 7, 2020		Total Daily Volume: 1761											Description: Total Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
12	9	3	7	14	39	70	83	69	72	80	99	109	101	103	119	131	157	143	131	73	65	47	25
0	3	1	3	1	5	15	16	19	22	16	28	22	24	20	35	32	41	44	33	20	22	19	4
6	1	1	0	1	9	14	35	13	15	16	25	26	19	18	33	35	42	35	25	17	15	12	4
6	1	0	3	4	16	20	22	23	14	26	21	30	26	33	25	33	40	29	41	14	18	7	13
0	4	1	1	8	9	21	10	14	21	22	25	31	32	32	26	31	34	35	32	22	10	9	4

Date: Wednesday, October 7, 2020		Total Daily Volume: 903											Description: Northbound Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
7	5	1	1	5	8	15	24	25	25	37	47	65	44	63	71	76	98	85	78	47	31	31	14
0	2	0	1	0	1	5	6	5	7	5	15	13	8	12	22	15	21	28	16	13	11	12	2
3	0	1	0	1	0	1	11	8	5	8	10	17	7	7	19	23	28	20	19	10	8	8	2
4	0	0	0	2	5	4	7	8	4	15	14	15	11	20	13	15	24	16	25	8	8	5	7
0	3	0	0	2	2	5	0	4	9	9	8	20	18	24	17	23	25	21	18	16	4	6	3

Date: Wednesday, October 7, 2020		Total Daily Volume: 858											Description: Southbound Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
5	4	2	6	9	31	55	59	44	47	43	52	44	57	40	48	55	59	58	53	26	34	16	11
0	1	1	2	1	4	10	10	14	15	11	13	9	16	8	13	17	20	16	17	7	11	7	2
3	1	0	0	0	9	13	24	5	10	8	15	9	12	11	14	12	14	15	6	7	7	4	2
2	1	0	3	2	11	16	15	15	10	11	7	15	15	13	12	18	16	13	16	6	10	2	6
0	1	1	1	6	7	16	10	10	12	13	17	11	14	8	9	8	9	14	14	6	6	3	1

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Los Arbolitos Boulevard, between Pala Road and Frericks Avenue**

Date: Wednesday, October 7, 2020		Total Daily Volume: 2999											Description: Total Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
12	18	6	11	34	64	128	171	130	148	138	167	162	181	194	212	277	273	222	150	96	95	74	36
4	6	1	0	13	10	24	34	44	39	48	45	40	41	55	48	64	79	61	49	32	27	21	6
4	2	0	2	3	23	16	40	37	29	30	40	32	34	37	50	69	70	58	37	25	18	24	11
1	7	2	4	5	17	40	43	31	43	25	43	60	47	32	62	72	52	51	26	23	25	13	6
3	3	3	5	13	14	48	54	18	37	35	39	30	59	70	52	72	72	52	38	16	25	16	13

Date: Wednesday, October 7, 2020		Total Daily Volume: 1428											Description: Northbound Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
7	12	3	3	8	17	30	53	46	50	58	87	71	88	98	109	148	158	122	85	57	58	35	25
2	5	0	0	6	4	7	7	15	13	20	21	12	19	20	21	32	49	33	31	19	17	9	4
3	1	0	0	1	5	3	13	14	6	13	18	18	20	18	22	37	39	31	17	17	11	12	11
1	3	1	2	0	4	11	18	10	20	11	22	30	25	23	39	42	26	32	16	9	15	7	3
1	3	2	1	1	4	9	15	7	11	14	26	11	24	37	27	37	44	26	21	12	15	7	7

Date: Wednesday, October 7, 2020		Total Daily Volume: 1571											Description: Southbound Volume										
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
5	6	3	8	26	47	98	118	84	98	80	80	91	93	96	103	129	115	100	65	39	37	39	11
2	1	1	0	7	6	17	27	29	26	28	24	28	22	35	27	32	30	28	18	13	10	12	2
1	1	0	2	2	18	13	27	23	23	17	22	14	14	19	28	32	31	27	20	8	7	12	0
0	4	1	2	5	13	29	25	21	23	14	21	30	22	9	23	30	26	19	10	14	10	6	3
2	0	1	4	12	10	39	39	11	26	21	13	19	35	33	25	35	28	26	17	4	10	9	6

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **Los Arbolitos Boulevard. between Fredricks Avenue and N. El Camino Real**

Date: Wednesday, October 7, 2020		Total Daily Volume: 5806										Description: Total Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
48	26	23	31	43	112	209	267	240	251	254	318	336	340	360	434	515	509	461	377	259	190	119	84
13	8	3	7	7	10	44	53	73	55	70	82	81	87	76	120	118	134	152	114	70	46	36	21
9	2	4	10	7	31	41	85	67	58	55	71	70	65	89	108	123	133	109	81	69	64	28	22
12	9	6	9	11	40	64	75	59	60	71	83	94	91	99	100	135	118	99	94	62	46	35	23
14	7	10	5	18	31	60	54	41	78	58	82	91	97	96	106	139	124	101	88	58	34	20	18

Date: Wednesday, October 7, 2020		Total Daily Volume: 2740										Description: Eastbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
20	8	9	24	39	99	161	195	147	147	132	157	167	162	155	166	201	184	177	146	102	77	44	21
6	2	2	5	6	6	32	36	50	28	33	46	49	38	35	53	49	46	56	45	35	21	12	7
4	1	2	7	5	29	36	62	38	37	33	36	24	35	44	48	38	48	36	34	21	21	10	4
4	3	1	7	11	35	47	58	33	38	39	35	45	45	38	28	63	54	46	36	29	19	14	7
6	2	4	5	17	29	46	39	26	44	27	40	49	44	38	37	51	36	39	31	17	16	8	3

Date: Wednesday, October 7, 2020		Total Daily Volume: 3066										Description: Westbound Volume											
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
28	18	14	7	4	13	48	72	93	104	122	161	169	178	205	268	314	325	284	231	157	113	75	63
7	6	1	2	1	4	12	17	23	27	37	36	32	49	41	67	69	88	96	69	35	25	24	14
5	1	2	3	2	2	5	23	29	21	22	35	46	30	45	60	85	85	73	47	48	43	18	18
8	6	5	2	0	5	17	17	26	22	32	48	49	46	61	72	72	64	53	58	33	27	21	16
8	5	6	0	1	2	14	15	15	34	31	42	42	53	58	69	88	88	62	57	41	18	12	15

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4542 Ruffner Street, Suite 100, San Diego, CA 92111

Average Daily Traffic

Location: **N. El Camino Real, between Los Arbolitos Boulevard and Mission Avenue**

Date: Wednesday, October 7, 2020		Total Daily Volume: 22774																				Description: Total Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
117	81	48	86	212	548	989	1356	1188	1061	1099	1248	1325	1360	1552	1646	1883	2049	1662	1146	860	614	392	252
39	22	13	18	20	71	180	261	338	252	236	286	315	337	370	402	436	523	483	312	233	194	113	78
33	28	14	13	44	129	211	368	255	239	302	301	310	346	390	412	438	529	400	293	231	126	101	66
31	20	13	31	71	175	294	355	304	283	297	331	342	344	404	417	488	495	416	275	198	165	105	65
14	11	8	24	77	173	304	372	291	287	264	330	358	333	388	415	521	502	363	266	198	129	73	43

Date: Wednesday, October 7, 2020		Total Daily Volume: 11221																				Description: Northbound Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
84	54	29	19	29	85	191	326	380	387	519	590	658	613	820	934	1101	1253	1012	730	566	381	280	180
28	13	6	9	4	15	33	55	103	93	100	132	163	143	189	210	242	337	305	196	152	120	75	56
24	21	11	3	6	10	45	90	80	83	140	141	165	166	210	235	272	334	239	185	147	83	78	44
20	14	7	4	6	22	48	84	105	111	140	154	159	158	208	263	269	295	232	180	132	96	72	51
12	6	5	3	13	38	65	97	92	100	139	163	171	146	213	226	318	287	236	169	135	82	55	29

Date: Wednesday, October 7, 2020		Total Daily Volume: 11553																				Description: Southbound Volume	
0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
33	27	19	67	183	463	798	1030	808	674	580	658	667	747	732	712	782	796	650	416	294	233	112	72
11	9	7	9	16	56	147	206	235	159	136	154	152	194	181	192	194	186	178	116	81	74	38	22
9	7	3	10	38	119	166	278	175	156	162	160	145	180	180	177	166	195	161	108	84	43	23	22
11	6	6	27	65	153	246	271	199	172	157	177	183	186	196	154	219	200	184	95	66	69	33	14
2	5	3	21	64	135	239	275	199	187	125	167	187	187	175	189	203	215	127	97	63	47	18	14

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Cypress Point

Covid Factor

Segment	Year 2020 (Covid) Counts	Year 2017 (Pre Covid) Counts	Increase %
Los Arbolitos Boulevard			
Pala Road to Fredricks Ave	2,999	6,240	208%
N. El Camino Real			
Los Arbolitos Blvd to Mission Ave	22,774	25,070	110%
Average			159%
Use			160%

INTERSECTION	DIRECTION	RAW EXISTING						EXISTING (20% GROWTH)					
		Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm
1. Los Arbolitos Boulevard / Pala Road	Sb	0	0	13	12	2	2	0	0	16	14	2	2
	Wb	1	9	1	0	45	60	1	11	1	0	54	72
	Nb	20	74	3	31	0	0	24	89	4	37	0	0
	Eb	0	0	1	0	0	0	0	0	1	0	0	0
2. Fredricks Avenue / Pala Road	Sb	9	6	11	9	4	2	11	7	13	11	5	2
	Wb	2	7	37	58	28	30	2	8	44	70	34	36
	Nb	15	32	3	13	1	5	18	38	4	16	1	6
	Eb	3	0	26	75	3	5	4	0	31	90	4	6
3. Fredricks Avenue / Los Arbolitos Boulevard	Sb	8	6	20	14	73	63	10	7	24	17	88	76
	Wb	19	91	39	151	11	38	23	109	47	181	13	46
	Nb	19	31	4	16	3	3	23	37	5	19	4	4
	Eb	0	8	105	103	3	13	0	10	126	124	4	16
4. N. El Camino Real / Los Arbolitos Boulevard	Sb	27	61	867	651	0	0	32	73	1040	781	0	0
	Wb	0	0	0	0	0	0	0	0	0	0	0	0
	Nb	0	0	216	923	46	227	0	0	259	1108	55	272
	Eb	156	143	0	0	70	162	187	172	0	0	84	194
5. N. El Camino Real / Mission Avenue	Sb	359	214	523	435	85	17	431	257	628	522	102	20
	Wb	28	96	384	309	129	170	34	115	461	371	155	204
	Nb	86	217	164	644	88	184	103	260	197	773	106	221
	Eb	93	168	114	389	94	451	112	202	137	467	113	541

APPENDIX A-1
SIGNAL TIMING PLANS

INTERSECTION: El Camino and Mission

Group Assignment: **NONE**
 Field Master Assignment: **NONE**
 System Reference Number: **24**

N/S Street Name: **Not Assigned**
 E/W Street Name: **Not Assigned**

Last Database Change: **1/22/2018 12:17**

Change Record					
Change	By	Date	Change	By	Date

Notes: _____

Drop Number	18	<C+0+0>
Zone Number		<C+0+1>
Area Number	1	<C+0+2>
Area Address	24	<C+0+3>
QuicNet Channel	Serial:COM40:	(QuicNet)

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Communication Addresses

Manual Selection

Start / Revert Times

Row	Phase Names ---->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	37	0	48	0	37	0	10
2	Min Green	10	10	10	10	10	10	3	7
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	1.2
5	Veh Extension	3.0	7.0	3.0	3.0	3.0	7.0	0.5	3.5
6	Max Gap	3.0	9.0	3.0	3.0	3.0	9.0	0.5	5.0
7	Min Gap	3.0	5.0	3.0	3.0	3.0	5.0	0.5	2.0
8	Max Limit	30	50	35	35	35	50	17	40
9	Max Limit 2	30	70	30	70	40	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1
D	Reduce Every	0.0	1.0	0.0	0.0	1.0	1.0	1.0	1.0
E	Yellow Change	4.3	4.8	4.8	4.3	4.3	4.8	3.0	4.0
F	Red Clear	3.0	2.0	2.0	2.0	3.0	2.0	0.0	1.0

Phase Timing - Bank 1 <F Page>

E		F	
RR-1 Delay	0	Permit	123456__
RR-1 Clear	10	Red Lock	1__5__
EV-A Delay	0	Yellow Lock	_____
EV-A Clear	5	Min Recall	__2__6__
EV-B Delay	0	Ped Recall	_____
EV-B Clear	5	View Set Peds	-----
EV-C Delay	0	Rest In Walk	_____
EV-C Clear	5	Red Rest	_____
EV-D Delay	0	Dual Entry	__2__6__
EV-D Clear	5	Max Recall	_____
RR-2 Delay	0	Soft Recall	_____
RR-2 Clear	10	Max 2	_____
View EV Delay	---	Cond. Service	_____
View EV Clear	---	Man Cntrl Calls	_____
View RR Delay	---	Yellow Start	1__5__
View RR Clear	---	First Phases	__2__6__

Preempt Timing <F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

Column Numbers ---->		Plan									
Row	Plan Name ---->	1	2	3	4	5	6	7	8	9	Row
0	Cycle Length	100	100	100	100	100	100	100	100	100	0
1	Phase 1 - ForceOff	65	65	65	65	65	65	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	25	25	25	25	25	25	25	25	25	3
4	Phase 4 - ForceOff	40	40	40	40	40	40	40	40	40	4
5	Phase 5 - ForceOff	65	65	65	65	65	65	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	25	25	25	25	25	25	25	25	25	7
8	Phase 8 - ForceOff	40	40	40	40	40	40	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	0	0	0	0	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	255	255	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

(* = Coordination Recall)

Row	E	Row
Plan 1 - Sync	2_6	1
Plan 2 - Sync	2_6	2
Plan 3 - Sync	2_6	3
Plan 4 - Sync	2_6	4
Plan 5 - Sync	2_6	5
Plan 6 - Sync	2_6	6
Plan 7 - Sync	2_6	7
Plan 8 - Sync	2_6	8
Plan 9 - Sync	2_6	9
Coord Ped *		A
NEMA Hold		B
		C
		D
		E
		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	2_4
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2_5
B	EV-B Phases	4_7
C	EV-C Phases	1_6
D	EV-D Phases	3_8
E	Extra 1 Config. Bits	1_4
F	IC Select (Interconnect)	2

Configuration <E Page>

Row	F
RR Overlap A - Phases	
RR Overlap B - Phases	
RR Overlap C - Phases	
RR Overlap D - Phases	
Ped 2P	2
Ped 6P	6
Ped 4P	4
Ped 8P	
Yellow Flash Phases	
Overlap A - Phases	
Overlap B - Phases	
Overlap C - Phases	1_3
Overlap D - Phases	
Restricted Phases	
Assign 5 Outputs	

Configuration <E Page>

- Extra 1 Flags**
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Pre-timed Operation
 8 = Split Ring Operation

- Assign 5 Outputs**
 (Ped Loadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Force-Off Adjust	0
------------------	---

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0
-----------------	---

TBC Transition <C+D+D>

Transition Type
 0 = Shortway
 Non-zero = Lengthen

- IC Select Flags**
 1 =
 2 = Modem
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	F	Row
Free Lag	1_4_6_8	0
Plan 1 - Lag	2_4_6_8	1
Plan 2 - Lag	2_4_6_8	2
Plan 3 - Lag	2_4_6_8	3
Plan 4 - Lag	2_4_6_8	4
Plan 5 - Lag	2_4_6_8	5
Plan 6 - Lag	2_4_6_8	6
Plan 7 - Lag	2_4_6_8	7
Plan 8 - Lag	2_4_6_8	8
Plan 9 - Lag	2_4_6_8	9
Coord Max *		A
Coord Lag *		B
		C
		D
		E
		F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Func.	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00:00	0	0		0
00:00	0	0		1
00:00	0	0		2
00:00	0	0		3
00:00	0	0		4
00:00	0	0		5
00:00	0	0		6
00:00	0	0		7
00:00	0	0		8
00:00	0	0		9
00:00	0	0		A
00:00	0	0		B
00:00	0	0		C
00:00	0	0		D
00:00	0	0		E
00:00	0	0		F

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load- Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	7
D	0.0	0.0	0.0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0 Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Column Numbers ---->		Phase								Row
	Phase Names ---->	1	2	3	4	5	6	7	8	
	Ped Walk	0	7	0	7	0	7	0	7	0
	Ped FDW	0	10	0	10	0	10	0	10	1
	Min Green	3	7	3	7	3	7	3	7	2
	Type 3 Limit	0	0	0	0	0	0	0	0	3
	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
	Max Limit	17	40	17	40	17	40	17	40	8
	Max Limit 2	30	70	30	70	30	70	30	70	9
	-----	0	0	0	0	0	0	0	0	A
	Call To Phase	0	0	0	0	0	0	0	0	B
	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only ---->	7	8	9	A	B	C	D	E	F	Row
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output	
0		0	---	---	---	---	---	---	---	---	0
1		0	0	---	---	---	---	---	---	---	1
2		0	0	---	---	---	---	---	---	---	2
3		0	0	---	---	---	---	---	---	---	3
4		0	0	---	---	---	---	---	---	---	4
5		0	0	---	---	---	---	---	---	---	5
6		0	0	---	---	---	---	---	---	---	6
7		0	0	---	---	---	---	---	---	---	7
8		0	0	---	---	---	---	---	---	---	8
9	Limited Service Int. ---->	0	0	---	---	---	---	---	---	---	9
A		---	0	---	---	---	---	---	---	---	A
B		0	0	---	---	---	---	---	---	---	B
C		0	0	---	---	---	---	---	---	---	C
D		0	0	---	---	---	---	---	---	---	D
E		0	0	---	---	---	---	---	---	---	E
F		0	0	---	---	---	---	---	---	---	F

Special Event Schedule <C Page with F+9+F=22>

<--- Limited Service Interval (Set Dwell = 255)

INTERSECTION: El Camino & Los Arbolitos

Group Assignment: **NONE**
 Field Master Assignment: **NONE**
 System Reference Number: **25**

N/S Street Name: **Not Assigned**
 E/W Street Name: **Not Assigned**

Last Database Change: 1/22/2018 12:28

Change Record					
Change	By	Date	Change	By	Date

Notes: _____

Drop Number	20	<C+0+0>
Zone Number		<C+0+1>
Area Number	1	<C+0+2>
Area Address	25	<C+0+3>
QuicNet Channel	Serial:COM40:	(QuicNet)

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Max Initial	30	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Communication Addresses

Manual Selection

Start / Revert Times

Row	Phase Names ---->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	0	0	7	0	7	0	7
1	Ped FDW	0	0	0	18	0	18	0	10
2	Min Green	0	12	6	6	6	12	3	7
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	1.2
5	Veh Extension	4.0	6.0	3.0	3.0	4.0	6.0	0.5	3.5
6	Max Gap	3.0	7.0	3.0	3.0	4.0	7.0	0.5	5.0
7	Min Gap	3.0	4.0	3.0	3.0	4.0	4.0	0.5	2.0
8	Max Limit	20	40	15	24	20	40	17	40
9	Max Limit 2	0	40	15	24	0	40	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1
D	Reduce Every	0.0	1.5	0.0	0.0	0.0	1.5	1.0	1.0
E	Yellow Change	3.6	4.3	3.6	3.7	4.1	4.3	3.0	4.0
F	Red Clear	1.0	1.5	1.0	1.0	1.0	1.5	0.0	1.0

Phase Timing - Bank 1 <F Page>

E		F	
RR-1 Delay	0	Permit	<u>23456</u>
RR-1 Clear	10	Red Lock	_____
EV-A Delay	0	Yellow Lock	_____
EV-A Clear	5	Min Recall	<u>2 6</u>
EV-B Delay	0	Ped Recall	_____
EV-B Clear	5	View Set Peds	-----
EV-C Delay	0	Rest In Walk	_____
EV-C Clear	5	Red Rest	_____
EV-D Delay	0	Dual Entry	<u>2 6</u>
EV-D Clear	0	Max Recall	_____
RR-2 Delay	0	Soft Recall	_____
RR-2 Clear	10	Max 2	_____
View EV Delay	---	Cond. Service	_____
View EV Clear	---	Man Cntrl Calls	_____
View RR Delay	---	Yellow Start	<u>5</u>
View RR Clear	---	First Phases	<u>2 6</u>

Preempt Timing **Phase Functions** <F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

Column Numbers ---->		Plan									
Row	Plan Name ---->	1	2	3	4	5	6	7	8	9	Row
0	Cycle Length	100	100	100	100	100	100	100	100	100	0
1	Phase 1 - ForceOff	65	65	65	65	65	65	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	25	25	25	25	25	25	25	25	25	3
4	Phase 4 - ForceOff	40	40	40	40	40	40	40	40	40	4
5	Phase 5 - ForceOff	65	65	65	65	65	65	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	25	25	25	25	25	25	25	25	25	7
8	Phase 8 - ForceOff	40	40	40	40	40	40	40	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	0	0	0	0	0	0	0	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	255	255	255	255	255	255	255	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

(* = Coordination Recall)

Row	E	Row
Plan 1 - Sync	<u>2_6</u>	1
Plan 2 - Sync	<u>2_6</u>	2
Plan 3 - Sync	<u>2_6</u>	3
Plan 4 - Sync	<u>2_6</u>	4
Plan 5 - Sync	<u>2_6</u>	5
Plan 6 - Sync	<u>2_6</u>	6
Plan 7 - Sync	<u>2_6</u>	7
Plan 8 - Sync	<u>2_6</u>	8
Plan 9 - Sync	<u>2_6</u>	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	<u>2_5</u>
B	EV-B Phases	<u>4_7</u>
C	EV-C Phases	<u>6</u>
D	EV-D Phases	_____
E	Extra 1 Config. Bits	<u>1_4</u>
F	IC Select (Interconnect)	<u>2</u>

Configuration <E Page>

Row	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	_____
Ped 6P	<u>6</u>
Ped 4P	<u>4</u>
Ped 8P	_____
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

- Extra 1 Flags**
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Pretimed Operation
 8 = Split Ring Operation

- Assign 5 Outputs**
 (Ped Loadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Force-Off Adjust	<u>5</u>
------------------	----------

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	<u>0</u>
-----------------	----------

TBC Transition <C+D+D>

Transition Type
 0 = Shortway
 Non-zero = Lengthen

- IC Select Flags**
 1 =
 2 = Modem
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	F	Row
Free Lag	<u>2_4_6_8</u>	0
Plan 1 - Lag	<u>2_4_6_8</u>	1
Plan 2 - Lag	<u>2_4_6_8</u>	2
Plan 3 - Lag	<u>2_4_6_8</u>	3
Plan 4 - Lag	<u>2_4_6_8</u>	4
Plan 5 - Lag	<u>2_4_6_8</u>	5
Plan 6 - Lag	<u>2_4_6_8</u>	6
Plan 7 - Lag	<u>2_4_6_8</u>	7
Plan 8 - Lag	<u>2_4_6_8</u>	8
Plan 9 - Lag	<u>2_4_6_8</u>	9
Coord Max *	_____	A
Coord Lag *	_____	B
		C
		D
		E
		F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Func.	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00:00	0	0		0
00:00	0	0		1
00:00	0	0		2
00:00	0	0		3
00:00	0	0		4
00:00	0	0		5
00:00	0	0		6
00:00	0	0		7
00:00	0	0		8
00:00	0	0		9
00:00	0	0		A
00:00	0	0		B
00:00	0	0		C
00:00	0	0		D
00:00	0	0		E
00:00	0	0		F

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	2.0	0.0		I-5	16
7	2.0	0.0		I-6U	3
8	2.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	7.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load- Switch #
A	0.0	0.0	0.0	0
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing <F Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0 Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only ---->	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output
0		0	---	---	---	---	---	---	---	---
1		0	0	---	---	---	---	---	---	---
2		0	0	---	---	---	---	---	---	---
3		0	0	---	---	---	---	---	---	---
4		0	0	---	---	---	---	---	---	---
5		0	0	---	---	---	---	---	---	---
6		0	0	---	---	---	---	---	---	---
7		0	0	---	---	---	---	---	---	---
8		0	0	---	---	---	---	---	---	---
9	Limited Service Int. ---->	0	0	---	---	---	---	---	---	---
A		---	0	---	---	---	---	---	---	---
B		0	0	---	---	---	---	---	---	---
C		0	0	---	---	---	---	---	---	---
D		0	0	---	---	---	---	---	---	---
E		0	0	---	---	---	---	---	---	---
F		0	0	---	---	---	---	---	---	---

Special Event Schedule <C Page with F+9+F=22>

<--- Limited Service Interval (Set Dwell = 255)

APPENDIX B

CITY OF OCEANSIDE CIRCULATION ELEMENT ROADWAY CLASSIFICATION LOS & CAPACITY TABLE

Table 12 – Circulation Element Roadway Classification LOS & Capacity

Class	Lanes	Cross Section ⁽¹⁾	Level of Service (LOS)				
			A	B	C	D	E
Expressway	6	102/160 122/200	30,000	42,000	60,000	70,000	80,000
Expressway	4	102/160 122/200	25,000	35,000	50,000	55,000	60,000
Prime Arterial	6	104/124	25,000	35,000	50,000	55,000	60,000
6-Lane Major Arterial	6	104/124	20,000	28,000	40,000	45,000	50,000
5-Lane Major Arterial ⁽²⁾	5	102/122	17,500	24,500	35,000	40,000	45,000
4-Lane Major Arterial	4	80/100	15,000	21,000	30,000	35,000	40,000
Secondary Collector (4 lanes with 2-way left turn lane)	4	64/84	10,000	14,000	20,000	25,000	30,000
Secondary Collector (4 lanes without 2-way left-turn lane, with left turn pockets)	4	54/74, 60/80	9,000	13,000	18,000	22,000	25,000
Collector (commercial fronting, 2-lanes with 2-way left turn lane) ⁽³⁾	2	50/70	5,000	7,000	10,000	13,000	15,000
Collector (residential streets in the Circulation Element or industrial fronting)	2	40/60, 50/70	4,000	5,500	7,500	9,000	10,000
Local Street (residential streets NOT in the Circulation Element)	1	36/56, 40/60	–	–	2,400	–	–

(1) Cross sections are listed as curd-to-curb width/total right of way width, in feet.

(2) Vandegrift Boulevard is the only Circulation Element roadway designated as a 5-lane Major Arterial. It is not intended that other roadways be build to 5-lane Major Arterial standards.

(3) This capacity will also be assumed for a two-lane one-way collector.

APPENDIX C

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING CONDITIONS

HCM Unsignalized Intersection Capacity Analysis

1: Los Arbolitos Blvd & Pala Rd

Existing
Timing Plan: AM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	1	4	24	2	16
Future Volume (Veh/h)	54	1	4	24	2	16
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.52	0.52	0.54	0.54
Hourly flow rate (vph)	83	2	8	46	4	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage (veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0		168	0	217	167
vC1, stage 1 conf vol			0		167	167
vC2, stage 2 conf vol			168		50	0
vCu, unblocked vol	0		168	0	217	167
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	95		99	96	99	96
cM capacity (veh/h)	1623		703	1085	745	703
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	85	54	34			
Volume Left	83	0	4			
Volume Right	2	46	0			
cSH	1623	1004	707			
Volume to Capacity	0.05	0.05	0.05			
Queue Length 95th (ft)	4	4	4			
Control Delay (s)	7.2	8.8	10.3			
Lane LOS	A	A	B			
Approach Delay (s)	7.2	8.8	10.3			
Approach LOS		A	B			
Intersection Summary						
Average Delay			8.3			
Intersection Capacity Utilization			13.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Intersection												
Intersection Delay, s/veh	7.6											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	31	4	34	44	2	1	4	18	5	13	11
Future Vol, veh/h	4	31	4	34	44	2	1	4	18	5	13	11
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.68	0.68	0.68	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	35	4	43	55	3	1	6	26	7	17	15
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	7.6	8	7	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	4%	100%	0%	100%	0%	17%
Vol Thru, %	17%	0%	89%	0%	96%	45%
Vol Right, %	78%	0%	11%	0%	4%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	4	35	34	46	29
LT Vol	1	4	0	34	0	5
Through Vol	4	0	31	0	44	13
RT Vol	18	0	4	0	2	11
Lane Flow Rate	34	4	39	42	58	39
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.036	0.007	0.051	0.061	0.074	0.044
Departure Headway (Hd)	3.867	5.213	4.632	5.184	4.652	4.128
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	931	683	768	689	768	872
Service Time	1.868	2.974	2.393	2.927	2.395	2.129
HCM Lane V/C Ratio	0.037	0.006	0.051	0.061	0.076	0.045
HCM Control Delay	7	8	7.6	8.3	7.8	7.3
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0.2	0.2	0.2	0.1

HCM 6th TWSC
3: Fredricks Ave & Los Arbolitos Blvd

Existing
Timing Plan: AM

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	126	0	13	47	23	4	5	23	88	24	10
Future Vol, veh/h	4	126	0	13	47	23	4	5	23	88	24	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	82	82	82	81	81	81	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	140	0	16	57	28	5	6	28	114	31	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	85	0	0	140	0	0	273	265	140	268	251	71
Stage 1	-	-	-	-	-	-	148	148	-	103	103	-
Stage 2	-	-	-	-	-	-	125	117	-	165	148	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1512	-	-	1443	-	-	679	640	908	685	652	991
Stage 1	-	-	-	-	-	-	855	775	-	903	810	-
Stage 2	-	-	-	-	-	-	879	799	-	837	775	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1512	-	-	1443	-	-	638	630	908	651	642	991
Mov Cap-2 Maneuver	-	-	-	-	-	-	638	630	-	651	642	-
Stage 1	-	-	-	-	-	-	852	773	-	900	800	-
Stage 2	-	-	-	-	-	-	824	789	-	802	773	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.2			9.7			12.1		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	809	1512	-	-	1443	-	-	668
HCM Lane V/C Ratio	0.049	0.003	-	-	0.011	-	-	0.237
HCM Control Delay (s)	9.7	7.4	0	-	7.5	0	-	12.1
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.9

HCM 6th Signalized Intersection Summary

4: N. El Camino Real & Los Arbolitos Blvd

Existing
Timing Plan: AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	187	55	259	1040	32
Future Volume (veh/h)	84	187	55	259	1040	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	223	61	288	1169	36
Peak Hour Factor	0.84	0.84	0.90	0.90	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	331	387	104	2205	1637	50
Arrive On Green	0.19	0.19	0.06	0.62	0.47	0.47
Sat Flow, veh/h	1781	1585	1781	3647	3613	108
Grp Volume(v), veh/h	100	223	61	288	590	615
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1851
Q Serve(g_s), s	2.2	5.7	1.6	1.6	12.4	12.4
Cycle Q Clear(g_c), s	2.2	5.7	1.6	1.6	12.4	12.4
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	331	387	104	2205	826	861
V/C Ratio(X)	0.30	0.58	0.58	0.13	0.71	0.71
Avail Cap(c_a), veh/h	1151	1117	652	3902	1129	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	15.4	21.3	3.6	9.9	10.0
Incr Delay (d2), s/veh	0.5	1.4	5.1	0.0	1.4	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	0.7	0.3	3.9	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.8	16.8	26.4	3.7	11.3	11.3
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	323			349	1205	
Approach Delay, s/veh	16.8			7.6	11.3	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.3		13.1	7.2	26.1
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		3.6		7.7	3.6	14.4
Green Ext Time (p_c), s		2.1		1.0	0.1	7.2
Intersection Summary						
HCM 6th Ctrl Delay			11.6			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

5: N. El Camino Real & Mission Ave

Existing
Timing Plan: AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑		↔	↔↔	↔	↔	↑↑	↔
Traffic Volume (veh/h)	113	137	112	155	461	34	106	197	103	102	628	431
Future Volume (veh/h)	113	137	112	155	461	34	106	197	103	102	628	431
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	161	0	170	507	37	117	237	120	115	706	484
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.86	0.86	0.86	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	691		266	698	51	152	1546	777	149	1464	753
Arrive On Green	0.06	0.19	0.00	0.08	0.21	0.21	0.09	0.41	0.41	0.08	0.41	0.41
Sat Flow, veh/h	3456	3554	1585	3456	3359	245	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	133	161	0	170	268	276	117	237	120	115	706	484
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1826	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	2.9	3.0	0.0	3.7	10.9	11.0	5.0	3.1	3.2	4.9	11.3	17.9
Cycle Q Clear(g_c), s	2.9	3.0	0.0	3.7	10.9	11.0	5.0	3.1	3.2	4.9	11.3	17.9
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	691		266	369	379	152	1546	777	149	1464	753
V/C Ratio(X)	0.61	0.23		0.64	0.72	0.73	0.77	0.15	0.15	0.77	0.48	0.64
Avail Cap(c_a), veh/h	845	1464		845	732	752	436	1546	777	436	1464	753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	26.4	0.0	34.8	28.7	28.7	34.8	14.3	10.9	34.9	16.8	15.4
Incr Delay (d2), s/veh	2.7	0.2	0.0	2.6	2.7	2.7	8.0	0.2	0.4	8.1	1.1	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.2	0.0	1.6	4.8	4.9	2.4	1.3	1.1	2.4	4.6	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.1	26.6	0.0	37.4	31.4	31.4	42.8	14.5	11.4	42.9	17.9	19.6
LnGrp LOS	D	C		D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		294	A		714			474			1305	
Approach Delay, s/veh		31.8			32.8			20.7			20.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	36.6	10.5	19.6	11.1	36.5	9.4	20.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+10), s	10.0	5.2	5.7	5.0	7.0	19.9	4.9	13.0				
Green Ext Time (p_c), s	0.2	1.9	0.4	1.0	0.2	5.4	0.3	3.2				

Intersection Summary

HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis

1: Los Arbolitos Blvd & Pala Rd

Existing
Timing Plan: PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	72	11	37	89	2	14
Future Volume (Veh/h)	72	11	37	89	2	14
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.88	0.88	0.58	0.58
Hourly flow rate (vph)	88	13	42	101	3	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage (veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0		189	0	304	182
vC1, stage 1 conf vol			0		182	182
vC2, stage 2 conf vol			189		122	0
vCu, unblocked vol	0		189	0	304	182
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	95		94	91	100	97
cM capacity (veh/h)	1623		686	1085	635	689
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	101	143	27			
Volume Left	88	0	3			
Volume Right	13	101	0			
cSH	1623	927	683			
Volume to Capacity	0.05	0.15	0.04			
Queue Length 95th (ft)	4	14	3			
Control Delay (s)	6.5	9.6	10.5			
Lane LOS	A	A	B			
Approach Delay (s)	6.5	9.6	10.5			
Approach LOS		A	B			
Intersection Summary						
Average Delay			8.5			
Intersection Capacity Utilization		18.7%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	6	90	0	36	70	8	6	16	38	2	11	7
Future Vol, veh/h	6	90	0	36	70	8	6	16	38	2	11	7
Peak Hour Factor	0.83	0.83	0.83	0.91	0.91	0.91	0.96	0.96	0.96	0.53	0.53	0.53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	108	0	40	77	9	6	17	40	4	21	13
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.4	8.2	7.5	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	10%	100%	0%	100%	0%	10%
Vol Thru, %	27%	0%	100%	0%	90%	55%
Vol Right, %	63%	0%	0%	0%	10%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	6	90	36	78	20
LT Vol	6	6	0	36	0	2
Through Vol	16	0	90	0	70	11
RT Vol	38	0	0	0	8	7
Lane Flow Rate	62	7	108	40	86	38
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.073	0.011	0.144	0.058	0.112	0.046
Departure Headway (Hd)	4.207	5.28	4.778	5.273	4.7	4.403
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	856	670	741	671	753	817
Service Time	2.209	3.077	2.575	3.066	2.492	2.407
HCM Lane V/C Ratio	0.072	0.01	0.146	0.06	0.114	0.047
HCM Control Delay	7.5	8.1	8.4	8.4	8.1	7.6
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0	0.5	0.2	0.4	0.1

HCM 6th TWSC
3: Fredricks Ave & Los Arbolitos Blvd

Existing
Timing Plan: PM

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	124	10	46	181	109	4	19	37	76	17	7
Future Vol, veh/h	16	124	10	46	181	109	4	19	37	76	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	92	92	92	74	74	74	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	132	11	50	197	118	5	26	50	92	20	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	315	0	0	143	0	0	542	587	138	566	533	256
Stage 1	-	-	-	-	-	-	172	172	-	356	356	-
Stage 2	-	-	-	-	-	-	370	415	-	210	177	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1245	-	-	1440	-	-	451	422	910	435	453	783
Stage 1	-	-	-	-	-	-	830	756	-	661	629	-
Stage 2	-	-	-	-	-	-	650	592	-	792	753	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1245	-	-	1440	-	-	411	398	910	374	427	783
Mov Cap-2 Maneuver	-	-	-	-	-	-	411	398	-	374	427	-
Stage 1	-	-	-	-	-	-	818	745	-	651	602	-
Stage 2	-	-	-	-	-	-	594	567	-	712	742	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1	11.8	18
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	611	1245	-	-	1440	-	-	397
HCM Lane V/C Ratio	0.133	0.014	-	-	0.035	-	-	0.303
HCM Control Delay (s)	11.8	7.9	0	-	7.6	0	-	18
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.3

HCM 6th Signalized Intersection Summary
 4: N. El Camino Real & Los Arbolitos Blvd

Existing
 Timing Plan: PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	194	172	272	1108	781	73
Future Volume (veh/h)	194	172	272	1108	781	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	195	286	1166	898	84
Peak Hour Factor	0.88	0.88	0.95	0.95	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	314	592	351	2335	1238	116
Arrive On Green	0.18	0.18	0.20	0.66	0.38	0.38
Sat Flow, veh/h	1781	1585	1781	3647	3378	307
Grp Volume(v), veh/h	220	195	286	1166	486	496
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1815
Q Serve(g_s), s	6.3	4.7	8.3	9.1	12.7	12.7
Cycle Q Clear(g_c), s	6.3	4.7	8.3	9.1	12.7	12.7
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	314	592	351	2335	670	684
V/C Ratio(X)	0.70	0.33	0.82	0.50	0.73	0.73
Avail Cap(c_a), veh/h	989	1192	561	3355	970	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	12.1	20.8	4.7	14.4	14.4
Incr Delay (d2), s/veh	2.8	0.3	5.0	0.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.1	3.6	2.0	4.6	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.7	12.4	25.7	4.9	16.0	15.9
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	415			1452	982	
Approach Delay, s/veh	18.4			9.0	15.9	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.0		14.0	15.1	24.9
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		11.1		8.3	10.3	14.7
Green Ext Time (p_c), s		11.4		1.3	0.5	5.7
Intersection Summary						
HCM 6th Ctrl Delay			12.8			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

5: N. El Camino Real & Mission Ave

Existing
Timing Plan: PM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑		↔	↔↔	↔	↔	↑↑	↔
Traffic Volume (veh/h)	541	467	202	204	371	115	221	773	260	20	522	257
Future Volume (veh/h)	541	467	202	204	371	115	221	773	260	20	522	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	601	519	0	227	412	128	240	840	283	22	574	282
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	621	1017		304	520	160	272	1620	826	40	1076	765
Arrive On Green	0.18	0.29	0.00	0.09	0.19	0.19	0.15	0.43	0.43	0.02	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	3456	2676	823	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	601	519	0	227	272	268	240	840	283	22	574	282
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1722	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	18.2	12.9	0.0	6.8	15.4	15.7	13.9	17.4	11.0	1.3	14.2	11.8
Cycle Q Clear(g_c), s	18.2	12.9	0.0	6.8	15.4	15.7	13.9	17.4	11.0	1.3	14.2	11.8
Prop In Lane	1.00		1.00	1.00		0.48	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	621	1017		304	345	335	272	1620	826	40	1076	765
V/C Ratio(X)	0.97	0.51		0.75	0.79	0.80	0.88	0.52	0.34	0.55	0.53	0.37
Avail Cap(c_a), veh/h	621	1076		621	538	521	320	1620	826	320	1076	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	31.5	0.0	47.0	40.5	40.6	43.8	21.9	14.8	51.1	30.6	17.2
Incr Delay (d2), s/veh	28.0	0.4	0.0	3.7	4.2	4.9	21.5	1.2	1.1	11.2	1.9	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	5.5	0.0	3.1	7.1	7.0	7.7	7.7	4.1	0.7	6.3	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.1	31.9	0.0	50.7	44.7	45.5	65.3	23.1	15.9	62.3	32.5	18.6
LnGrp LOS	E	C		D	D	D	E	C	B	E	C	B
Approach Vol, veh/h		1120	A		767			1363			878	
Approach Delay, s/veh		52.9			46.7			29.0			28.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	50.3	13.8	34.8	20.6	36.5	23.5	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+I1), s	3.3	19.4	8.8	14.9	15.9	16.2	20.2	17.7				
Green Ext Time (p_c), s	0.0	5.6	0.5	3.2	0.2	4.5	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX D

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT

Intersection												
Int Delay, s/veh	7.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	11	19	54	6	1	8	4	24	2	16	0
Future Vol, veh/h	0	11	19	54	6	1	8	4	24	2	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	65	92	65	92	52	52	54	54	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	21	83	7	2	9	8	46	4	30	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	9	0	0	33	0	0	212	198	23	224	207	8
Stage 1	-	-	-	-	-	-	23	23	-	174	174	-
Stage 2	-	-	-	-	-	-	189	175	-	50	33	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1611	-	-	1579	-	-	745	698	1054	732	690	1074
Stage 1	-	-	-	-	-	-	995	876	-	828	755	-
Stage 2	-	-	-	-	-	-	813	754	-	963	868	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1611	-	-	1579	-	-	691	661	1054	665	653	1074
Mov Cap-2 Maneuver	-	-	-	-	-	-	691	661	-	665	653	-
Stage 1	-	-	-	-	-	-	995	876	-	828	715	-
Stage 2	-	-	-	-	-	-	738	714	-	913	868	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			6.8			9.2			10.8		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	920	1611	-	-	1579	-	-	654
HCM Lane V/C Ratio	0.068	-	-	-	0.053	-	-	0.051
HCM Control Delay (s)	9.2	0	-	-	7.4	0	-	10.8
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.2	-	-	0.2

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	4	38	7	34	47	2	2	4	18	5	13	11
Future Vol, veh/h	4	38	7	34	47	2	2	4	18	5	13	11
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.68	0.68	0.68	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	43	8	43	59	3	3	6	26	7	17	15
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	7.7	8	7.1	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	100%	0%	100%	0%	17%
Vol Thru, %	17%	0%	84%	0%	96%	45%
Vol Right, %	75%	0%	16%	0%	4%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	4	45	34	49	29
LT Vol	2	4	0	34	0	5
Through Vol	4	0	38	0	47	13
RT Vol	18	0	7	0	2	11
Lane Flow Rate	35	4	51	42	61	39
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.039	0.007	0.065	0.061	0.079	0.045
Departure Headway (Hd)	3.929	5.217	4.607	5.191	4.662	4.164
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	916	681	771	687	765	865
Service Time	1.931	2.986	2.375	2.943	2.413	2.166
HCM Lane V/C Ratio	0.038	0.006	0.066	0.061	0.08	0.045
HCM Control Delay	7.1	8	7.7	8.3	7.8	7.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0.2	0.2	0.3	0.1

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	145	0	13	55	24	4	5	23	91	24	10
Future Vol, veh/h	4	145	0	13	55	24	4	5	23	91	24	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	82	82	82	81	81	81	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	161	0	16	67	29	5	6	28	118	31	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	161	0	0	305	297	161	300	283	82
Stage 1	-	-	-	-	-	-	169	169	-	114	114	-
Stage 2	-	-	-	-	-	-	136	128	-	186	169	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1498	-	-	1418	-	-	647	615	884	652	626	978
Stage 1	-	-	-	-	-	-	833	759	-	891	801	-
Stage 2	-	-	-	-	-	-	867	790	-	816	759	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1498	-	-	1418	-	-	607	606	884	619	617	978
Mov Cap-2 Maneuver	-	-	-	-	-	-	607	606	-	619	617	-
Stage 1	-	-	-	-	-	-	831	757	-	888	791	-
Stage 2	-	-	-	-	-	-	812	781	-	781	757	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.1			9.8			12.6		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	783	1498	-	-	1418	-	-	637
HCM Lane V/C Ratio	0.05	0.003	-	-	0.011	-	-	0.255
HCM Control Delay (s)	9.8	7.4	0	-	7.6	0	-	12.6
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	1

HCM 6th Signalized Intersection Summary
 4: N. El Camino Real & Los Arbolitos Blvd

Existing + Project
 Timing Plan: AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	207	64	259	1040	32
Future Volume (veh/h)	84	207	64	259	1040	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	246	71	288	1169	36
Peak Hour Factor	0.84	0.84	0.90	0.90	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	415	113	2186	1612	50
Arrive On Green	0.20	0.20	0.06	0.62	0.46	0.46
Sat Flow, veh/h	1781	1585	1781	3647	3613	108
Grp Volume(v), veh/h	100	246	71	288	590	615
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1851
Q Serve(g_s), s	2.3	6.5	1.9	1.6	13.0	13.0
Cycle Q Clear(g_c), s	2.3	6.5	1.9	1.6	13.0	13.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	352	415	113	2186	814	848
V/C Ratio(X)	0.28	0.59	0.63	0.13	0.73	0.73
Avail Cap(c_a), veh/h	1110	1089	629	3766	1089	1134
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	15.5	22.0	3.9	10.6	10.6
Incr Delay (d2), s/veh	0.4	1.4	5.6	0.0	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	0.9	0.4	4.2	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.8	16.9	27.5	3.9	12.2	12.2
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	346			359	1205	
Approach Delay, s/veh	16.9			8.6	12.2	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.1		14.0	7.6	26.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		3.6		8.5	3.9	15.0
Green Ext Time (p_c), s		2.1		1.1	0.1	7.1
Intersection Summary						
HCM 6th Ctrl Delay			12.4			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
5: N. El Camino Real & Mission Ave

Existing + Project
Timing Plan: AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑		↔	↔↔	↔	↔	↑↑	↔
Traffic Volume (veh/h)	118	137	112	155	461	38	106	197	103	111	628	443
Future Volume (veh/h)	118	137	112	155	461	38	106	197	103	111	628	443
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	161	0	170	507	42	117	237	120	125	706	498
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.86	0.86	0.86	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	703		265	694	57	152	1521	766	161	1464	757
Arrive On Green	0.07	0.20	0.00	0.08	0.21	0.21	0.09	0.41	0.41	0.09	0.41	0.41
Sat Flow, veh/h	3456	3554	1585	3456	3323	275	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	139	161	0	170	270	279	117	237	120	125	706	498
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1821	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	3.1	3.0	0.0	3.8	11.2	11.2	5.1	3.2	3.3	5.4	11.5	18.8
Cycle Q Clear(g_c), s	3.1	3.0	0.0	3.8	11.2	11.2	5.1	3.2	3.3	5.4	11.5	18.8
Prop In Lane	1.00		1.00	1.00		0.15	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	703		265	371	380	152	1521	766	161	1464	757
V/C Ratio(X)	0.61	0.23		0.64	0.73	0.73	0.77	0.16	0.16	0.78	0.48	0.66
Avail Cap(c_a), veh/h	834	1445		834	722	740	430	1521	766	430	1464	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	26.5	0.0	35.3	29.1	29.1	35.3	14.8	11.4	35.0	17.0	15.7
Incr Delay (d2), s/veh	2.7	0.2	0.0	2.6	2.8	2.7	8.0	0.2	0.4	7.7	1.1	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.3	0.0	1.6	4.9	5.0	2.5	1.3	1.2	2.6	4.6	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	26.7	0.0	37.9	31.8	31.8	43.3	15.0	11.8	42.7	18.1	20.1
LnGrp LOS	D	C		D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		300	A		719			474			1329	
Approach Delay, s/veh		32.2			33.3			21.2			21.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	36.5	10.5	20.1	11.2	36.9	9.7	20.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+1), s	17.4	5.3	5.8	5.0	7.1	20.8	5.1	13.2				
Green Ext Time (p_c), s	0.2	1.9	0.4	1.0	0.2	5.1	0.3	3.2				

Intersection Summary

HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	8.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	6	10	72	13	11	24	37	89	2	14	0
Future Vol, veh/h	0	6	10	72	13	11	24	37	89	2	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	82	92	82	92	88	88	58	58	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	7	11	88	14	13	26	42	101	3	24	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	18	0	0	222	216	13	281	215	21
Stage 1	-	-	-	-	-	-	13	13	-	197	197	-
Stage 2	-	-	-	-	-	-	209	203	-	84	18	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1587	-	-	1599	-	-	734	682	1067	671	683	1056
Stage 1	-	-	-	-	-	-	1007	885	-	805	738	-
Stage 2	-	-	-	-	-	-	793	733	-	924	880	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1587	-	-	1599	-	-	683	644	1067	553	645	1056
Mov Cap-2 Maneuver	-	-	-	-	-	-	683	644	-	553	645	-
Stage 1	-	-	-	-	-	-	1007	885	-	805	697	-
Stage 2	-	-	-	-	-	-	723	692	-	797	880	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.6			10.3			11		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	854	1587	-	-	1599	-	-	632
HCM Lane V/C Ratio	0.198	-	-	-	0.055	-	-	0.044
HCM Control Delay (s)	10.3	0	-	-	7.4	0	-	11
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.7	0	-	-	0.2	-	-	0.1

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	6	94	2	36	79	8	10	16	38	2	11	7
Future Vol, veh/h	6	94	2	36	79	8	10	16	38	2	11	7
Peak Hour Factor	0.83	0.83	0.83	0.91	0.91	0.91	0.96	0.96	0.96	0.53	0.53	0.53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	113	2	40	87	9	10	17	40	4	21	13
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.5	8.3	7.7	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	10%
Vol Thru, %	25%	0%	98%	0%	91%	55%
Vol Right, %	59%	0%	2%	0%	9%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	64	6	96	36	87	20
LT Vol	10	6	0	36	0	2
Through Vol	16	0	94	0	79	11
RT Vol	38	0	2	0	8	7
Lane Flow Rate	67	7	116	40	96	38
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.079	0.011	0.157	0.059	0.128	0.047
Departure Headway (Hd)	4.281	5.4	4.884	5.386	4.819	4.448
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	839	666	739	669	748	807
Service Time	2.298	3.103	2.586	3.088	2.522	2.466
HCM Lane V/C Ratio	0.08	0.011	0.157	0.06	0.128	0.047
HCM Control Delay	7.7	8.2	8.5	8.4	8.2	7.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0	0.6	0.2	0.4	0.1

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	134	10	46	205	113	4	19	37	78	17	7
Future Vol, veh/h	16	134	10	46	205	113	4	19	37	78	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	92	92	92	74	74	74	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	143	11	50	223	123	5	26	50	94	20	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	346	0	0	154	0	0	582	629	149	606	573	285
Stage 1	-	-	-	-	-	-	183	183	-	385	385	-
Stage 2	-	-	-	-	-	-	399	446	-	221	188	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1213	-	-	1426	-	-	424	399	898	409	430	754
Stage 1	-	-	-	-	-	-	819	748	-	638	611	-
Stage 2	-	-	-	-	-	-	627	574	-	781	745	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1213	-	-	1426	-	-	385	376	898	350	405	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	385	376	-	350	405	-
Stage 1	-	-	-	-	-	-	807	737	-	628	584	-
Stage 2	-	-	-	-	-	-	572	549	-	701	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1	12.1	19.4
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	588	1213	-	-	1426	-	-	372
HCM Lane V/C Ratio	0.138	0.014	-	-	0.035	-	-	0.33
HCM Control Delay (s)	12.1	8	0	-	7.6	0	-	19.4
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.4

HCM 6th Signalized Intersection Summary
4: N. El Camino Real & Los Arbolitos Blvd

Existing + Project
Timing Plan: PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	194	183	298	1108	781	73
Future Volume (veh/h)	194	183	298	1108	781	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	208	314	1166	898	84
Peak Hour Factor	0.88	0.88	0.95	0.95	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	313	613	377	2358	1221	114
Arrive On Green	0.18	0.18	0.21	0.66	0.37	0.37
Sat Flow, veh/h	1781	1585	1781	3647	3378	307
Grp Volume(v), veh/h	220	208	314	1166	486	496
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1815
Q Serve(g_s), s	6.5	5.2	9.4	9.2	13.2	13.2
Cycle Q Clear(g_c), s	6.5	5.2	9.4	9.2	13.2	13.2
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	313	613	377	2358	661	675
V/C Ratio(X)	0.70	0.34	0.83	0.49	0.74	0.74
Avail Cap(c_a), veh/h	955	1185	541	3240	937	957
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	12.1	21.1	4.7	15.2	15.2
Incr Delay (d2), s/veh	2.9	0.3	7.4	0.2	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.1	4.4	2.1	4.9	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.6	12.4	28.6	4.9	17.0	17.0
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	428			1480	982	
Approach Delay, s/veh	18.7			9.9	17.0	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.6		14.3	16.3	25.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		11.2		8.5	11.4	15.2
Green Ext Time (p_c), s		11.4		1.3	0.5	5.6
Intersection Summary						
HCM 6th Ctrl Delay			13.6			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 5: N. El Camino Real & Mission Ave

Existing + Project
 Timing Plan: PM

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	556	467	202	204	371	126	221	773	260	25	522	263
Future Volume (veh/h)	556	467	202	204	371	126	221	773	260	25	522	263
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	618	519	0	227	412	140	240	840	283	27	574	289
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	618	1028		303	518	174	272	1600	817	46	1070	761
Arrive On Green	0.18	0.29	0.00	0.09	0.20	0.20	0.15	0.43	0.43	0.03	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	3456	2611	878	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	618	519	0	227	279	273	240	840	283	27	574	289
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1712	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	19.0	12.9	0.0	6.8	15.9	16.2	14.0	17.6	11.2	1.6	14.3	12.3
Cycle Q Clear(g_c), s	19.0	12.9	0.0	6.8	15.9	16.2	14.0	17.6	11.2	1.6	14.3	12.3
Prop In Lane	1.00		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	618	1028		303	352	339	272	1600	817	46	1070	761
V/C Ratio(X)	1.00	0.51		0.75	0.79	0.80	0.88	0.52	0.35	0.59	0.54	0.38
Avail Cap(c_a), veh/h	618	1070		618	535	516	318	1600	817	318	1070	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	31.4	0.0	47.3	40.5	40.6	44.1	22.4	15.2	51.2	31.0	17.6
Incr Delay (d2), s/veh	36.3	0.4	0.0	3.7	4.6	5.4	21.7	1.2	1.2	11.3	1.9	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	5.6	0.0	3.1	7.3	7.3	7.8	7.9	4.2	0.9	6.4	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.9	31.8	0.0	51.0	45.1	46.0	65.8	23.7	16.3	62.5	32.9	19.0
LnGrp LOS	F	C		D	D	D	E	C	B	E	C	B
Approach Vol, veh/h		1137	A		779			1363			890	
Approach Delay, s/veh		58.0			47.2			29.6			29.3	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.2	50.0	13.8	35.2	20.7	36.5	23.5	25.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+I1), s	3.6	19.6	8.8	14.9	16.0	16.3	21.0	18.2				
Green Ext Time (p_c), s	0.0	5.5	0.5	3.2	0.2	4.5	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – NEAR TERM

HCM Unsignalized Intersection Capacity Analysis
 1: Los Arbolitos Blvd & Pala Rd

Existing + Cumulative
 Timing Plan: AM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	1	4	31	2	16
Future Volume (Veh/h)	59	1	4	31	2	16
Sign Control	Free		Stop			Stop
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.52	0.52	0.54	0.54
Hourly flow rate (vph)	91	2	8	60	4	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage (veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0		184	0	247	183
vC1, stage 1 conf vol			0		183	183
vC2, stage 2 conf vol			184		64	0
vCu, unblocked vol	0		184	0	247	183
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	94		99	94	99	96
cM capacity (veh/h)	1623		688	1085	716	688
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	93	68	34			
Volume Left	91	0	4			
Volume Right	2	60	0			
cSH	1623	1016	691			
Volume to Capacity	0.06	0.07	0.05			
Queue Length 95th (ft)	4	5	4			
Control Delay (s)	7.2	8.8	10.5			
Lane LOS	A	A	B			
Approach Delay (s)	7.2	8.8	10.5			
Approach LOS		A	B			
Intersection Summary						
Average Delay			8.3			
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	4	38	4	34	49	2	1	4	18	5	13	11
Future Vol, veh/h	4	38	4	34	49	2	1	4	18	5	13	11
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.68	0.68	0.68	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	43	4	43	61	3	1	6	26	7	17	15
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	7.7	8	7.1	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	4%	100%	0%	100%	0%	17%
Vol Thru, %	17%	0%	90%	0%	96%	45%
Vol Right, %	78%	0%	10%	0%	4%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	4	42	34	51	29
LT Vol	1	4	0	34	0	5
Through Vol	4	0	38	0	49	13
RT Vol	18	0	4	0	2	11
Lane Flow Rate	34	4	47	42	64	39
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.037	0.007	0.061	0.061	0.083	0.045
Departure Headway (Hd)	3.901	5.217	4.649	5.188	4.659	4.162
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	923	681	764	688	766	865
Service Time	1.903	2.984	2.416	2.937	2.408	2.164
HCM Lane V/C Ratio	0.037	0.006	0.062	0.061	0.084	0.045
HCM Control Delay	7.1	8	7.7	8.3	7.8	7.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0.2	0.2	0.3	0.1

HCM 6th TWSC
3: Fredricks Ave & Los Arbolitos Blvd

Existing + Cumulative
Timing Plan: AM

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	131	0	13	54	23	4	5	23	88	24	10
Future Vol, veh/h	4	131	0	13	54	23	4	5	23	88	24	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	82	82	82	81	81	81	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	146	0	16	66	28	5	6	28	114	31	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	94	0	0	146	0	0	288	280	146	283	266	80
Stage 1	-	-	-	-	-	-	154	154	-	112	112	-
Stage 2	-	-	-	-	-	-	134	126	-	171	154	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1500	-	-	1436	-	-	664	628	901	669	640	980
Stage 1	-	-	-	-	-	-	848	770	-	893	803	-
Stage 2	-	-	-	-	-	-	869	792	-	831	770	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1500	-	-	1436	-	-	623	619	901	636	630	980
Mov Cap-2 Maneuver	-	-	-	-	-	-	623	619	-	636	630	-
Stage 1	-	-	-	-	-	-	845	768	-	890	793	-
Stage 2	-	-	-	-	-	-	814	782	-	796	768	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.1			9.7			12.3		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	799	1500	-	-	1436	-	-	654
HCM Lane V/C Ratio	0.049	0.003	-	-	0.011	-	-	0.242
HCM Control Delay (s)	9.7	7.4	0	-	7.5	0	-	12.3
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.9

HCM 6th Signalized Intersection Summary
 4: N. El Camino Real & Los Arbolitos Blvd

Existing + Cumulative
 Timing Plan: AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	192	62	268	1047	32
Future Volume (veh/h)	84	192	62	268	1047	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	229	69	298	1176	36
Peak Hour Factor	0.84	0.84	0.90	0.90	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	335	398	112	2209	1631	50
Arrive On Green	0.19	0.19	0.06	0.62	0.46	0.46
Sat Flow, veh/h	1781	1585	1781	3647	3614	108
Grp Volume(v), veh/h	100	229	69	298	593	619
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1851
Q Serve(g_s), s	2.3	6.0	1.8	1.6	12.7	12.7
Cycle Q Clear(g_c), s	2.3	6.0	1.8	1.6	12.7	12.7
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	335	398	112	2209	823	858
V/C Ratio(X)	0.30	0.58	0.61	0.13	0.72	0.72
Avail Cap(c_a), veh/h	1130	1106	640	3833	1109	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	15.5	21.6	3.7	10.2	10.2
Incr Delay (d2), s/veh	0.5	1.3	5.4	0.0	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.4	0.8	0.3	4.1	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	16.8	27.0	3.7	11.7	11.7
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	329			367	1212	
Approach Delay, s/veh	16.9			8.1	11.7	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.9		13.4	7.5	26.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		3.6		8.0	3.8	14.7
Green Ext Time (p_c), s		2.1		1.0	0.1	7.2
Intersection Summary						
HCM 6th Ctrl Delay			11.9			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
5: N. El Camino Real & Mission Ave

Existing + Cumulative
Timing Plan: AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑		↔	↔↔	↔	↔	↑↑	↔
Traffic Volume (veh/h)	128	192	133	163	514	35	122	197	105	102	628	443
Future Volume (veh/h)	128	192	133	163	514	35	122	197	105	102	628	443
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	226	0	179	565	38	124	255	122	115	706	498
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.86	0.86	0.86	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	760		273	755	51	160	1501	761	149	1404	736
Arrive On Green	0.07	0.21	0.00	0.08	0.22	0.22	0.09	0.40	0.40	0.08	0.40	0.40
Sat Flow, veh/h	3456	3554	1585	3456	3379	227	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	151	226	0	179	297	306	124	255	122	115	706	498
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1830	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	3.4	4.3	0.0	4.1	12.6	12.6	5.5	3.5	3.5	5.1	12.1	19.9
Cycle Q Clear(g_c), s	3.4	4.3	0.0	4.1	12.6	12.6	5.5	3.5	3.5	5.1	12.1	19.9
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	240	760		273	397	409	160	1501	761	149	1404	736
V/C Ratio(X)	0.63	0.30		0.66	0.75	0.75	0.78	0.17	0.16	0.77	0.50	0.68
Avail Cap(c_a), veh/h	811	1404		811	702	723	418	1501	761	418	1404	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.7	26.7	0.0	36.2	29.3	29.3	36.1	15.6	11.8	36.3	18.5	16.9
Incr Delay (d2), s/veh	2.7	0.2	0.0	2.7	2.8	2.8	7.9	0.2	0.5	8.2	1.3	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	0.0	1.8	5.5	5.7	2.7	1.5	1.3	2.5	5.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.4	26.9	0.0	38.9	32.1	32.1	43.9	15.8	12.3	44.5	19.8	21.9
LnGrp LOS	D	C		D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		377	A		782			501			1319	
Approach Delay, s/veh		31.9			33.7			21.9			22.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	37.0	10.9	21.8	11.8	36.5	10.1	22.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+1), s	5.5	6.1	6.3	7.5	21.9	5.4	14.6					
Green Ext Time (p_c), s	0.2	2.1	0.4	1.4	0.2	4.8	0.4	3.5				

Intersection Summary

HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM Unsignalized Intersection Capacity Analysis
 1: Los Arbolitos Blvd & Pala Rd

Existing + Cumulative
 Timing Plan: PM



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	82	11	37	96	2	14
Future Volume (Veh/h)	82	11	37	96	2	14
Sign Control	Free		Stop		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.82	0.82	0.88	0.88	0.58	0.58
Hourly flow rate (vph)	100	13	42	109	3	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL					
Median storage (veh)	2					
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	0		213	0	336	206
vC1, stage 1 conf vol			0		206	206
vC2, stage 2 conf vol			213		130	0
vCu, unblocked vol	0		213	0	336	206
tC, single (s)	4.1		6.5	6.2	7.1	6.5
tC, 2 stage (s)			5.5		6.1	5.5
tF (s)	2.2		4.0	3.3	3.5	4.0
p0 queue free %	94		94	90	100	96
cM capacity (veh/h)	1623		664	1085	608	668
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	113	151	27			
Volume Left	100	0	3			
Volume Right	13	109	0			
cSH	1623	923	660			
Volume to Capacity	0.06	0.16	0.04			
Queue Length 95th (ft)	5	15	3			
Control Delay (s)	6.6	9.7	10.7			
Lane LOS	A	A	B			
Approach Delay (s)	6.6	9.7	10.7			
Approach LOS		A	B			
Intersection Summary						
Average Delay			8.6			
Intersection Capacity Utilization		19.7%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	6	97	0	36	80	8	6	16	38	2	11	7
Future Vol, veh/h	6	97	0	36	80	8	6	16	38	2	11	7
Peak Hour Factor	0.83	0.83	0.83	0.91	0.91	0.91	0.96	0.96	0.96	0.53	0.53	0.53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	117	0	40	88	9	6	17	40	4	21	13
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.5	8.3	7.6	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	10%	100%	0%	100%	0%	10%
Vol Thru, %	27%	0%	100%	0%	91%	55%
Vol Right, %	63%	0%	0%	0%	9%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	6	97	36	88	20
LT Vol	6	6	0	36	0	2
Through Vol	16	0	97	0	80	11
RT Vol	38	0	0	0	8	7
Lane Flow Rate	62	7	117	40	97	38
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.074	0.011	0.159	0.058	0.127	0.047
Departure Headway (Hd)	4.253	5.391	4.889	5.379	4.713	4.45
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	846	668	739	670	749	808
Service Time	2.263	3.091	2.589	3.079	2.513	2.462
HCM Lane V/C Ratio	0.073	0.01	0.158	0.06	0.13	0.047
HCM Control Delay	7.6	8.2	8.5	8.4	8.2	7.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0	0.6	0.2	0.4	0.1

HCM 6th TWSC
3: Fredricks Ave & Los Arbolitos Blvd

Existing + Cumulative
Timing Plan: PM

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	134	10	46	188	109	4	19	37	76	17	7
Future Vol, veh/h	16	134	10	46	188	109	4	19	37	76	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	92	92	92	74	74	74	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	143	11	50	204	118	5	26	50	92	20	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	322	0	0	154	0	0	560	605	149	584	551	263
Stage 1	-	-	-	-	-	-	183	183	-	363	363	-
Stage 2	-	-	-	-	-	-	377	422	-	221	188	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1238	-	-	1426	-	-	439	412	898	423	442	776
Stage 1	-	-	-	-	-	-	819	748	-	656	625	-
Stage 2	-	-	-	-	-	-	644	588	-	781	745	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1238	-	-	1426	-	-	400	389	898	363	417	776
Mov Cap-2 Maneuver	-	-	-	-	-	-	400	389	-	363	417	-
Stage 1	-	-	-	-	-	-	807	737	-	646	598	-
Stage 2	-	-	-	-	-	-	589	563	-	701	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	1	11.9	18.5
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	600	1238	-	-	1426	-	-	386
HCM Lane V/C Ratio	0.135	0.014	-	-	0.035	-	-	0.312
HCM Control Delay (s)	11.9	7.9	0	-	7.6	0	-	18.5
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.3

HCM 6th Signalized Intersection Summary
 4: N. El Camino Real & Los Arbolitos Blvd
























Existing + Cumulative
 Timing Plan: PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	194	182	279	1118	795	73
Future Volume (veh/h)	194	182	279	1118	795	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	207	294	1177	914	84
Peak Hour Factor	0.88	0.88	0.95	0.95	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	314	597	357	2348	1245	114
Arrive On Green	0.18	0.18	0.20	0.66	0.38	0.38
Sat Flow, veh/h	1781	1585	1781	3647	3384	302
Grp Volume(v), veh/h	220	207	294	1177	494	504
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1816
Q Serve(g_s), s	6.4	5.2	8.7	9.3	13.2	13.2
Cycle Q Clear(g_c), s	6.4	5.2	8.7	9.3	13.2	13.2
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	314	597	357	2348	672	687
V/C Ratio(X)	0.70	0.35	0.82	0.50	0.73	0.73
Avail Cap(c_a), veh/h	969	1180	549	3286	950	971
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	12.3	21.1	4.7	14.8	14.8
Incr Delay (d2), s/veh	2.8	0.3	5.9	0.2	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	5.2	3.9	2.1	4.9	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.2	12.7	27.0	4.9	16.5	16.5
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	427			1471	998	
Approach Delay, s/veh	18.6			9.3	16.5	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.9		14.2	15.6	25.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		11.3		8.4	10.7	15.2
Green Ext Time (p_c), s		11.5		1.3	0.5	5.7
Intersection Summary						
HCM 6th Ctrl Delay			13.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
5: N. El Camino Real & Mission Ave

Existing + Cumulative
Timing Plan: PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	557	525	224	208	458	115	253	773	269	21	522	280
Future Volume (veh/h)	557	525	224	208	458	115	253	773	269	21	522	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	619	583	0	231	509	128	275	840	292	23	574	308
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	584	1062		303	612	153	301	1611	822	41	1011	719
Arrive On Green	0.17	0.30	0.00	0.09	0.22	0.22	0.17	0.43	0.43	0.02	0.28	0.28
Sat Flow, veh/h	3456	3554	1585	3456	2816	705	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	619	583	0	231	320	317	275	840	292	23	574	308
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1744	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	19.0	15.5	0.0	7.3	19.3	19.5	17.1	18.5	12.2	1.4	15.5	14.8
Cycle Q Clear(g_c), s	19.0	15.5	0.0	7.3	19.3	19.5	17.1	18.5	12.2	1.4	15.5	14.8
Prop In Lane	1.00		1.00	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	584	1062		303	386	379	301	1611	822	41	1011	719
V/C Ratio(X)	1.06	0.55		0.76	0.83	0.84	0.91	0.52	0.36	0.57	0.57	0.43
Avail Cap(c_a), veh/h	584	1062		584	506	496	301	1611	822	301	1011	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	33.1	0.0	50.1	42.0	42.1	45.9	23.5	16.0	54.4	34.3	20.8
Incr Delay (d2), s/veh	54.2	0.6	0.0	4.0	8.6	9.3	30.6	1.2	1.2	11.8	2.3	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	6.7	0.0	3.3	9.3	9.3	10.1	8.3	4.6	0.8	7.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.0	33.7	0.0	54.1	50.6	51.3	76.6	24.7	17.2	66.2	36.6	22.7
LnGrp LOS	F	C		D	D	D	E	C	B	E	D	C
Approach Vol, veh/h		1202	A		868			1407			905	
Approach Delay, s/veh		68.3			51.8			33.3			32.6	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	52.9	14.4	38.1	23.5	36.5	23.5	29.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+I1), s	3.4	20.5	9.3	17.5	19.1	17.5	21.0	21.5				
Green Ext Time (p_c), s	0.0	5.3	0.5	3.4	0.0	4.4	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	46.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX F
PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – NEAR TERM + PROJECT

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	11	19	59	6	1	8	4	31	2	16	0
Future Vol, veh/h	0	11	19	59	6	1	8	4	31	2	16	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	65	92	65	92	52	52	54	54	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	21	91	7	2	9	8	60	4	30	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	9	0	0	33	0	0	228	214	23	247	223	8
Stage 1	-	-	-	-	-	-	23	23	-	190	190	-
Stage 2	-	-	-	-	-	-	205	191	-	57	33	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1611	-	-	1579	-	-	727	684	1054	707	676	1074
Stage 1	-	-	-	-	-	-	995	876	-	812	743	-
Stage 2	-	-	-	-	-	-	797	742	-	955	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1611	-	-	1579	-	-	670	644	1054	631	637	1074
Mov Cap-2 Maneuver	-	-	-	-	-	-	670	644	-	631	637	-
Stage 1	-	-	-	-	-	-	995	876	-	812	700	-
Stage 2	-	-	-	-	-	-	719	699	-	893	868	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	6.8	9.2	11
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	933	1611	-	-	1579	-	-	636
HCM Lane V/C Ratio	0.081	-	-	-	0.057	-	-	0.052
HCM Control Delay (s)	9.2	0	-	-	7.4	0	-	11
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	4	45	7	34	52	2	2	4	18	5	13	11
Future Vol, veh/h	4	45	7	34	52	2	2	4	18	5	13	11
Peak Hour Factor	0.89	0.89	0.89	0.80	0.80	0.80	0.68	0.68	0.68	0.75	0.75	0.75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	51	8	43	65	3	3	6	26	7	17	15
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	7.8	8.1	7.1	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	8%	100%	0%	100%	0%	17%
Vol Thru, %	17%	0%	87%	0%	96%	45%
Vol Right, %	75%	0%	13%	0%	4%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	4	52	34	54	29
LT Vol	2	4	0	34	0	5
Through Vol	4	0	45	0	52	13
RT Vol	18	0	7	0	2	11
Lane Flow Rate	35	4	58	42	68	39
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.039	0.007	0.075	0.061	0.088	0.045
Departure Headway (Hd)	3.964	5.221	4.625	5.195	4.669	4.198
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	908	680	768	686	763	858
Service Time	1.965	2.991	2.395	2.949	2.422	2.2
HCM Lane V/C Ratio	0.039	0.006	0.076	0.061	0.089	0.045
HCM Control Delay	7.1	8	7.8	8.3	7.9	7.4
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0	0.2	0.2	0.3	0.1

HCM 6th TWSC
3: Fredricks Ave & Los Arbolitos Blvd

Existing + Cumulative + Project
Timing Plan: AM

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	150	0	13	62	24	4	5	23	91	24	10
Future Vol, veh/h	4	150	0	13	62	24	4	5	23	91	24	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	82	82	82	81	81	81	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	167	0	16	76	29	5	6	28	118	31	13

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	105	0	0	167	0	0	320	312	167	315	298	91
Stage 1	-	-	-	-	-	-	175	175	-	123	123	-
Stage 2	-	-	-	-	-	-	145	137	-	192	175	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1486	-	-	1411	-	-	633	603	877	638	614	967
Stage 1	-	-	-	-	-	-	827	754	-	881	794	-
Stage 2	-	-	-	-	-	-	858	783	-	810	754	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1486	-	-	1411	-	-	593	594	877	605	605	967
Mov Cap-2 Maneuver	-	-	-	-	-	-	593	594	-	605	605	-
Stage 1	-	-	-	-	-	-	825	752	-	878	784	-
Stage 2	-	-	-	-	-	-	803	774	-	775	752	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1	9.9	12.8
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	773	1486	-	-	1411	-	-	624
HCM Lane V/C Ratio	0.051	0.003	-	-	0.011	-	-	0.26
HCM Control Delay (s)	9.9	7.4	0	-	7.6	0	-	12.8
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	1

HCM 6th Signalized Intersection Summary
4: N. El Camino Real & Los Arbolitos Blvd

Existing + Cumulative + Project
Timing Plan: AM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	84	212	71	268	1047	32
Future Volume (veh/h)	84	212	71	268	1047	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	252	79	298	1176	36
Peak Hour Factor	0.84	0.84	0.90	0.90	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	357	424	120	2188	1607	49
Arrive On Green	0.20	0.20	0.07	0.62	0.46	0.46
Sat Flow, veh/h	1781	1585	1781	3647	3614	108
Grp Volume(v), veh/h	100	252	79	298	593	619
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1851
Q Serve(g_s), s	2.3	6.8	2.1	1.7	13.3	13.3
Cycle Q Clear(g_c), s	2.3	6.8	2.1	1.7	13.3	13.3
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	357	424	120	2188	811	845
V/C Ratio(X)	0.28	0.59	0.66	0.14	0.73	0.73
Avail Cap(c_a), veh/h	1092	1078	619	3704	1071	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.6	15.6	22.3	3.9	10.8	10.9
Incr Delay (d2), s/veh	0.4	1.3	6.0	0.0	1.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.2	1.0	0.4	4.4	4.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	16.9	28.3	4.0	12.6	12.6
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	352			377	1212	
Approach Delay, s/veh	17.0			9.1	12.6	
Approach LOS	B			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		14.3	7.8	26.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		3.7		8.8	4.1	15.3
Green Ext Time (p_c), s		2.1		1.1	0.1	7.0
Intersection Summary						
HCM 6th Ctrl Delay			12.7			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
5: N. El Camino Real & Mission Ave

Existing + Cumulative + Project
Timing Plan: AM



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↔	↔↔	↑↑		↔	↔↔	↔	↔	↑↑	↔
Traffic Volume (veh/h)	133	192	133	163	514	39	122	197	105	111	628	455
Future Volume (veh/h)	133	192	133	163	514	39	122	197	105	111	628	455
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	226	0	179	565	43	124	255	122	125	706	511
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.86	0.86	0.86	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	771		273	753	57	160	1470	748	161	1398	736
Arrive On Green	0.07	0.22	0.00	0.08	0.22	0.22	0.09	0.39	0.39	0.09	0.39	0.39
Sat Flow, veh/h	3456	3554	1585	3456	3347	254	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	156	226	0	179	299	309	124	255	122	125	706	511
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1825	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	3.6	4.3	0.0	4.1	12.8	12.8	5.5	3.6	3.6	5.6	12.2	20.8
Cycle Q Clear(g_c), s	3.6	4.3	0.0	4.1	12.8	12.8	5.5	3.6	3.6	5.6	12.2	20.8
Prop In Lane	1.00		1.00	1.00		0.14	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	245	771		273	400	410	160	1470	748	161	1398	736
V/C Ratio(X)	0.64	0.29		0.66	0.75	0.75	0.78	0.17	0.16	0.78	0.50	0.69
Avail Cap(c_a), veh/h	806	1396		806	698	717	416	1470	748	416	1398	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	26.7	0.0	36.4	29.4	29.4	36.3	16.1	12.3	36.3	18.7	17.2
Incr Delay (d2), s/veh	2.7	0.2	0.0	2.7	2.8	2.8	7.9	0.3	0.5	7.9	1.3	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.8	0.0	1.8	5.6	5.8	2.7	1.5	1.3	2.7	5.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	26.9	0.0	39.1	32.3	32.2	44.2	16.4	12.8	44.1	20.0	22.6
LnGrp LOS	D	C		D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		382	A		787			501			1342	
Approach Delay, s/veh		32.0			33.8			22.4			23.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	36.5	10.9	22.2	11.8	36.6	10.3	22.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	32.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+1), s	5.6	5.6	6.1	6.3	7.5	22.8	5.6	14.8				
Green Ext Time (p_c), s	0.2	2.1	0.4	1.4	0.2	4.6	0.4	3.5				

Intersection Summary

HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	6	10	82	13	11	24	37	96	2	14	0
Future Vol, veh/h	0	6	10	82	13	11	24	37	96	2	14	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	82	92	82	92	88	88	58	58	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	7	11	100	14	13	26	42	109	3	24	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	27	0	0	18	0	0	246	240	13	309	239	21
Stage 1	-	-	-	-	-	-	13	13	-	221	221	-
Stage 2	-	-	-	-	-	-	233	227	-	88	18	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1587	-	-	1599	-	-	708	661	1067	643	662	1056
Stage 1	-	-	-	-	-	-	1007	885	-	781	720	-
Stage 2	-	-	-	-	-	-	770	716	-	920	880	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1587	-	-	1599	-	-	653	619	1067	521	620	1056
Mov Cap-2 Maneuver	-	-	-	-	-	-	653	619	-	521	620	-
Stage 1	-	-	-	-	-	-	1007	885	-	781	674	-
Stage 2	-	-	-	-	-	-	695	670	-	787	880	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			5.8			10.4			11.2		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	843	1587	-	-	1599	-	-	606
HCM Lane V/C Ratio	0.21	-	-	-	0.063	-	-	0.046
HCM Control Delay (s)	10.4	0	-	-	7.4	0	-	11.2
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.8	0	-	-	0.2	-	-	0.1

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	6	101	2	36	89	8	10	16	38	2	11	7
Future Vol, veh/h	6	101	2	36	89	8	10	16	38	2	11	7
Peak Hour Factor	0.83	0.83	0.83	0.91	0.91	0.91	0.96	0.96	0.96	0.53	0.53	0.53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	122	2	40	98	9	10	17	40	4	21	13
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.6	8.3	7.7	7.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	16%	100%	0%	100%	0%	10%
Vol Thru, %	25%	0%	98%	0%	92%	55%
Vol Right, %	59%	0%	2%	0%	8%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	64	6	103	36	97	20
LT Vol	10	6	0	36	0	2
Through Vol	16	0	101	0	89	11
RT Vol	38	0	2	0	8	7
Lane Flow Rate	67	7	124	40	107	38
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.08	0.011	0.168	0.059	0.143	0.047
Departure Headway (Hd)	4.33	5.399	4.884	5.397	4.837	4.497
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	830	665	737	668	746	798
Service Time	2.344	3.115	2.599	3.097	2.537	2.514
HCM Lane V/C Ratio	0.081	0.011	0.168	0.06	0.143	0.048
HCM Control Delay	7.7	8.2	8.6	8.4	8.3	7.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0	0.6	0.2	0.5	0.1

HCM 6th TWSC
3: Fredricks Ave & Los Arbolitos Blvd

Existing + Cumulative + Project
Timing Plan: PM

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	144	10	46	212	113	4	19	37	78	17	7
Future Vol, veh/h	16	144	10	46	212	113	4	19	37	78	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	92	92	92	74	74	74	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	153	11	50	230	123	5	26	50	94	20	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	353	0	0	164	0	0	599	646	159	623	590	292
Stage 1	-	-	-	-	-	-	193	193	-	392	392	-
Stage 2	-	-	-	-	-	-	406	453	-	231	198	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1206	-	-	1414	-	-	413	390	886	398	420	747
Stage 1	-	-	-	-	-	-	809	741	-	633	606	-
Stage 2	-	-	-	-	-	-	622	570	-	772	737	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1206	-	-	1414	-	-	374	367	886	339	395	747
Mov Cap-2 Maneuver	-	-	-	-	-	-	374	367	-	339	395	-
Stage 1	-	-	-	-	-	-	796	729	-	623	579	-
Stage 2	-	-	-	-	-	-	567	544	-	692	725	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.9			12.3			20		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	576	1206	-	-	1414	-	-	361
HCM Lane V/C Ratio	0.141	0.014	-	-	0.035	-	-	0.34
HCM Control Delay (s)	12.3	8	0	-	7.6	0	-	20
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.5

HCM 6th Signalized Intersection Summary
4: N. El Camino Real & Los Arbolitos Blvd
























Existing + Cumulative + Project
Timing Plan: PM



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	194	193	305	1118	795	73
Future Volume (veh/h)	194	193	305	1118	795	73
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	219	321	1177	914	84
Peak Hour Factor	0.88	0.88	0.95	0.95	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	312	618	382	2370	1229	113
Arrive On Green	0.18	0.18	0.21	0.67	0.37	0.37
Sat Flow, veh/h	1781	1585	1781	3647	3384	302
Grp Volume(v), veh/h	220	219	321	1177	494	504
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1816
Q Serve(g_s), s	6.6	5.6	9.8	9.4	13.7	13.7
Cycle Q Clear(g_c), s	6.6	5.6	9.8	9.4	13.7	13.7
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	312	618	382	2370	664	678
V/C Ratio(X)	0.71	0.35	0.84	0.50	0.74	0.74
Avail Cap(c_a), veh/h	937	1174	531	3178	919	939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	12.3	21.5	4.7	15.5	15.5
Incr Delay (d2), s/veh	2.9	0.3	8.4	0.2	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.1	4.6	2.1	5.2	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.1	12.7	29.9	4.9	17.6	17.6
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	439			1498	998	
Approach Delay, s/veh	18.9			10.2	17.6	
Approach LOS	B			B	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		42.5		14.5	16.7	25.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		51.0		30.0	17.0	29.5
Max Q Clear Time (g_c+I1), s		11.4		8.6	11.8	15.7
Green Ext Time (p_c), s		11.5		1.4	0.5	5.6
Intersection Summary						
HCM 6th Ctrl Delay			14.0			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
5: N. El Camino Real & Mission Ave

Existing + Cumulative + Project
Timing Plan: PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	572	525	224	208	458	126	253	773	269	26	522	286
Future Volume (veh/h)	572	525	224	208	458	126	253	773	269	26	522	286
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	636	583	0	231	509	140	275	840	292	29	574	314
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	581	1071		303	609	167	300	1590	813	47	1007	716
Arrive On Green	0.17	0.30	0.00	0.09	0.22	0.22	0.17	0.43	0.43	0.03	0.28	0.28
Sat Flow, veh/h	3456	3554	1585	3456	2757	754	1781	3741	1585	1781	3554	1585
Grp Volume(v), veh/h	636	583	0	231	327	322	275	840	292	29	574	314
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1735	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	19.0	15.5	0.0	7.4	19.9	20.1	17.2	18.8	12.4	1.8	15.6	15.3
Cycle Q Clear(g_c), s	19.0	15.5	0.0	7.4	19.9	20.1	17.2	18.8	12.4	1.8	15.6	15.3
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	581	1071		303	393	383	300	1590	813	47	1007	716
V/C Ratio(X)	1.09	0.54		0.76	0.83	0.84	0.92	0.53	0.36	0.62	0.57	0.44
Avail Cap(c_a), veh/h	581	1071		581	503	491	300	1590	813	300	1007	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	33.0	0.0	50.4	42.0	42.1	46.2	24.1	16.4	54.4	34.6	21.2
Incr Delay (d2), s/veh	65.6	0.6	0.0	4.0	9.2	10.0	31.5	1.3	1.2	12.3	2.3	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.4	6.7	0.0	3.4	9.6	9.6	10.2	8.5	4.7	1.0	7.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.6	33.5	0.0	54.4	51.2	52.0	77.7	25.3	17.7	66.8	36.9	23.1
LnGrp LOS	F	C		D	D	D	E	C	B	E	D	C
Approach Vol, veh/h		1219	A		880			1407			917	
Approach Delay, s/veh		74.8			52.3			34.0			33.2	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	52.5	14.4	38.6	23.5	36.5	23.5	29.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.0	32.0	19.0	32.0	19.0	32.0	19.0	32.0				
Max Q Clear Time (g_c+I1), s	3.8	20.8	9.4	17.5	19.2	17.6	21.0	22.1				
Green Ext Time (p_c), s	0.0	5.2	0.5	3.4	0.0	4.4	0.0	2.9				

Intersection Summary

HCM 6th Ctrl Delay	48.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX G
CUMULATIVE PROJECT REPORTS

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is a discussion of the Project site’s trip generation calculations, both for the previously approved Pavilion at Oceanside project and the currently proposed Ocean Kamp project, as well as the Project’s traffic distribution and assignment through the street system.

7.1 Previously Approved Trip Generation

As previously discussed in *Section 2.2* of this study, an EIR addressing development of the Project site was certified by the City of Oceanside in 2008. The Pavilion at Oceanside project described in the EIR consisted of a 950,000-square foot (SF) shopping center with a variety of retail uses. **Table 7-1** shows the Pavilion at Oceanside traffic generation calculations. As shown, the previously approved project was calculated to generate 32,175 ADT, with 1,254 AM peak hour trips (862 inbound / 376 outbound) and 2,872 PM peak hour trips (1,485 inbound / 1,388 outbound).

7.2 Proposed Project Trip Generation

The Project proposes to construct a 300-room resort hotel, approximately 126,000 SF of retail / commercial uses, 700 residential dwelling units, and a wave lagoon.

7.2.1 Weekday

The Weekday trip generation for the proposed Project was calculated using the SANDAG (*Not so*) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

The following trip rates were used to calculate the Project’s trip generation:

Hotel: SANDAG’s “Hotel (w/convention facilities / restaurant)” rate was used. The independent variable is occupied rooms. In order to provide a conservative analysis, it was assumed that all 300 of the proposed hotel rooms would be occupied. The trip rate is 10 trips per occupied room.

Multi-Family Residential: SANDAG’s “Condominium (or any multi-family 6-20 DU / acre)” rate was used. The independent variable is dwelling units. The trip rate is 8 trips per dwelling unit.

Retail / Commercial Center: SANDAG’s “Community Shopping Center” rate was used. The independent variable is square feet. The trip rate is 80 trips per 1,000 square feet. Pass-by credits for this land use were applied as follows:

- Commercial Use Pass-By & Primary Trips

Development of new land uses will create trips on a street system that are new, or “primary” trips. However, several types of retail/commercial developments experience local and regional trips at the driveways that are already on the street system, whether that development exists or not. These trips are known as “pass-by” trips.

- *Pass-by* trips are trips that are already on the street system passing along the Project frontage (SR 76 and Mission Avenue), and only appear as new trips in and out of the Project driveways. SANDAG indicates a 30% pass-by rate for the PM peak hour and 22% for daily trips. An AM peak hour pass-by rate is not provided.

Based on consultation with City staff, a pass-by rate of 30% was used for the PM peak hour, and 0% for the daily and AM peak hour trips. It should be noted that pass-by trips were only assumed for the Project's commercial uses.

- *Primary Trips:* The remaining retail / commercial related trips (70% PM peak, 100% daily and AM peak) are those that are new to the street system, also called “primary” trips. These trips occur due to the development of the Project and the Project itself becomes one end of a primary trip, either the origin or the destination.

Wave Lagoon: No published rates for “wave lagoons” were found. Therefore, for the purposes of this traffic study, a rate was estimated based on expected use. The Wave Lagoon will have a maximum capacity of 12 people per hour, and will operate ten-hours per day for a total of 120 visitors per day. Spectators and employees of the Wave Lagoon were also accounted for. Ultimately, a rate of 360 trips per Weekday was calculated. Additional information regarding calculation of the Wave Lagoon's trip generation is provided in *Appendix E*.

It should be noted that the Project's trip generation does not account for any mixed-use credits. Per the SANDAG guide, up to a 10% mixed-use reduction can be applied to projects “where residential and commercial retail are combined (demonstrate mode split of walking trips to replace vehicular trips).” Given the potential synergy between the Project's proposed land uses, application of a mixed-use credit is likely applicable. However, to provide a conservative assessment of the Project's effect on the circulation system, no mixed-use credits were applied.

Table 7-2 shows the Weekday Project traffic generation. As shown, the Project is calculated to generate 19,040 ADT with 1,057 AM peak hour trips (453 inbound / 604 outbound) and 1,834 total PM peak hour trips (1,053 inbound / 781 outbound) at the Project driveways. It's worth noting that the proposed Project is calculated to generate 13,135 fewer ADT (approximately 41% less) than the site's previously approved Pavilion project (32,175 ADT).

7.2.2 *Weekend*

Since SANDAG does not provide weekend trip rates, the Project's Weekend trip generation was calculated based on the *Institute of Transportation Engineers, Trip Generation Manual, 10th Edition*, September 2017.

The following trip rates were used to calculate the Project's trip generation:

Hotel: ITE's “Hotel (310)” rate was used. The independent variable is rooms. The Saturday trip rate is 8.19 trips per room.

Multi-Family Residential: ITE's “Multifamily Housing (Low-Rise) (220)” rate was used. The independent variable is dwelling units. The Saturday trip rate is 8.14 trips per dwelling unit.

Retail / Commercial Center: ITE's “Shopping Center (820)” rate was used. The independent variable is square feet. The Saturday trip rate is 46.12 trips per 1,000 square feet. Pass-by credits for

this land use were not applied under Weekend conditions. It should be noted that the ITE Saturday rate is nearly half the SANDAG weekday rate for commercial land uses.

Wave Lagoon: No published rates for “wave lagoons” were found. Therefore, for the purposes of this traffic study, a rate was estimated based on expected use. The Wave Lagoon will have a maximum capacity of 12 people per hour, and will operate ten-hours per day for a total of 120 visitors per day. Spectators and employees of the Wave Lagoon were also accounted for. Ultimately, a rate of 460 trips per Weekend day was calculated. Additional information regarding calculation of the Wave Lagoon’s trip generation is provided in *Appendix E*.

Similar to the Project’s Weekday trip generation calculations, the Project’s Weekend trip generation does not take any mixed-use credits to account for the potential synergy between the Project’s proposed land uses in order to provide a conservative analysis.

Table 7-3 shows the Weekend Project traffic generation. As shown, the Project is calculated to generate 14,426 ADT with 1,319 peak hour trips (684 inbound / 635 outbound).

**TABLE 7-1
PREVIOUSLY APPROVED PROJECT SITE TRIP GENERATION**

Land Use	Daily Trip Ends (ADTs)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Oceanside Pavilion	32,175	862	376	1,254	1,485	1,388	2,872

General Notes:

1. Source: *Oceanside Pavilion Traffic Impact Analysis Report*, March 2008, prepared by RBF Consulting
2. ADT = Average daily traffic

**TABLE 7-2
WEEKDAY PROJECT TRIP GENERATION**

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate ^a	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Hotel (w/ convention facilities / restaurant)	300 Rooms	10 / Room	3,000	6%	60:40	108	72	180	8%	60:40	144	96	240
Multi-Family Residential	700 Units	8 / DU	5,600	8%	20:80	90	358	448	10%	70:30	392	168	560
Retail / Commercial Center	126 KSF	80 / KSF	10,080	4%	60:40	242	161	403	10%	50:50	504	504	1,008
<i>Pass-by Credit (30% PM peak)</i>	-	-	-	-	-	-	-	-	-	-	-151	-151	-302
Surf Lagoon / Resort Pass Guests ^b	1 Site	-	360	-	-	13	13	26	-	-	13	13	26
Proposed Project Weekday Total			19,040			453	604	1,057			902	630	1,532
Proposed Project Weekday Total (Driveway Trips) ^c			19,040			453	604	1,057			1,053	781	1,834

Footnotes:

- a. Rates based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002 except where noted.
- b. 120 Surf Lagoon guests and 50 Report Pass guests expected daily. See *Appendix E* for Trip Generation Calculations.
- c. Driveway trip calculations do not include pass-by credits.

General Notes:

1. ADT = Average daily traffic

**TABLE 7-3
WEEKEND PROJECT TRIP GENERATION**

Land Use	Size	Daily Trip Ends (ADTs)		Peak Hour				
		Rate ^a	Volume	% of ADT	In:Out Split	Volume		
						In	Out	Total
Hotel (w/ convention facilities / restaurant)	300 Rooms	8.19 / Room	2,457	0.72	56:44	121	95	216
Multi-Family Residential	700 Units	8.14 / DU	5,698	0.70	50:50	245	245	490
Retail / Commercial Center	126 KSF	46.12 / KSF	5,811	4.50	52:48	295	272	567
Surf Lagoon / Resort Pass Guests ^b	1 Site	-	460	-	-	23	23	46
Proposed Project Weekend Total			14,426			684	635	1,319

Footnotes:

- a. Rates based on the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, September 2017 except where noted.
- b. 120 Surf Lagoon guests and 100 Report Pass guests expected daily. See *Appendix E* for Trip Generation Calculations.

General Notes:

- 1. ADT = Average daily traffic

7.3 Trip Distribution/Assignment

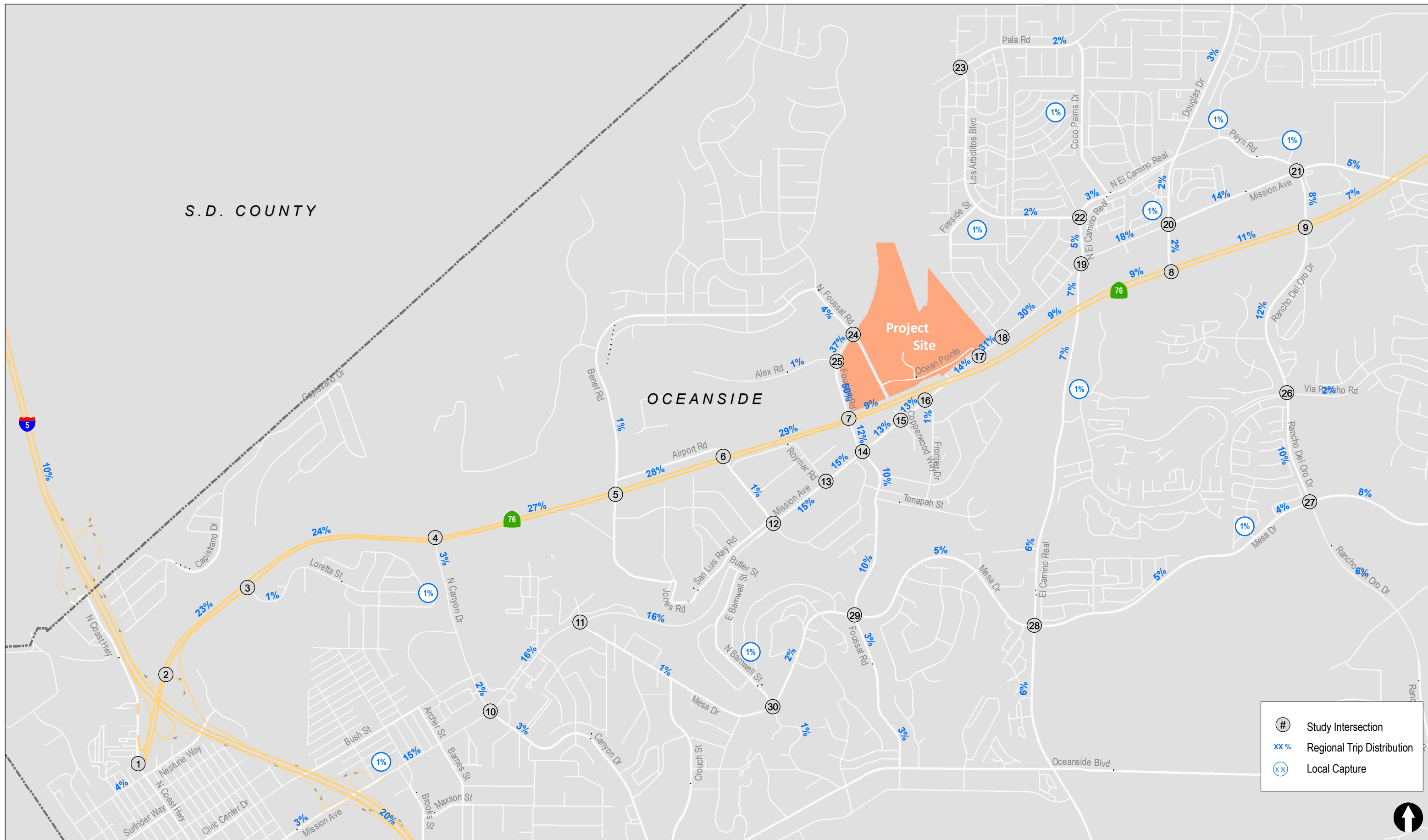
The distribution of Project traffic was determined based on information in the previously approved TIA for the Pavilion at Oceanside project as well as the locations of the proposed access points, traffic patterns observed from the existing traffic counts, and the proximity of the project to surrounding freeways, attractions, and residential and commercial areas. The trip distribution was developed in consultation with City staff.

Figures 7-1a and *7-1b* show the distribution of Project trips to the study street segments and intersections, respectively.

Once the traffic distribution was established, the Project-generated traffic was assigned to the adjacent street system. It should be noted that the Project's Weekday and Weekend distribution was assumed to be the same.

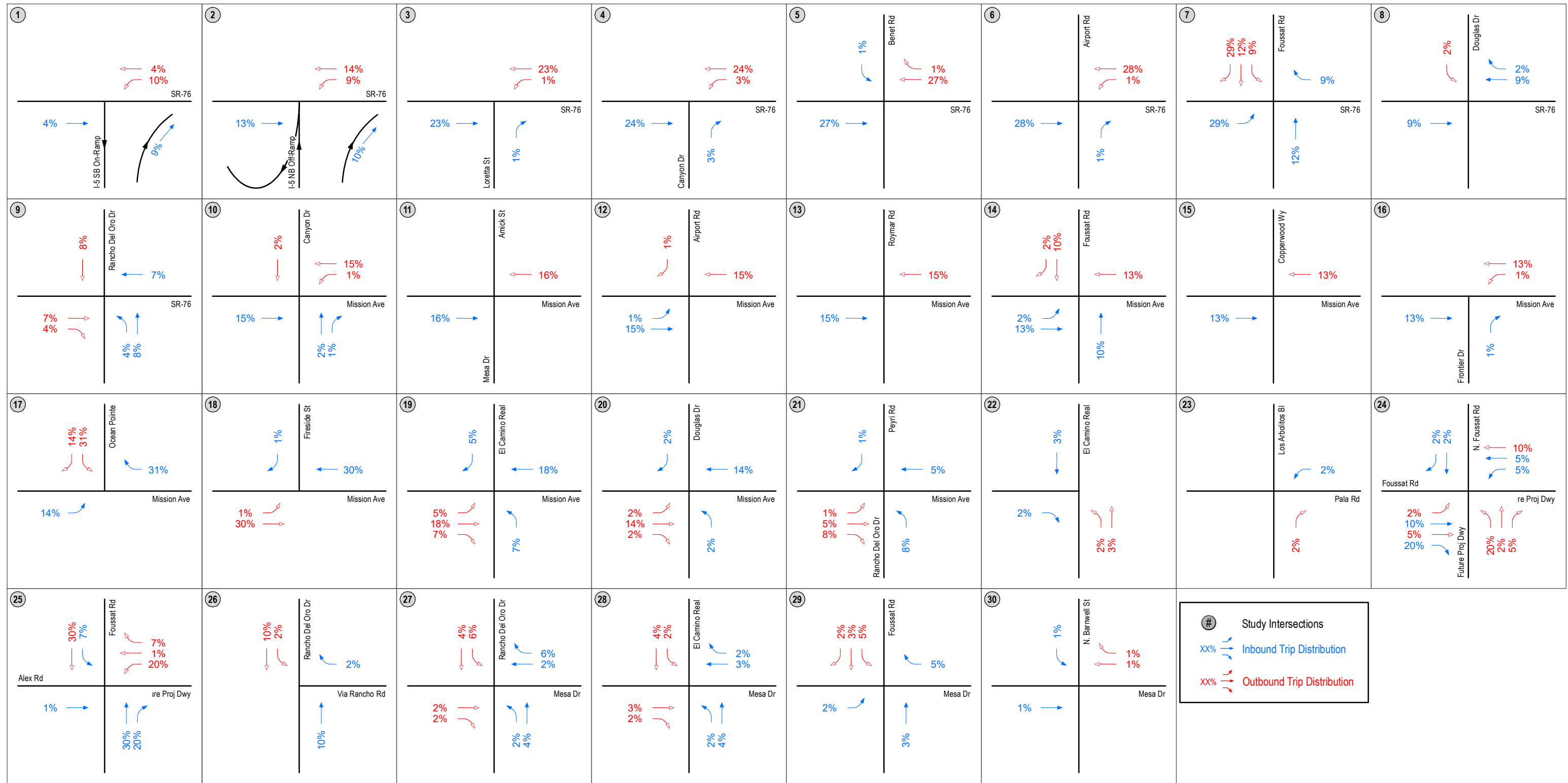
Figures 7-2a and *7-2b* depict the Weekday Project daily traffic volumes and AM / PM peak hour traffic volumes, respectively.

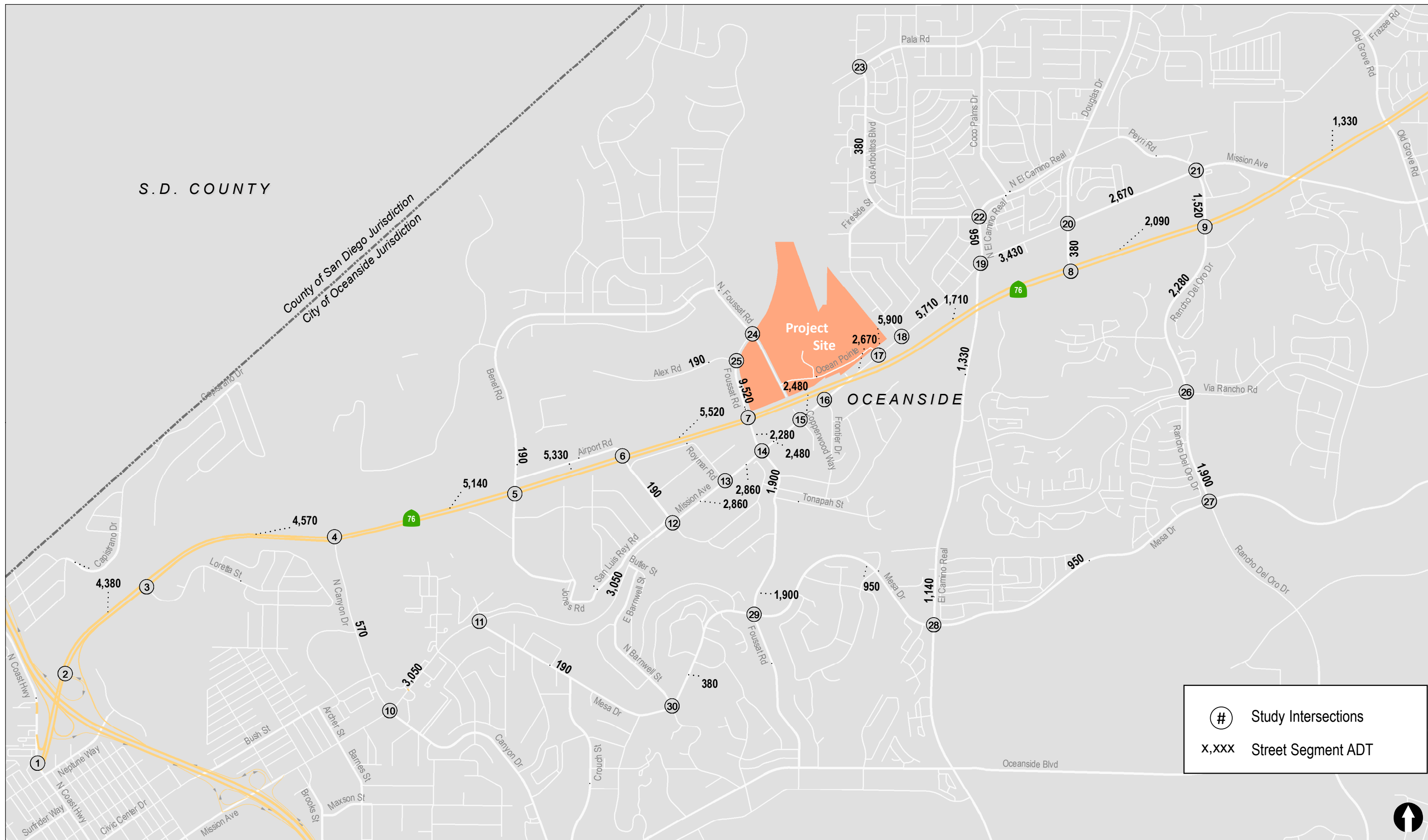
Figure 7-3 depicts the Weekend Project daily traffic and peak hour traffic volumes.

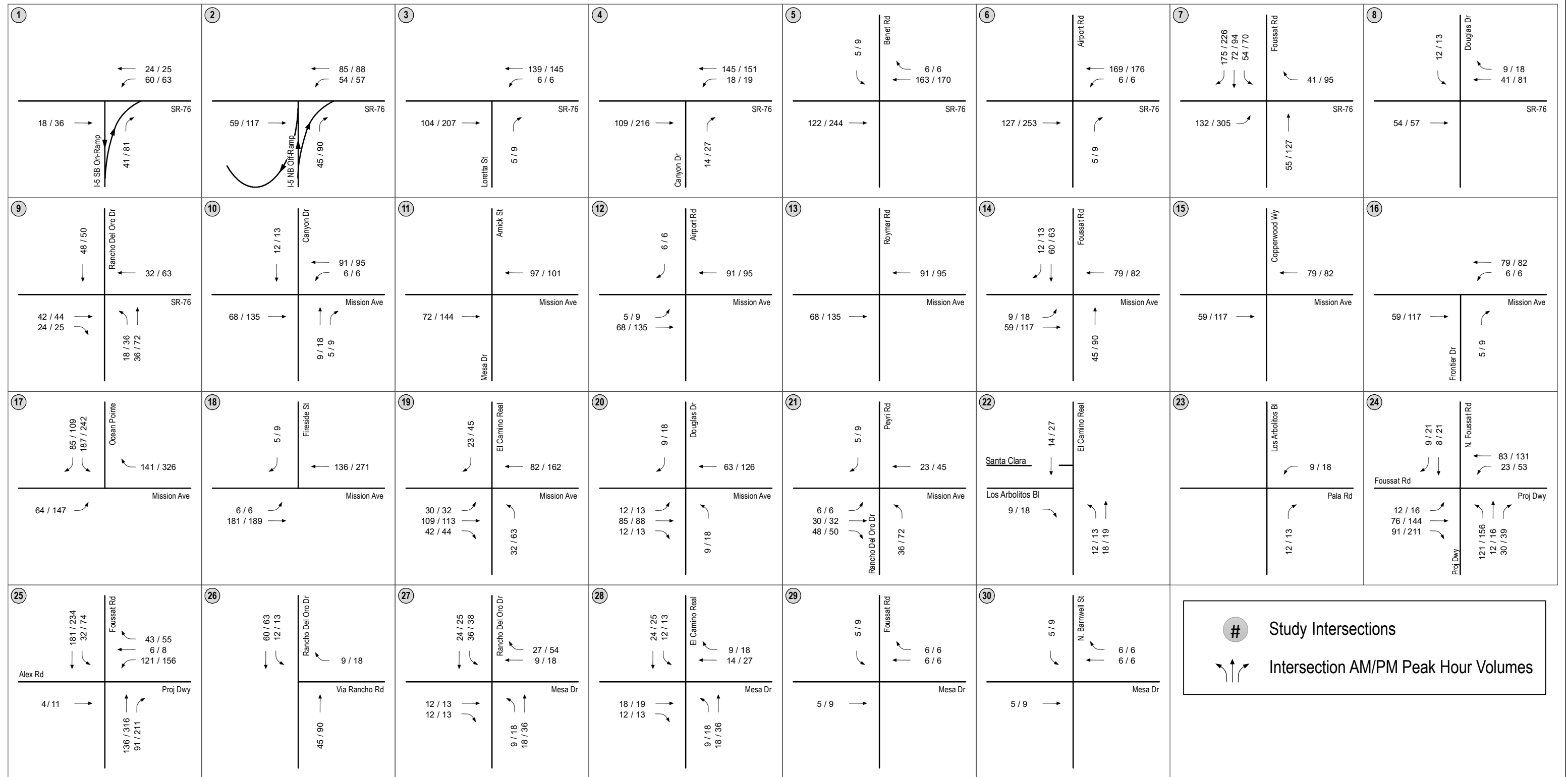


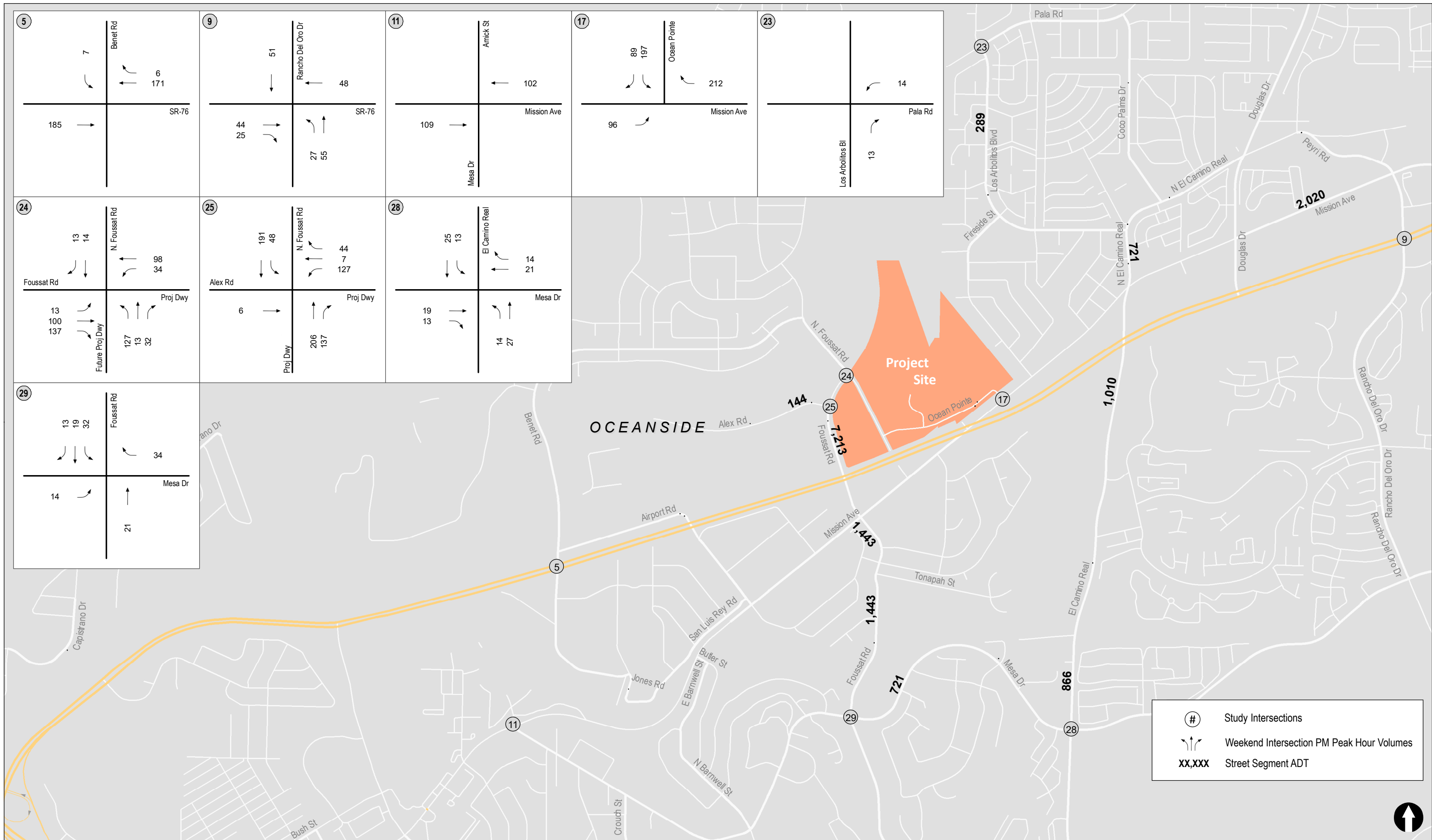
#	Study Intersection
xx %	Regional Trip Distribution
x %	Local Capture











3 PROJECT TRAFFIC

This section documents the trip generation, distribution, and assignment of project traffic.

3.1 Trip Generation

Trip generation estimates for the proposed project are based on daily and AM and PM peak hour trip generation rates obtained from the SANDAG (*Not So*) *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (2002). Trip generation estimates for the project are based on the trip generation rates for multi-family residential land uses as well as the specialty retail land use. The residential units could all be classified as multi-family >20 du/acre, therefore the trip rate for apartment use was utilized. No credit was used for existing structures on the site. Specialty retail trip rate was used for the proposed 4,200 square foot retail uses. It is noted that the project currently proposes 3,500 square-foot of commercial uses, but this analysis conservatively assumes the inclusion of 4,200 square feet. Trip generation rates and resulting trip generation estimates for the project are summarized in Table 6.

**Table 6
Project Trip Generation for Mission Flats**

SANDAG Trip Generation Rates									
Land Use	Size/Unit		Daily	AM Peak Hour			PM Peak Hour		
				% In	% Out	Total	% In	% Out	Total
Residential Apartments (multi-family >20du)	per DU		6	20%	80%	8%	70%	30%	9%
Specialty Retail/Strip Commercial	per TSF		40	60%	40%	3%	50%	50%	9%
Trip Generation									
Apartment Units in Main Building	137	DU	822	13	53	66	52	22	74
Commercial	4.2	TSF	168	3	2	5	8	7	15
Total Trip Generation			990	16	55	71	60	29	89

Notes: TSF = 1,000 square feet; DU = Dwelling Unit

Trip rates from the SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, 2002.

As shown in the Table 6, the project would generate 990 daily trips, 71 AM peak hour trips (16 inbound and 55 outbound), and 89 trips during the PM peak hour (60 inbound and 29 outbound).

3.2 Trip Distribution and Assignment

Project trip distribution percentages were based on logical travel paths to commute corridors in the study area; review of trip distribution percentages in the TIA prepared for other proposed developments in the City. City staff approved the project’s trip distribution percentages prior to the initiation of the traffic analysis.

Traffic Impact Analysis – Mission Flats, Oceanside

Project traffic will utilize the proposed right-in/out only driveway on Douglas Drive to access site. Approximately 37% and 20% of project traffic was assumed to be destined to/from the west and east along SR-76, respectively.

Additionally, 30% of traffic travelling south from the site would be distributed evenly between El Camino Real and Rancho Del Oro Drive, while 5% of traffic is assumed to travel inland (north), along Douglas Drive and 5% of traffic is assumed to travel east along Mission Avenue. Approximately 3% of traffic is assumed to be destined to the commercial areas along El Camino Real/Mission Avenue intersection.

All inbound traffic will access the site via Douglas Drive/SR-76 intersection and outbound traffic would have to travel northbound along Douglas Drive and disperse from Douglas Drive/Mission Avenue intersection.

Project trips were assigned to the study area intersections by applying the above-referenced project trip generation estimates to the trip distribution percentages at each study area roadway segment and intersection. The inbound and outbound project trip distribution percentages are shown on Figure 5 and 6, respectively. The resulting project trip assignment is shown in Figure 7.







Source: Google Maps 2018

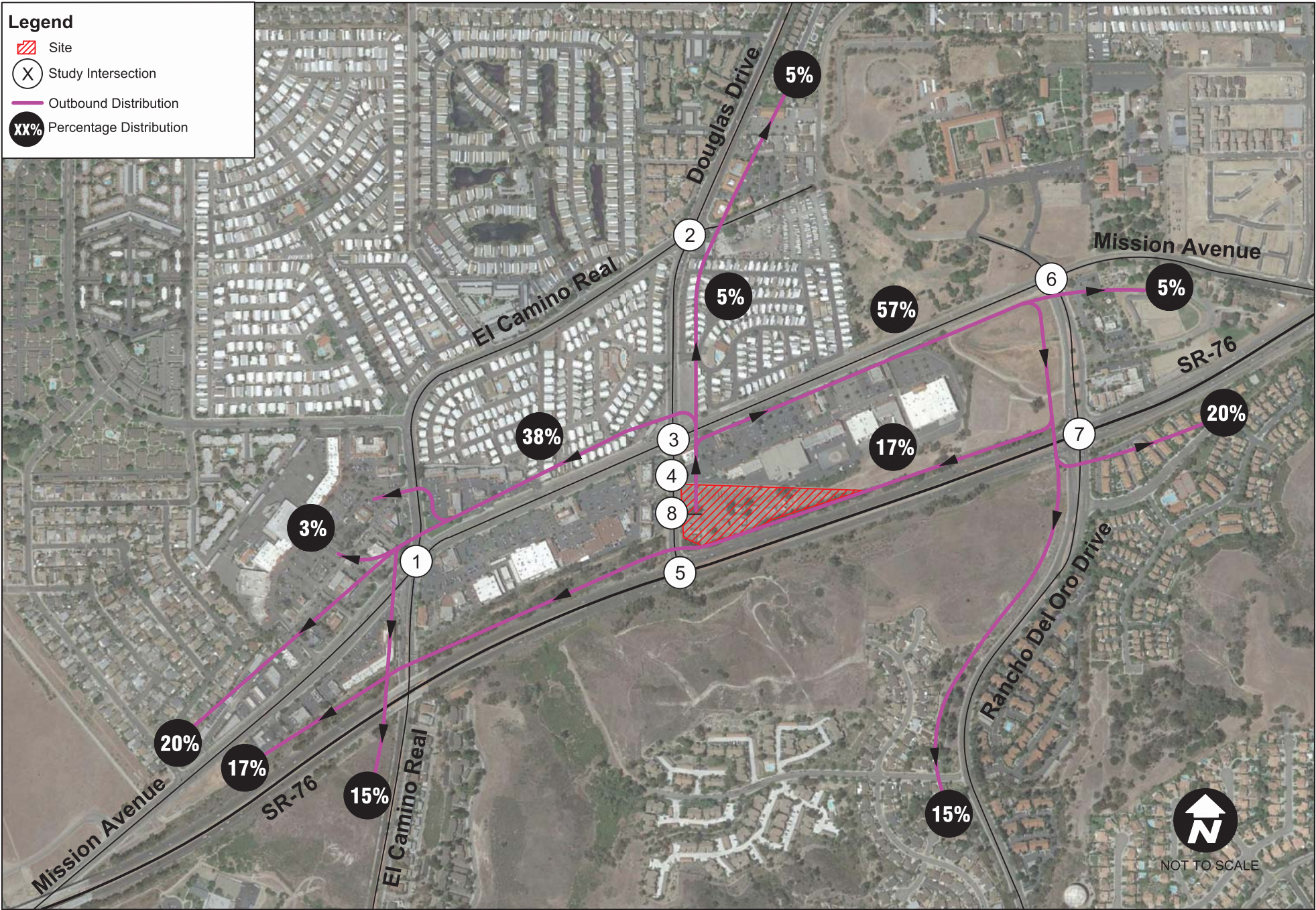
FIGURE 5
Project Trip Distribution (Inbound)
 Mission Flats - Oceanside

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Feb 10, 2020 - 2:25pm mpopovic P:\3000 Environmental\11897 Jones Ranch Oceanside\DUDEK\WORK PRODUCTS\Traffic\Graphics\AutoCAD Files\MissionFlats_06_19_19.dwg Layout: Fig6-ProJDistOut

Legend

-  Site
-  Study Intersection
-  Outbound Distribution
-  Percentage Distribution



Source: Google Maps 2018

FIGURE 6
Project Trip Distribution (Outbound)
 Mission Flats - Oceanside

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LOS Engineering, Inc.
Traffic and Transportation

6342 Ferris Square, San Diego, CA 92121
Phone 619-890-1253, Fax 619-374-7247

March 9, 2007

Mr. John Amberson
City of Oceanside – Public Works Department
300 North Coast Highway
Oceanside, CA 92054-2885

PROJECT NAME: Oceanpointe Fair Share Calculation for RDO/San Ramon Dr

Dear Mr. Amberson:

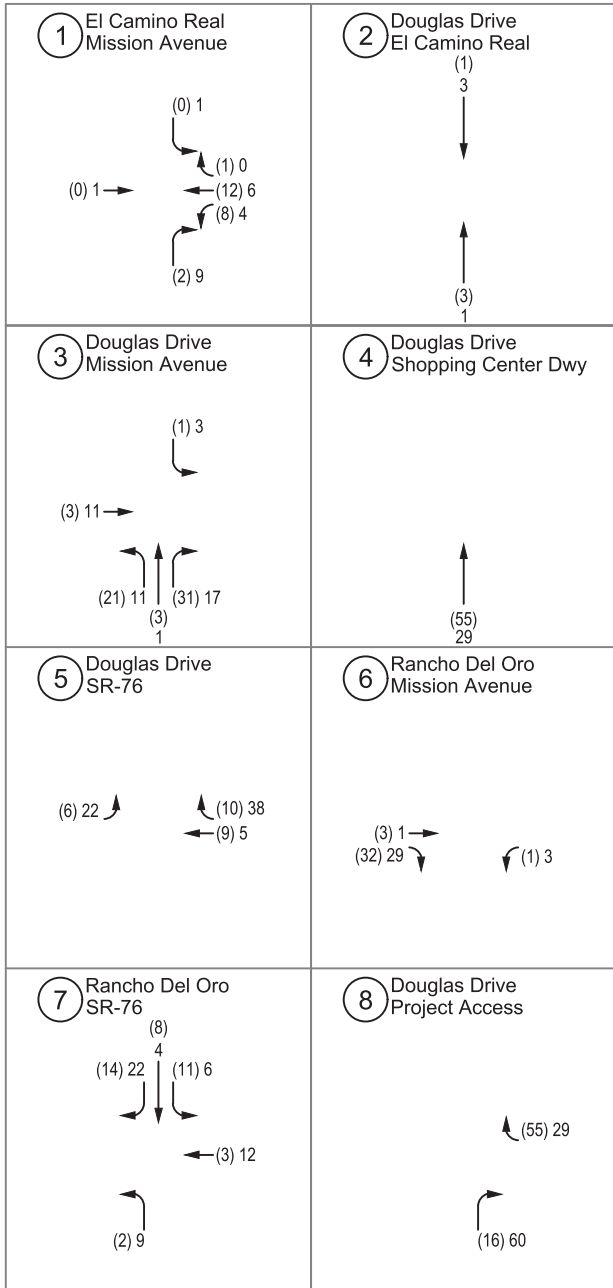
The purpose of this letter is to document the applicant's fair share responsibility toward the construction of the near-term traffic signal at the intersection of Rancho Del Oro and San Ramon Drive. It is my understanding that the request for a fair share percentage was made by yourself and Mr. Paul Pace during a March 1, 2007 meeting with Mr. Sean Santa Cruz (Hallmark Communities – developer) in regards to the required traffic improvements for the Oceanpointe project. It was also noted at this meeting that Pelican Homes, the developer of 29 senior residential units off of San Dimas will be required to install the same traffic signal as part of their mitigation measure for their project. It was noted by Staff that per the Conditions of Approval for the Pelican Homes project, the City will reimburse the developer 85% of the cost of the signal. Thus, Pelican Homes will be responsible for 15% of the cost to signalize that intersection.

The timing between the two projects was also discussed at the March 1, 2007 meeting. It was determined that the Pelican Homes project would be moving forward with their development earlier than the Oceanpointe project, and as such would be responsible to install the signal to comply with their conditions of approval. Staff had requested that we provide a fair share calculation for the Oceanpointe project in the case that the Pelican Homes development proceeds before the Oceanpointe project and installs the signal.

The Oceanpointe traffic study dated March 22, 2005 recommended the construction of a traffic signal at the intersection of Rancho Del Oro and San Ramon Drive to mitigation a cumulative impact. **The fair share responsibility is calculated at 12%.** Calculations are attached. This percentage is based on the higher and more conservative 200 unit count as originally analyzed in the March 22, 2005 traffic study. The reduced project with 158 units is estimated to require a fair share of approximately 9.5%; however, the applicant agrees to a fair share responsibility of 12%.

Sincerely,
LOS Engineering, Inc.

Justin Rasas, P.E., P.T.O.E.
Principal and Officer of LOS Engineering, Inc.
Attachment



Source: Google Maps 2018



6342 Ferris Square, San Diego, CA 92121
 Phone 619-890-1253, Fax 619-374-7247

April 17, 2007

Mr. John Amberson
 City of Oceanside – Public Works Department
 300 North Coast Highway
 Oceanside, CA 92054-2885

PROJECT NAME: Oceanpointe Multi-Family

Dear Mr. Amberson:

The purpose of this letter is to document the reduced Oceanpointe project located south of SR-76 between El Camino Real and Rancho Del Oro, as related to:

- 1) decreasing the traffic generation from a maximum of 200 units to 158 units
- 2) maintaining the same number of driveways and locations,
- 3) maintaining the same roadway operations,
- 4) maintaining the same mitigation measures as required by the larger project, and
- 5) reiterating the Oceanpointe traffic study executive summary

The Oceanpointe traffic study prepared by LOS Engineering, Inc. dated 3/22/05 was incorporated in the circulated EIR and accounted for a project with a maximum of 200 multi-family units. The reduced project is proposed with 158 multi-family units. As shown below in **Table 1**, the reduced project is calculated to generation 336 less ADT, 27 less AM peak hour trips, and 34 less PM peak hour trips.

Table 1: Reduced Project Traffic Generation

Proposed Land Use	Rate	Size & Units	ADT	%	Split	AM			PM		
						IN	OUT	%	Split	IN	OUT
Original Project (Multi-Family)	8 Unit	200 DU	1600	8%	0.2 0.8	26	102	10%	0.7 0.3	112	48
Reduced Units (Multi-Family)	8 Unit	42 DU	336	8%	0.2 0.8	6	21	10%	0.7 0.3	24	10
Reduced Project (Multi-Family)	8 Unit	158 DU	1264	8%	0.2 0.8	20	81	10%	0.7 0.3	88	38

Source: SANDAG Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.

DU - Dwelling Unit; ADT-Average Daily Traffic; Split-percent inbound and outbound.

The main project access points remain unchanged, with one main driveway on Stage Coach Road and one main driveway on San Ramon Drive. The project will provide a connection from these main driveways between Stage Coach Road and San Ramon Drive; however, the project will be a gated community with restricted access to its residents and guests thereby controlling cut-through traffic. The two minor driveways on Stage Coach Road will remain unchanged.

The traffic study dated 3/22/05 documented 6 analysis scenarios, 18 cumulative projects, and 2 project mitigation measures, which are summarized below in the executive summary.

Executive Summary – Oceanpointe Traffic Study – March 22, 2005

The Oceanpointe multi-family project will consist of a maximum of 200 dwelling units clustered in three groups on a vacant lot of approximately 36 acres. The project is proposed south of SR-76 between El Camino Real and Rancho Del Oro.

Access to the site is proposed from Stage Coach Road west of the project site and San Ramon Drive east of the site. The project will provide a connection between Stage Coach Road and San Ramon Drive; however, the project will be a gated community with restricted access to its residents and guests thereby controlling cut-through traffic.

Using SANDAG traffic generation rates, the project is calculated to generate 1,600 ADT, 128 AM peak hour trips (26 inbound and 102 outbound), and 160 PM peak hour trips (112 inbound and 48 outbound).

Eighteen (18) cumulative projects were identified in the vicinity of the project and were included in this analysis.

Six scenarios were analyzed, which included Existing, Existing + Project, Existing + Cumulative, Existing + Cumulative + Project, Build-out, and Build-out + Project conditions. Operational findings by scenario are summarized below:

- 1) Under existing conditions, the study intersections are calculated to operate at LOS D or better while the roadway and expressway segments are calculated to operate at LOS C or better with the exception of the segment of El Camino Real from Mesa Drive to Oceanside Boulevard, which is calculated to operate at LOS D.
- 2) Under existing + project conditions, no intersection, roadway or expressway impacts are calculated with the addition of project traffic. The segment of El Camino Real from Mesa Drive to Oceanside Boulevard is calculated to continue to operate at LOS D. The project is calculated to change the V/C ratio by 0.013, which is allowable per the significance threshold.
- 3) Under existing + cumulative conditions, the study intersections are calculated to operate at LOS D or better while the roadway and expressway segments are calculated to operate at LOS C or better with the exception of El Camino Real from Mesa Drive to Oceanside Boulevard, which is calculated to operate at LOS D.
- 4) Under existing + cumulative + project conditions, no cumulative impacts are calculated with the addition of project traffic. The roadway and expressway segments are calculated to operate at LOS C or better with the exception of El Camino Real from Mesa Drive to Oceanside Boulevard, which is calculated to continue to operate at LOS D. The project is calculated to change the V/C ratio by 0.013 on this segment of El Camino Real, which is allowable per the significance threshold.

- 5) Under build-out conditions, the study intersections are calculated to operate at LOS D or better with the exception of Rancho Del Oro/San Ramon Drive, which is calculated to operate at LOS F. The street and expressway segments are calculated to operate at LOS C or better with the exception of El Camino Real from Mesa Drive to Oceanside Blvd, which is calculated to operate at LOS E.

- 6) Under build-out + project conditions, the study intersections are calculated to operate at LOS D or better with the exception of Rancho Del Oro/San Ramon Drive, which is calculated to operate at LOS F with the project adding more than 2 seconds of delay causing an impact under build-out conditions. The street and expressway segments are calculated to operate at LOS C or better with the exception of El Camino Real from Mesa Drive to Oceanside Blvd, which is calculated to operate at LOS E. The project is calculated to change the V/C ratio by 0.013 on this segment of El Camino Real, which is allowable per the significance threshold.

The intersection operations are summarized in **Table 2** with street segment operations shown in **Table 3** and expressway operations shown in **Table 4**.

Table 2: Intersection Level of Service

Intersection and Control ¹	Movement	Peak Hour	Existing	Existing + Project	Existing + Cumulative	Existing + Cumulative + Project	Build-Out	Build-Out + Project
			LOS	LOS	LOS	LOS	LOS	LOS
1) El Camino Real at Mission Ave (S)	All	AM	C	C	C	C	C	C
	All	PM	C	C	C	C	C	C
2) El Camino Real at Vista Rey (U)	WB LR	AM	B	B	B	B	B	B
	WB LR	PM	C	C	C	D	D	D
3) El Camino Real at Vista Oceana (S)	All	AM	A	A	A	A	A	A
	All	PM	A	A	A	A	A	A
4) El Camino Real at Mesa Dr (S)	All	AM	C	C	C	C	C	C
	All	PM	C	C	C	C	D	D
5) El Camino Real at Oceanside (S)	All	AM	D	D	D	D	C	C
	All	PM	D	D	D	D	D	D
6) Stage Coach at Vista Bella (U)	All	AM	A	A	A	A	A	A
	All	PM	A	A	A	A	A	A
7) Vista Campana at Vista Rey (U)	All	AM	A	A	A	A	A	A
	All	PM	A	A	A	A	A	A
8) Vista Campana at Vista Oceana (U)	All	AM	A	A	A	A	A	A
	All	PM	A	A	A	A	A	A
9) Rancho Del Oro at SR-76 (S)	All	AM	B	B	B	B	D	D
	All	PM	C	C	D	D	D	D
Caltrans ILV	All	AM	Under Near	Under Near	Under Over	Under Over	Over Over	Over Over
	All	PM	Under Near	Under Near	Under Over	Under Over	Over Over	Over Over
10) Rancho Del Oro at San Ramon (U)	EB LR	AM	B	B	B	B	C	C
	EB LR	AM	C	C	C	C	F	F
11) Rancho Del Oro at Via Rancho (S)	All	AM	A	A	A	A	A	A
	All	PM	A	A	A	A	A	A
12) Rancho Del Oro at Mesa Dr (S)	All	AM	B	B	C	C	D	D
	All	PM	B	B	C	C	C	C

Notes: 1) Intersection Control - S: Signalized; U: Unsignalized. LOS: Level of Service

Table 3: Street Segment Level of Service

Street Segment	ECR			RDO		RDO		Mesa Dr	Oceanside	San Ramon
	From	Mission Ave	Vista Oceana	Mesa Drive	SR-76	San Ramon	Mesa Dr	ECR	ECR	San Dimas
	To	Vista Oceana	Mesa Drive	Oceanside B	San Ramon	Mesa Dr	Oceanside B.	RDO	RDO	RDO
Existing	A	A	D	A	A	A	B	A	A	A
Existing + Project	A	A	D	A	A	A	B	A	A	A
Existing + Cumulative	A	B	D	A	A	A	C	B	A	A
Ex + Cumulative + Proj	B	B	D	A	A	A	C	B	A	A
Build-Out	B	B	E	A	A	A	C	C	A	A
Build-Out + Project	B	B	E	A	A	B	C	C	A	A

Notes: ECR: El Camino Real; RDO: Rancho Del Oro.

Table 4: Expressway Level of Service

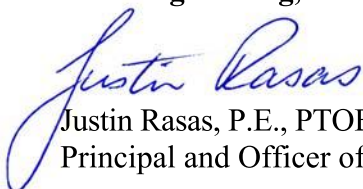
Expressway Segment	SR-76 (Douglas Dr to Rancho Del Oro)				SR-76 (Rancho Del Oro to Old Grove Rd)			
	A M		P M		A M		P M	
	EB	WB	EB	WB	EB	WB	EB	WB
Existing	B	B	C	B	B	B	C	B
Existing + Project	B	B	C	B	B	B	C	B
Existing + Cumulative	B	B	C	B	B	B	C	B
Ex + Cumulative + Proj	B	B	C	B	B	B	C	B
Build-Out	B	C	C	C	B	C	C	C
Build-Out + Project	B	C	C	C	B	C	C	C

The following project contributions are recommended:

- 1) Installing a traffic signal at Rancho Del Oro/San Ramon Drive to mitigate a cumulative long-term intersection impact. It is recommended that a traffic signal be installed with an additional southbound right turn lane to mitigate the impact to below a level of significance. City of Oceanside staff has requested that this traffic signal be installed and paid 100% by the first project to start construction between Oceanpointe and the Pelican Homes 29 unit senior housing development off of San Dimas. The City will reimburse 85% of the traffic signal costs to the party that paid for the construction of the traffic signal, while the developer will be responsible for 15% of the costs. In the instance that the Pelican Homes project proceeds before the Oceanpointe project and installs the traffic signal, a fair share calculation has been generated for the project in an LOS Engineering, Inc. letter dated March 9, 2007 and that will be paid by the Oceanpointe project prior to building permit issuance.
- 2) Either constructing intersection improvements at El Camino Real/Vista Rey in the form of median islands to facilitate a left in access from southbound El Camino Real, with right turns into and out of Vista Rey but restricts left turns out of Vista Rey to southbound El Camino Real, or installing a traffic signal. The final traffic study dated March 22, 2005 provided an option of either constructing the aforementioned improvements or installing a traffic signal.

Please call me at (619) 890-1253 if you have any questions.

Sincerely,
LOS Engineering, Inc.



Justin Rasas, P.E., PTOE.
 Principal and Officer of LOS Engineering, Inc.



6342 Ferris Square, San Diego, CA 92121
 Phone 619-890-1253, Fax 619-374-7247

March 30, 2007

Mr. John Amberson
 City of Oceanside – Public Works Department
 300 North Coast Highway
 Oceanside, CA 92054-2885

PROJECT NAME: Oceanpointe Interior Roadway Design Standards

Dear Mr. Amberson:

The purpose of this letter is to document the reason why the interior roadways for the Oceanpointe project were designed per City of Oceanside private street standards. The reason for using private street standards was the interior project traffic is not calculated to exceed 500 ADT toward either San Ramon Drive or Stage Coach Road. The City of Oceanside *Engineers Design and Processing Manual* states on page 87 under the Street Design Table that “Private streets with greater than 500 ADT to be designed to public street standards”.

The Oceanpointe project has two Villages as shown in the attached Figure. Village 1 with 62 units has direct access to Stage Coach Road. Village 2 with 96 units has access to either Stage Coach Road or San Ramon Drive. The traffic generation for Village 1 is calculated at 496 ADT, which does not exceed the 500 ADT threshold. The traffic for Village 2 is calculated at 768 ADT; however, this traffic has the option of using either Stage Coach Road or San Ramon Drive. Assuming a conservative distribution split of 60/40, the higher ADT is 461 ADT, which does not exceed the 500 ADT threshold. The traffic generation calculations are shown in **Table 1**.

Table 1: Oceanpointe Traffic Generation by Village

Proposed Land Use	Rate	Size & Units	ADT	%	Split	AM		PM			
						IN	OUT	%	Split	IN	OUT
Oceanpointe Village 1	8 Unit	62 Homes	496	8%	0.2 0.8	8	32	10%	0.7 0.3	35	15
Oceanpointe Village 2	8 Unit	96 Homes	768	8%	0.2 0.8	12	49	10%	0.7 0.3	54	23
60/40 split (60%)			461								
60/40 split (40%)			307								

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

Bold Indicates the highest ADT on a single interior project roadway.

As shown in Table 1, the highest ADTs (shown in bold) on any single interior roadway is less than 500, thus the interior roadways were designed using City of Oceanside private street standards.

Sincerely,
LOS Engineering, Inc.

Justin Rasas, P.E., P.T.O.E.
 Principal and Officer of LOS Engineering, Inc.
 Attachment

OCEANPOINTE
OCEANSIDE, CA



Fair share calculation based on project traffic for new traffic signal

10) Rancho Del Oro & San Ramon

Existing (E) AM =	668 (Figure 4)	Fairshare Calculation	
Project (P) AM =	51 (Figure 6)	$P / (E - C + P) =$	12.0%
Cumulative (C) AM =	294 (Figure 8)		

Existing (E) PM =	1140 (Figure 4)	Fairshare Calculation	
Project (P) PM =	64 (Figure 6)	$P / (E - C + P) =$	7.5%
Cumulative (C) PM =	351 (Figure 8)		

Highest peak hour percentage to be used, which is AM at 12%.

Please note that this calculation is based on the traffic study with 200 dwelling units.

The project responsibility with 158 dwelling units is equal to approximately 9.5%

The applicant agrees to be responsible for the fair share percentage of 12%.

OCEANPOINTE MULTI-FAMILY DEVELOPMENT
 South of SR-76 between El Camino Real and Rancho Del Oro
 City of Oceanside
 March 22, 2005

Traffic Impact Analysis

Prepared by:



LOS Engineering, Inc.
 6342 Ferris Square, San Diego, CA 92121
 Phone 619-890-1253, Fax 619-374-7247

In Cooperation With:



**INVESTIGATIVE SCIENCE
 AND ENGINEERING, INC.**
 16486 Bernardo Center Drive, #278
 San Diego, CA 92128
 Phone/Fax: (858) 451-3505 / (858) 451-0946
 www.ise.us

Job #420

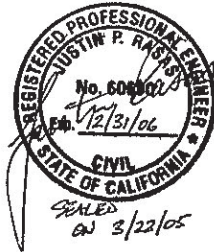
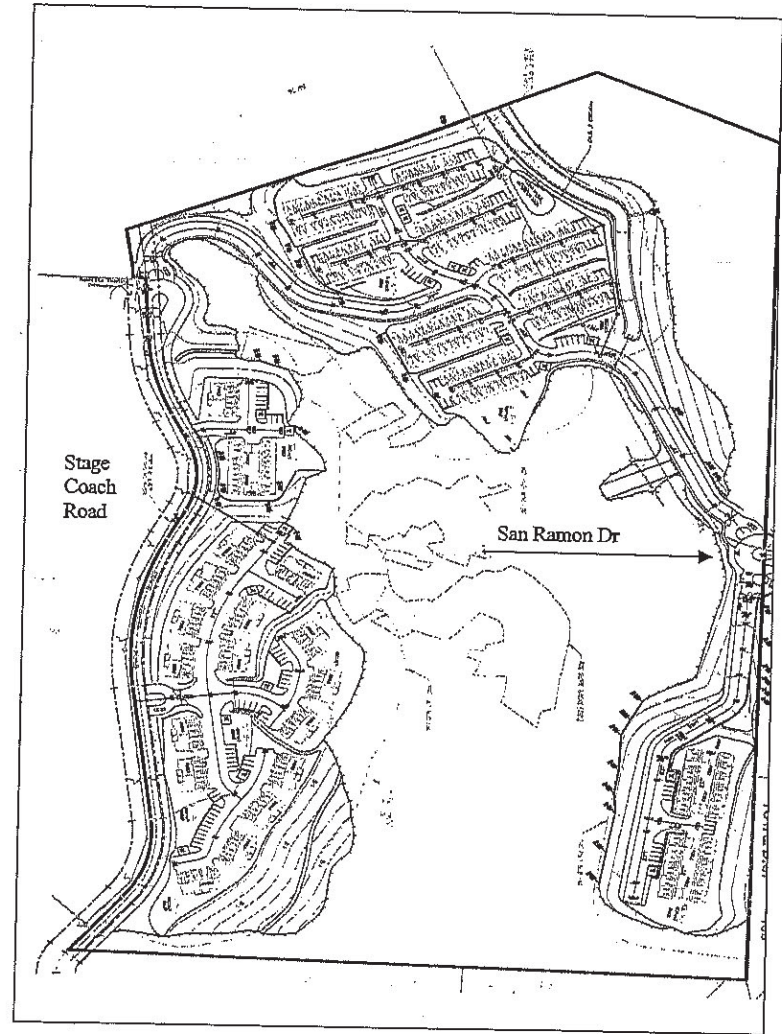


Figure 2: Site Plan



Handwritten marks at the bottom left corner.

4.0 Project Description

The Oceanpointe multi-family residential project will consist of a maximum of 200 dwelling units clustered in three groups on a vacant lot of approximately 36 acres.

4.1 Project Traffic Generation

The project traffic generation was calculated using SANDAG trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. Copies of SANDAG rates are included in Appendix D. Using SANDAG traffic generation rates, the project is calculated to generate 1,600 ADT, 128 AM peak hour trips (26 inbound and 102 outbound), and 160 PM peak hour trips (112 inbound and 48 outbound) as shown in Table 9.

TABLE 9: PROJECT TRAFFIC GENERATION

Proposed Land Use	Rate	Size & Units	ADT	%	Split	AM				PM			
						IN	OUT	%	Split	IN	OUT		
Multi-Family	8 Unit	200 DU	1600	8%	0.2	0.8	26	102	10%	0.7	0.3	112	48

Source: SANDAG Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.
DU - Dwelling Unit; ADT-Average Daily Traffic rounded to nearest 10 for total; Split-percent inbound and outbound.

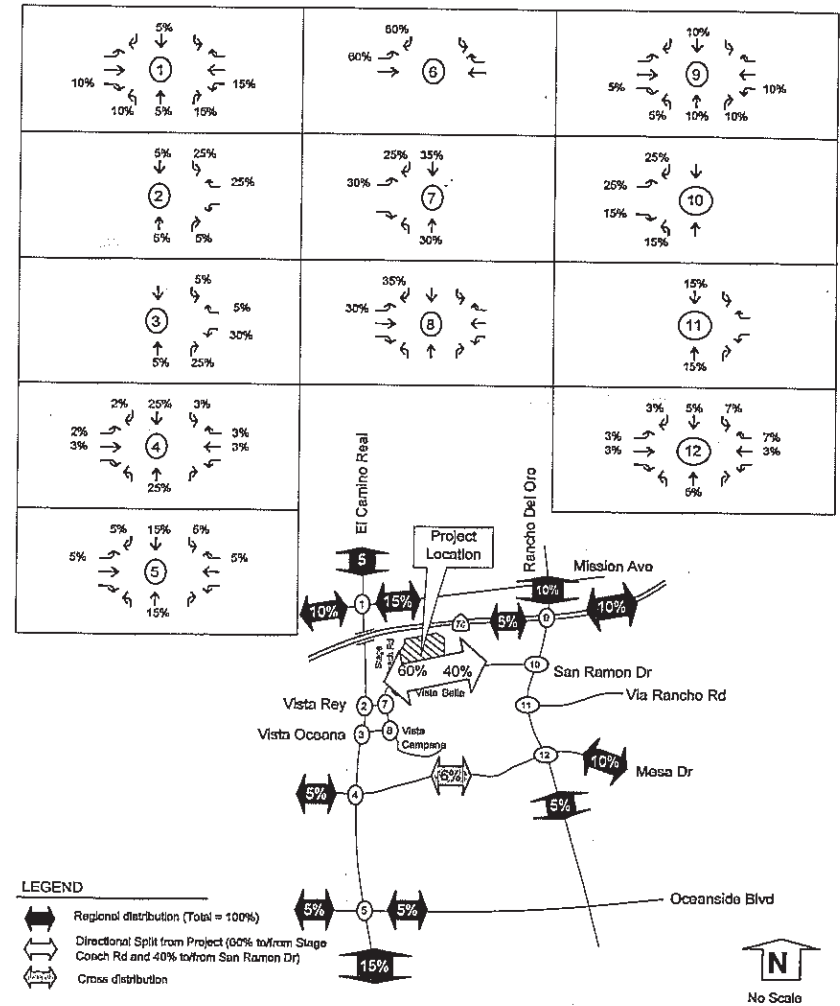
4.2 Project Access

Project access will be provided from Stage Coach Road west of the project site and San Ramon Drive east of the site. The project will provide a connection between Stage Coach Road and San Ramon Drive; however, the project will be a gated community with restricted access to its residents and guests thereby controlling cut-through traffic.

4.3 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based on expressway access and other attractions such as existing commercial centers. The distribution of project trips to Stage Coach Road and to San Ramon Drive was based on where the dwelling units were located and their access options. Sixty percent of the project trips were assigned to Stage Coach Road and fourth percent to San Ramon Drive due to their access options. The project distribution is shown in Figure 5 with assignment of the project volumes shown in Figure 6.

Figure 5: Project Distribution



APPENDIX H

BUS ROUTE SCHEDULES

303

Oceanside to Vista via Town Center North

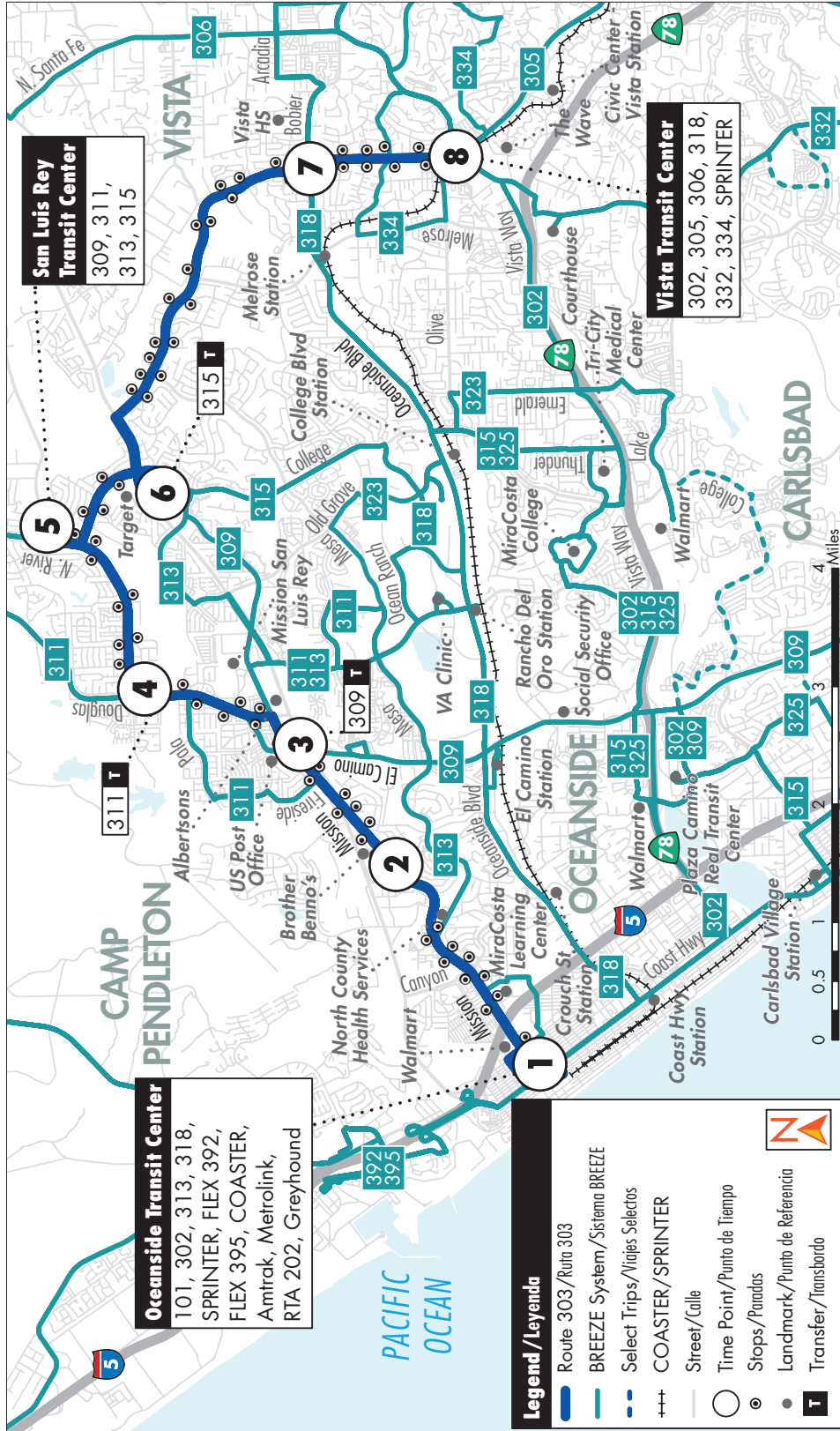
Oceanside a Vista via Town Center North

M-F • SA • SU
L-V • SÁ • DO

Destinations/Destinos

- North County Health Services
- MiraCosta College Learning Center
- Town Center North Shopping Center
- Vista High School

- Antique Gas & Steam Engine Museum
- Jefferson Middle School
- Oceanside High School
- Vista Community Clinic



303

Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Approx 15 min.
headway

Monday - Friday
Eastbound to Vista
de lunes a viernes • Dirección hacia el este a Vista

Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
4:05	4:12	4:16	4:21	4:28	4:34	4:43	4:51 ^a
4:35	4:42	4:46	4:51	4:58	5:04	5:13	5:21
5:01	5:09	5:13	5:18	5:26	5:33	5:44	5:52
5:15	5:23	5:27	5:32	5:40	5:47	5:58	6:06
5:31	5:39	5:43	5:48	5:56	6:03	6:14	6:22
5:43	5:52	5:56	6:01	6:09	6:16	6:27	6:36
5:56	6:05	6:09	6:14	6:22	6:31	6:42	6:51
6:09	6:18	6:22	6:28	6:36	6:45	6:57	7:06
6:24	6:33	6:37	6:43	6:51	7:00	7:12	7:21
6:31	6:40	6:46	6:52	7:01	7:10	7:25	7:36
6:46	6:55	7:01	7:07	7:16	7:25	7:40	7:51
7:01	7:12	7:18	7:24	7:33	7:42	7:57	8:08
7:14	7:25	7:31	7:37	7:46	7:55	8:10	8:21
7:34	7:45	7:51	7:57	8:06	8:15	8:28	8:36
7:49	8:00	8:06	8:12	8:21	8:30	8:43	8:51
8:04	8:15	8:21	8:27	8:36	8:45	8:57	9:05
8:20	8:31	8:37	8:43	8:52	9:01	9:13	9:21
8:34	8:45	8:51	8:57	9:06	9:15	9:27	9:35
8:50	9:01	9:07	9:13	9:22	9:31	9:43	9:51
9:04	9:15	9:21	9:27	9:36	9:45	9:57	10:05
9:20	9:31	9:37	9:43	9:52	10:01	10:13	10:21
9:34	9:45	9:51	9:57	10:06	10:15	10:27	10:35
9:50	10:01	10:07	10:13	10:22	10:31	10:43	10:51
10:04	10:15	10:21	10:27	10:36	10:46	10:58	11:06
10:19	10:30	10:36	10:42	10:51	11:01	11:13	11:21
10:34	10:45	10:51	10:57	11:06	11:16	11:28	11:36
10:49	11:00	11:06	11:12	11:21	11:31	11:43	11:51
11:03	11:15	11:21	11:27	11:36	11:46	11:58	12:06p
11:17	11:29	11:35	11:42	11:51	12:01	12:13	12:21
11:31	11:43	11:50	11:57	12:07	12:17	12:29	12:37
11:45	11:57	12:04	12:11	12:21	12:31	12:43	12:51
12:01	12:13	12:20	12:27	12:37	12:47	12:59	1:07
12:15	12:27	12:34	12:41	12:51	1:01	1:13	1:21
12:31	12:43	12:50	12:57	1:07	1:17	1:29	1:37
12:45	12:57	1:04	1:11	1:21	1:31	1:43	1:51
1:01	1:13	1:20	1:28	1:38	1:48	2:00	2:09
1:13	1:25	1:32	1:40	1:50	2:00	2:12	2:21

Approx 15 min.
headway



See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Monday - Friday Eastbound to Vista <i>Lunes a Viernes • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
1:30	1:42	1:49	1:57	2:07	2:17	2:29	2:38
1:39	1:52	1:59	2:07	2:17	2:27	2:40	2:51
1:51	2:04	2:11	2:19	2:29	2:40	2:55	3:06
*2:04	*2:18	*2:25	*2:34	*2:44	*2:55	*3:10	*3:21
2:12	2:26	2:33	2:42	2:52	3:03	3:18	3:29
2:19	2:33	2:40	2:49	2:59	3:10	3:25	3:36
2:33	2:47	2:54	3:03	3:13	3:25	3:40	3:51
2:40	2:54	3:01	3:10	3:20	3:33	3:48	3:59
2:47	3:01	3:08	3:17	3:27	3:40	3:55	4:06
3:02	3:16	3:23	3:32	3:42	3:55	4:10	4:21
3:17	3:31	3:38	3:47	3:57	4:10	4:25	4:36
3:31	3:46	3:53	4:02	4:12	4:25	4:40	4:51
3:46	4:01	4:08	4:17	4:27	4:40	4:55	5:06
4:05	4:18	4:25	4:34	4:44	4:57	5:11	5:20
4:21	4:34	4:41	4:50	5:00	5:13	5:27	5:36
4:35	4:48	4:55	5:04	5:14	5:27	5:41	5:50
4:51	5:04	5:11	5:20	5:30	5:43	5:57	6:06
5:08	5:21	5:28	5:37	5:47	5:59	6:12	6:21
5:23	5:36	5:43	5:52	6:02	6:14	6:27	6:36
5:41	5:54	6:01	6:10	6:20	6:31	6:42	6:51
6:14	6:27	6:34	6:41	6:51	7:02	7:13	7:21
6:47	6:59	7:06	7:13	7:22	7:32	7:43	7:51
7:20	7:31	7:37	7:44	7:53	8:02	8:13	8:21
7:52	8:03	8:09	8:15	8:24	8:33	8:44	8:51
8:25	8:36	8:42	8:48	8:56	9:03	–	–
9:01	9:11	9:16	9:22	9:29	9:36	9:46	9:52
9:31	9:41	9:46	9:51	9:58	10:05	–	–
10:02	10:12	10:17	10:22	10:29	10:36	10:45	10:51
10:39	10:47	10:50	10:55	11:01	11:07	11:15	11:21
11:09	11:17	11:20	11:25	11:31	11:37	11:45	11:51
11:39	11:47	11:50	11:55	12:01	12:07 ^a	–	–

* Operates Wednesdays only.
Opera solamente los Miércoles.

Please note, BREEZE "school tripper" bus service only runs while Oceanside High School is in session for in-person learning and are subject to change based on bell times. NCTD will update trip planning applications and GoNCTD.com when this service returns.

Tenga en cuenta que el servicio de autobús "school tripper" de BREEZE solo funciona mientras Oceanside High School se encuentre abierta para clases presenciales y está sujeto a cambios en función de los horarios de entrada y salida. El NCTD actualizará las aplicaciones de planificación de viaje y GoNCTD.com cuando el servicio se reanude.

303

Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Approx 15 min.
headway

Monday - Friday Westbound to Oceanside Viernes • Dirección hacia el oeste a Oceanside

Vista Transit Center	N. Santa Fe & Bobier Dr.	Town Center North	San Luis Rey Transit Center	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Mission Ave. & Airport Rd.	Oceanside Transit Center
8	7	6	5	4	3	2	1
-	-	4:05	4:13	4:21	4:26	4:33	4:44 ^a
5:05	5:10	5:21	5:29	5:37	5:42	5:49	5:59
5:36	5:41	5:52	6:00	6:08	6:15	6:22	6:32
5:51	5:56	6:07	6:15	6:23	6:30	6:37	6:47
-	-	6:14	6:23	6:31	6:38	6:45	6:58
6:06	6:12	6:24	6:33	6:41	6:48	6:55	7:07
-	-	6:36	6:45	6:53	7:00	7:08	7:23
6:24	6:30	6:42	6:51	6:59	7:06	7:13	7:25
6:36	6:42	6:55	7:04	7:12	7:19	7:27	7:41
6:51	6:57	7:10	7:19	7:27	7:34	7:42	7:56
7:06	7:13	7:30	7:39	7:47	7:54	8:02	8:16
7:20	7:27	7:44	7:53	8:01	8:08	8:16	8:30
7:36	7:43	8:00	8:09	8:17	8:24	8:32	8:46
7:50	7:57	8:14	8:23	8:31	8:38	8:46	9:00
8:06	8:12	8:25	8:33	8:41	8:48	8:56	9:09
8:24	8:30	8:43	8:50	8:58	9:05	9:12	9:25
8:36	8:42	8:55	9:02	9:10	9:16	9:23	9:36
8:51	8:57	9:10	9:17	9:25	9:31	9:38	9:51
9:06	9:12	9:25	9:32	9:40	9:46	9:53	10:06
9:21	9:27	9:40	9:47	9:55	10:01	10:08	10:21
9:36	9:42	9:55	10:02	10:10	10:16	10:23	10:36
9:51	9:57	10:10	10:17	10:25	10:31	10:38	10:51
10:06	10:12	10:25	10:34	10:42	10:48	10:55	11:08
10:23	10:29	10:42	10:51	10:59	11:05	11:12	11:25
10:36	10:42	10:55	11:04	11:12	11:18	11:25	11:38
10:52	10:58	11:11	11:20	11:28	11:34	11:41	11:54
11:06	11:12	11:25	11:34	11:42	11:48	11:55	12:09 ^p
11:22	11:28	11:41	11:50	11:58	12:04	12:11	12:25
11:36	11:42	11:55	12:04	12:12	12:18	12:25	12:39
11:52	11:58	12:11	12:20	12:28	12:34	12:41	12:55
12:06	12:12	12:25	12:34	12:43	12:49	12:56	1:10

Approx 15 min.
headway



Trip only operates when Oceanside High School is open for in-person learning and is subject to change based on bell times. NCTD will update trip planning applications and GoNCTD.com when this service returns.

El servicio solo funciona mientras Oceanside High School se encuentre abierta para clases presenciales y está sujeto a cambios en función de los horarios de entrada y salida. El NCTD actualizará las aplicaciones de planificación de viaje y GoNCTD.com cuando el servicio se reanude.

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Monday - Friday Westbound to Oceanside <i>Lunes a Viernes • Dirección hacia el oeste a Oceanside</i>							
Vista Transit Center	N. Santa Fe & Bobier Dr.	Town Center North	San Luis Rey Transit Center	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Mission Ave. & Airport Rd.	Oceanside Transit Center
8	7	6	5	4	3	2	1
12:21	12:27	12:40	12:49	12:58	1:04	1:11	1:25
12:36	12:42	12:55	1:04	1:13	1:19	1:26	1:40
12:51	12:57	1:10	1:19	1:28	1:34	1:41	1:55
1:06	1:13	1:26	1:35	1:44	1:51	1:58	2:10
1:21	1:28	1:41	1:50	1:59	2:06	2:13	2:25
1:36	1:43	1:56	2:05	2:14	2:21	2:28	2:40
1:51	1:58	2:11	2:20	2:29	2:36	2:43	2:55
2:06	2:13	2:27	2:36	2:45	2:52	2:59	3:12
2:20	2:27	2:42	2:52	3:01	3:08	3:15	3:28
2:36	2:45	3:03	3:13	3:22	3:30	3:38	3:51
2:51	2:59	3:17	3:27	3:36	3:43	3:51	4:04
3:06	3:14	3:32	3:42	3:51	3:58	4:06	4:19
3:21	3:29	3:47	3:57	4:06	4:13	4:21	4:34
3:36	3:44	4:02	4:12	4:21	4:28	4:35	4:48
3:51	3:59	4:17	4:27	4:36	4:43	4:50	5:03
4:06	4:14	4:32	4:42	4:51	4:58	5:05	5:18
4:21	4:29	4:47	4:57	5:06	5:13	5:19	5:32
4:36	4:44	5:02	5:12	5:21	5:28	5:34	5:47
4:51	4:59	5:17	5:27	5:36	5:43	5:49	6:02
5:06	5:14	5:32	5:42	5:51	5:57	6:03	6:15
5:20	5:28	5:46	5:56	6:05	6:11	6:17	6:29
5:36	5:44	6:01	6:11	6:20	6:26	6:32	6:43
5:51	5:59	6:16	6:26	6:35	6:41	6:47	6:58
6:06	6:13	6:28	6:36	6:44	6:50	6:56	7:08
6:36	6:43	6:57	7:05	7:13	7:19	7:25	7:37
7:06	7:13	7:27	7:34	7:42	7:47	7:53	8:05
7:36	7:43	7:57	8:04	8:12	8:17	8:23	8:35
8:05	8:12	8:24	8:31	8:39	8:44	8:49	8:59
8:35	8:42	8:54	9:01	9:09	9:14	9:19	9:29
9:06	9:12	9:24	9:31	9:37	9:42	9:47	9:57
10:08	10:13	10:24	10:30	10:36	10:41	10:46	10:55

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Saturday & Sunday Eastbound to Vista <i>Sábado y Domingo • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
4:33	4:40	4:44	4:47	4:53	4:59	–	–
5:07	5:15	5:19	5:22	5:28	5:34	5:44	5:51a
6:03	6:12	6:16	6:21	6:27	6:34	6:44	6:51
6:31	6:40	6:44	6:49	6:57	7:04	7:14	7:21
6:58	7:07	7:11	7:17	7:25	7:32	7:43	7:51
7:25	7:35	7:39	7:46	7:54	8:02	8:13	8:21
7:55	8:05	8:09	8:16	8:24	8:32	8:43	8:51
8:15	8:25	8:29	8:36	8:44	8:52	9:03	9:11
8:32	8:43	8:49	8:56	9:04	9:12	9:23	9:31
8:52	9:03	9:09	9:16	9:24	9:32	9:43	9:51
9:11	9:22	9:28	9:35	9:43	9:52	10:03	10:11
9:31	9:42	9:48	9:55	10:03	10:12	10:23	10:31
9:51	10:02	10:08	10:15	10:23	10:32	10:43	10:51
10:02	10:13	10:20	10:28	10:37	10:47	10:58	11:06
10:17	10:28	10:35	10:43	10:52	11:02	11:13	11:21
10:45	10:56	11:04	11:12	11:21	11:31	11:42	11:51
11:03	11:14	11:22	11:30	11:41	11:52	12:03	12:12p
11:12	11:23	11:31	11:39	11:50	12:01	12:12	12:21
11:39	11:50	11:58	12:06	12:17	12:28	12:39	12:48
11:57	12:08	12:16	12:24	12:35	12:46	12:57	1:06
12:12	12:23	12:31	12:39	12:50	1:01	1:12	1:21
12:39	12:51	1:00	1:08	1:19	1:30	1:42	1:51
12:54	1:06	1:15	1:23	1:34	1:45	1:57	2:06
1:09	1:21	1:30	1:38	1:49	2:00	2:12	2:21
1:39	1:51	2:00	2:08	2:19	2:30	2:42	2:51
1:54	2:06	2:15	2:23	2:34	2:45	2:57	3:06
2:10	2:22	2:30	2:38	2:49	3:00	3:12	3:21
2:40	2:52	3:00	3:08	3:19	3:30	3:42	3:51
2:55	3:07	3:15	3:23	3:34	3:45	3:57	4:06
3:11	3:23	3:31	3:39	3:50	4:01	4:13	4:22
3:40	3:52	4:00	4:08	4:19	4:30	4:42	4:51
4:12	4:24	4:32	4:40	4:51	5:01	5:12	5:21
4:43	4:55	5:02	5:10	5:21	5:31	5:42	5:51
5:14	5:26	5:33	5:41	5:52	6:02	6:13	6:21
5:44	5:56	6:03	6:11	6:22	6:32	6:43	6:51
6:15	6:27	6:34	6:41	6:52	7:02	7:13	7:21
6:46	6:58	7:04	7:11	7:22	7:32	7:43	7:51

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Saturday & Sunday Eastbound to Vista <i>Sábado y Domingo • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
7:19	7:30	7:35	7:42	7:53	8:02	–	–
7:50	8:01	8:06	8:13	8:24	8:33	8:44	8:51
8:25	8:36	8:41	8:48	8:56	9:04	–	–
8:58	9:08	9:13	9:19	9:26	9:34	9:44	9:51
9:31	9:40	9:45	9:50	9:57	10:04	–	–
10:01	10:10	10:15	10:20	10:27	10:34	10:44	10:51
10:33	10:41	10:45	10:50	10:57	11:03	–	–
11:01	11:08	11:12	11:17	11:24	11:30	–	–
11:31	11:38	11:42	11:47	11:54	12:00 _a	–	–

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Saturday & Sunday Westbound to Oceanside <i>Sábado y Domingo • Dirección hacia el oeste a Oceanside</i>							
Vista Transit Center	N. Santa Fe & Bobier Dr.	Town Center North	San Luis Rey Transit Center	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Mission Ave. & Airport Rd.	Oceanside Transit Center
8	7	6	5	4	3	2	1
6:06	6:11	6:22	6:30	6:38	6:43	6:50	7:00 _a
6:33	6:38	6:50	6:58	7:06	7:11	7:18	7:28
7:06	7:12	7:24	7:32	7:40	7:45	7:52	8:04
7:36	7:42	7:54	8:02	8:10	8:15	8:22	8:34
8:06	8:12	8:24	8:32	8:40	8:46	8:53	9:05
8:26	8:32	8:44	8:52	9:00	9:06	9:13	9:25
8:46	8:52	9:04	9:12	9:20	9:26	9:33	9:45
9:06	9:12	9:25	9:33	9:41	9:48	9:55	10:08
9:26	9:32	9:45	9:53	10:01	10:08	10:15	10:28
9:46	9:52	10:05	10:13	10:21	10:28	10:35	10:48
10:06	10:12	10:26	10:34	10:43	10:51	10:58	11:11
10:21	10:27	10:41	10:49	10:58	11:06	11:13	11:26
10:36	10:42	10:56	11:04	11:13	11:21	11:28	11:41
11:06	11:12	11:26	11:34	11:43	11:51	11:58	12:11p
11:21	11:27	11:41	11:49	11:58	12:06	12:13	12:26
11:36	11:42	11:56	12:04	12:13	12:21	12:28	12:41
12:06	12:12	12:27	12:35	12:44	12:52	12:59	1:12
12:21	12:27	12:42	12:50	12:59	1:07	1:14	1:27
12:36	12:42	12:57	1:05	1:14	1:22	1:29	1:42
1:06	1:12	1:27	1:35	1:43	1:51	1:58	2:11
1:21	1:27	1:42	1:50	1:58	2:06	2:13	2:26
1:36	1:42	1:57	2:05	2:13	2:21	2:28	2:41
2:06	2:12	2:27	2:35	2:43	2:51	2:58	3:11
2:20	2:26	2:41	2:49	2:57	3:05	3:12	3:25
2:36	2:42	2:57	3:05	3:13	3:21	3:28	3:41
3:06	3:12	3:27	3:35	3:43	3:51	3:58	4:11
3:20	3:26	3:41	3:49	3:57	4:05	4:12	4:25
3:36	3:42	3:57	4:05	4:13	4:21	4:28	4:41
4:06	4:12	4:27	4:35	4:43	4:51	4:58	5:11
4:36	4:42	4:57	5:05	5:13	5:21	5:28	5:41
5:06	5:13	5:28	5:36	5:44	5:51	5:58	6:11
5:36	5:43	5:58	6:06	6:14	6:21	6:28	6:41
6:08	6:14	6:29	6:37	6:45	6:51	6:58	7:10
6:36	6:42	6:55	7:03	7:11	7:17	7:24	7:36
7:06	7:12	7:25	7:33	7:41	7:47	7:53	8:05
8:06	8:12	8:25	8:33	8:41	8:47	8:53	9:05
9:06	9:12	9:23	9:31	9:38	9:43	9:48	9:59
10:06	10:11	10:22	10:30	10:36	10:41	10:46	10:55

309

Oceanside to Encinitas via El Camino Real

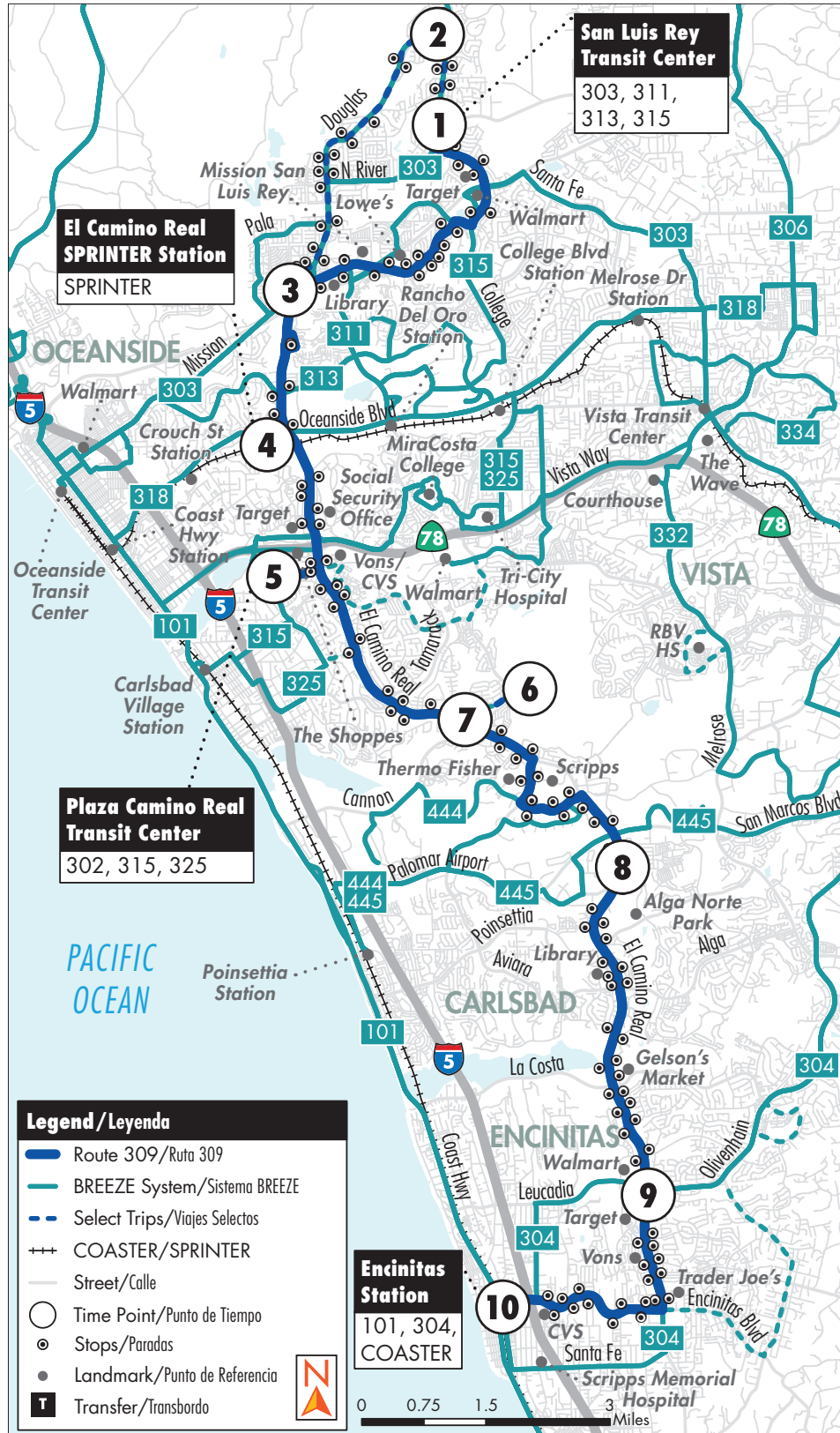
Oceanside a Encinitas via El Camino Real

M-F • SA • SU
L-V • SÁ • DO

Destinations / Destinos

- Encinitas City Hall
- Plaza Camino Real
- El Camino Real SPRINTER Station
- The Shoppes at Carlsbad
- Encinitas Ranch Town Center (Target)

- Sage Creek High School
- San Diego Botanic Gardens
- La Costa Resort & Spa
- Social Security Administration
- McClellan Palomar Airport



309

Oceanside to Encinitas via El Camino Real

Oceanside a Encinitas vía El Camino Real

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Approx 30 min.
headway

Monday - Friday Southbound to Encinitas Lunes a Viernes • Dirección hacia el sur a Encinitas

San Luis Rey Transit Center	Douglas Dr. & Vandegrift Bl.	Mission Ave. & El Camino Real	El Camino Real Station	Plaza Camino Real	College Bl. & Cannon Rd.	El Camino Real & Cannon Rd.	El Camino Real & Gateway Rd.	El Camino Real & Leucadia Bl.	Encinitas Station
1	2	3	4	5	6	7	8	9	10
4:05	-	4:16	4:23	4:32	-	4:41	4:50	5:00	5:14a
4:39	-	4:50	4:58	5:07	-	5:16	5:26	5:36	5:50
5:08	-	5:19	5:28	5:37	-	5:46	5:56	6:06	6:20
5:37	-	5:49	5:58	6:07	-	6:16	6:26	6:37	6:54
6:06	-	6:19	6:28	6:37	-	6:48	6:59	7:12	7:32
6:36	-	6:49	6:58	7:07	-	7:18	7:31	7:45	8:07
7:04	-	7:19	7:28	7:39	-	7:50	8:03	8:18	8:40
7:34	-	7:49	7:58	8:09	-	8:20	8:33	8:48	9:10
8:07	-	8:22	8:31	8:42	-	8:53	9:04	9:19	9:39
8:36	-	8:51	9:00	9:11	-	9:22	9:33	9:47	10:07
9:01	9:05	9:15	9:28	9:40	-	9:51	10:00	10:14	10:34
9:34	-	9:49	9:58	10:10	-	10:21	10:30	10:44	11:04
10:05	-	10:20	10:29	10:41	-	10:52	11:01	11:15	11:35
10:34	-	10:49	10:58	11:11	-	11:22	11:31	11:45	12:05p
11:01	11:05	11:15	11:28	11:41	-	11:52	12:01	12:16	12:37
11:33	-	11:49	11:59	12:12	-	12:24	12:33	12:48	1:09
12:03	-	12:19	12:29	12:42	-	12:54	1:03	1:18	1:39
-	-	-	-	-	12:55	-	1:03	1:17	1:35
12:33	-	12:49	12:59	1:12	-	1:24	1:33	1:48	2:09
1:03	-	1:19	1:29	1:42	-	1:54	2:03	2:18	2:39
1:31	1:35	1:45	1:58	2:11	-	2:23	2:32	2:47	3:08
2:02	-	2:18	2:28	2:41	-	2:53	3:02	3:17	3:38
2:32	-	2:48	2:58	3:12	-	3:24	3:33	3:48	4:09
3:02	-	3:18	3:28	3:42	-	3:54	4:03	4:18	4:39
3:34	-	3:50	4:01	4:14	-	4:26	4:35	4:50	5:11
4:03	-	4:19	4:30	4:43	-	4:55	5:04	5:19	5:40
4:31	-	4:47	4:58	5:11	-	5:23	5:32	5:47	6:08
5:02	-	5:18	5:28	5:40	-	5:52	6:01	6:14	6:31
5:33	-	5:49	5:58	6:09	-	6:21	6:30	6:43	7:00
6:36	-	6:50	6:59	7:10	-	7:22	7:30	7:43	8:00
7:35	-	7:49	7:58	8:09	-	8:19	8:27	8:38	8:54
8:37	-	8:50	8:59	9:09	-	9:19	9:27	9:37	9:52

Approx 30 min.
headway

Trip only operates when Sage Creek High School is open for in-person learning and is subject to change based on bell times. NCTD will update trip planning applications and GoNCTD.com when this service returns.

El servicio solo funciona mientras Sage Creek High School se encuentre abierta para clases presenciales y está sujeto a cambios en función de los horarios de entrada y salida. El NCTD actualizará las aplicaciones de planificación de viaje y GoNCTD.com cuando el servicio se reanude.

309

Oceanside to Encinitas via El Camino Real

Oceanside a Encinitas vía El Camino Real

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Approx 30 min.
headway

Monday - Friday Northbound to Oceanside

Horarios • Dirección hacia el norte a Oceanside

Encinitas Station	El Camino Real & Leucadia Bl.	El Camino Real & Gateway Rd.	El Camino Real & Cannon Rd.	College Bl. & Cannon Rd.	Plaza Camino Real	El Camino Real Station	Mission Ave. & El Camino Real	Douglas Dr. & Vandegriff Bl.	San Luis Rey Transit Center
10	9	8	7	6	5	4	3	2	1
5:45	5:56	6:06	6:15	–	6:25	6:36	6:47	–	7:03a
6:10	6:22	6:32	6:45	–	6:55	7:06	7:17	–	7:33
6:35	6:48	7:00	7:13	–	7:25	7:36	7:47	–	8:03
–	7:16	7:28	–	7:43	–	–	–	–	–
7:07	7:20	7:32	7:44	–	7:56	8:07	8:18	–	8:34
7:32	7:47	8:00	8:11	–	8:23	8:36	8:47	–	9:03
8:02	8:17	8:30	8:41	–	8:53	9:06	9:17	–	9:33
8:34	8:49	9:01	9:12	–	9:23	9:36	9:49	9:59	10:05
9:04	9:19	9:31	9:42	–	9:53	10:06	10:17	–	10:34
9:34	9:49	10:01	10:12	–	10:23	10:36	10:47	–	11:04
10:03	10:19	10:31	10:42	–	10:53	11:06	11:17	–	11:36
10:32	10:48	11:00	11:11	–	11:22	11:36	11:47	–	12:06p
11:02	11:18	11:30	11:41	–	11:52	12:06	12:19	12:29	12:35
11:30	11:46	11:58	12:10	–	12:22	12:36	12:47	–	1:06
12:00	12:16	12:28	12:40	–	12:52	1:06	1:17	–	1:36
12:30	12:46	12:58	1:10	–	1:22	1:36	1:47	–	2:08
12:57	1:13	1:25	1:38	–	1:50	2:06	2:17	–	2:38
1:25	1:42	1:55	2:08	–	2:20	2:36	2:48	–	3:09
1:52	2:09	2:22	2:36	–	2:48	3:04	3:17	–	3:38
2:18	2:36	2:51	3:05	–	3:20	3:36	3:49	–	4:10
2:48	3:06	3:21	3:36	–	3:51	4:07	4:22	–	4:43
3:17	3:36	3:51	4:06	–	4:21	4:37	4:52	–	5:13
3:46	4:05	4:20	4:35	–	4:50	5:06	5:21	–	5:42
4:17	4:35	4:50	5:07	–	5:20	5:36	5:51	–	6:11
4:47	5:05	5:20	5:37	–	5:50	6:06	6:21	–	6:41
5:18	5:37	5:51	6:06	–	6:19	6:35	6:47	–	7:06
5:50	6:07	6:21	6:35	–	6:48	7:04	7:16	–	7:35
6:23	6:39	6:52	7:05	–	7:18	7:34	7:45	–	8:03
7:37	7:51	8:03	8:13	–	8:23	8:36	8:47	–	9:04
8:39	8:51	9:02	9:11	–	9:21	9:34	9:45	–	10:01
9:43	9:55	10:06	10:15	–	10:25	10:36	10:47	–	11:02

Approx 30 min.
headway



Please note, BREEZE "school tripper" bus service only runs while Sage Creek High School is in session for in-person learning and are subject to change based on bell times. NCTD will update trip planning applications and GoNCTD.com when this service returns.

Tenga en cuenta que el servicio de autobús "school tripper" de BREEZE solo funciona mientras Sage Creek High School se encuentre abierta para clases presenciales y está sujeto a cambios en función de los horarios de entrada y salida. El NCTD actualizará las aplicaciones de planificación de viaje y GoNCTD.com cuando el servicio se reanude.

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Saturday Southbound to Encinitas <i>Sábado • Dirección hacia el sur a Encinitas</i>							
San Luis Rey Transit Center	Mission Ave. & El Camino Real	El Camino Real Station	Plaza Camino Real	El Camino Real & Cannon Rd.	El Camino Real & Gateway Rd.	El Camino Real & Leucadia Bl.	Encinitas Station
1	3	4	5	7	8	9	10
5:05	5:18	5:28	5:45	5:56	6:04	6:16	6:31 ^a
6:05	6:18	6:28	6:45	6:56	7:05	7:17	7:35
7:04	7:18	7:28	7:45	7:56	8:05	8:17	8:35
8:03	8:18	8:28	8:45	8:56	9:05	9:17	9:35
9:03	9:18	9:28	9:45	9:56	10:05	10:17	10:35
9:33	9:48	9:58	10:15	10:26	10:35	10:47	11:05
10:03	10:18	10:28	10:45	10:56	11:05	11:17	11:36
10:32	10:48	10:58	11:15	11:26	11:35	11:47	12:06p
11:02	11:18	11:28	11:45	11:56	12:05	12:17	12:36
11:32	11:48	11:58	12:15	12:26	12:35	12:47	1:06
12:02	12:18	12:28	12:45	12:56	1:05	1:17	1:36
12:29	12:46	12:56	1:13	1:24	1:33	1:45	2:04
1:01	1:18	1:28	1:45	1:56	2:05	2:17	2:36
1:31	1:48	1:58	2:15	2:26	2:35	2:47	3:06
2:03	2:19	2:29	2:46	2:57	3:06	3:18	3:37
2:32	2:48	2:58	3:15	3:25	3:34	3:46	4:05
3:03	3:19	3:29	3:46	3:56	4:05	4:17	4:35
3:32	3:48	3:58	4:15	4:25	4:34	4:46	5:04
4:01	4:17	4:28	4:45	4:55	5:04	5:16	5:34
4:31	4:47	4:58	5:15	5:25	5:34	5:46	6:03
5:02	5:17	5:28	5:45	5:55	6:04	6:16	6:31
5:32	5:47	5:58	6:15	6:25	6:34	6:46	7:01
6:02	6:17	6:28	6:45	6:55	7:04	7:16	7:30
7:03	7:17	7:28	7:45	7:55	8:04	8:16	8:30
8:04	8:17	8:28	8:45	8:55	9:02	9:13	9:27
9:06	9:17	9:28	9:45	9:54	10:01	10:11	10:23
10:07	10:18	10:28	10:45	10:54	11:01	11:11	11:23

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Saturday Northbound to Oceanside <i>Sábado • Dirección hacia el norte a Oceanside</i>							
Encinitas Station	El Camino Real & Leucadia Bl.	El Camino Real & Gateway Rd.	El Camino Real & Cannon Rd.	Plaza Camino Real	El Camino Real Station	Mission Ave. & El Camino Real	San Luis Rey Transit Center
10	9	8	7	5	4	3	1
5:15	5:26	5:35	5:44	5:55	6:06	6:17	6:30 ^a
6:15	6:26	6:35	6:44	6:55	7:06	7:17	7:30
7:13	7:25	7:35	7:44	7:55	8:06	8:17	8:32
8:10	8:23	8:34	8:43	8:54	9:06	9:19	9:34
8:39	8:53	9:04	9:13	9:24	9:36	9:49	10:04
9:08	9:22	9:33	9:43	9:54	10:06	10:19	10:34
9:37	9:52	10:03	10:13	10:24	10:36	10:49	11:04
10:07	10:22	10:33	10:43	10:54	11:06	11:19	11:34
10:36	10:52	11:03	11:13	11:24	11:36	11:49	12:06p
11:06	11:22	11:33	11:43	11:54	12:06	12:19	12:36
11:37	11:53	12:03	12:13	12:24	12:36	12:49	1:06
12:07	12:23	12:33	12:43	12:54	1:06	1:19	1:36
12:37	12:53	1:03	1:13	1:24	1:36	1:49	2:06
1:06	1:22	1:32	1:42	1:54	2:06	2:19	2:36
1:35	1:51	2:01	2:11	2:24	2:36	2:49	3:06
2:03	2:19	2:29	2:39	2:52	3:06	3:19	3:36
2:32	2:48	2:59	3:09	3:22	3:36	3:49	4:06
3:01	3:17	3:28	3:38	3:51	4:05	4:18	4:35
3:32	3:48	3:59	4:09	4:22	4:36	4:49	5:06
4:02	4:18	4:29	4:39	4:52	5:06	5:19	5:36
4:32	4:48	4:59	5:09	5:22	5:36	5:49	6:06
5:04	5:20	5:31	5:41	5:52	6:06	6:19	6:36
5:34	5:50	6:01	6:11	6:22	6:36	6:49	7:06
6:05	6:20	6:31	6:41	6:52	7:06	7:19	7:35
7:07	7:21	7:32	7:41	7:52	8:06	8:18	8:32
8:10	8:24	8:34	8:43	8:54	9:06	9:18	9:32
9:12	9:24	9:34	9:43	9:54	10:06	10:17	10:31

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Sunday Southbound to Encinitas <i>Domingo • Dirección hacia el sur a Encinitas</i>							
San Luis Rey Transit Center	Mission Ave. & El Camino Real	El Camino Real Station	Plaza Camino Real	El Camino Real & Cannon Rd.	El Camino Real & Gateway Rd.	El Camino Real & Leucadia Bl.	Encinitas Station
1	3	4	5	7	8	9	10
5:05	5:18	5:28	5:45	5:56	6:04	6:16	6:31 ^a
6:05	6:18	6:28	6:45	6:56	7:05	7:17	7:35
7:04	7:18	7:28	7:45	7:56	8:05	8:17	8:35
8:03	8:18	8:28	8:45	8:56	9:05	9:17	9:35
9:03	9:18	9:28	9:45	9:56	10:05	10:17	10:35
10:03	10:18	10:28	10:45	10:56	11:05	11:17	11:36
11:02	11:18	11:28	11:45	11:56	12:05	12:17	12:36p
12:02	12:18	12:28	12:45	12:56	1:05	1:17	1:36
1:01	1:18	1:28	1:45	1:56	2:05	2:17	2:36
2:03	2:19	2:29	2:46	2:57	3:06	3:18	3:37
3:03	3:19	3:29	3:46	3:56	4:05	4:17	4:35
4:01	4:17	4:28	4:45	4:55	5:04	5:16	5:34
5:02	5:17	5:28	5:45	5:55	6:04	6:16	6:31
6:02	6:17	6:28	6:45	6:55	7:04	7:16	7:30
7:03	7:17	7:28	7:45	7:55	8:04	8:16	8:30
8:04	8:17	8:28	8:45	8:55	9:02	9:13	9:27
9:06	9:17	9:28	9:45	9:54	10:01	10:11	10:23

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Sunday Northbound to Oceanside <i>Domingo • Dirección hacia el norte a Oceanside</i>							
Encinitas Station	El Camino Real & Leucadia Bl.	El Camino Real & Gateway Rd.	El Camino Real & Cannon Rd.	Plaza Camino Real	El Camino Real Station	Mission Ave. & El Camino Real	San Luis Rey Transit Center
10	9	8	7	5	4	3	1
5:15	5:26	5:35	5:44	5:55	6:06	6:17	6:30 ^a
6:15	6:26	6:35	6:44	6:55	7:06	7:17	7:30
7:13	7:25	7:35	7:44	7:55	8:06	8:17	8:32
8:10	8:23	8:34	8:43	8:54	9:06	9:19	9:34
9:08	9:22	9:33	9:43	9:54	10:06	10:19	10:34
10:07	10:22	10:33	10:43	10:54	11:06	11:19	11:34
11:06	11:22	11:33	11:43	11:54	12:06	12:19	12:36p
12:07	12:23	12:33	12:43	12:54	1:06	1:19	1:36
1:06	1:22	1:32	1:42	1:54	2:06	2:19	2:36
2:03	2:19	2:29	2:39	2:52	3:06	3:19	3:36
3:01	3:17	3:28	3:38	3:51	4:05	4:18	4:35
4:02	4:18	4:29	4:39	4:52	5:06	5:19	5:36
5:04	5:20	5:31	5:41	5:52	6:06	6:19	6:36
6:05	6:20	6:31	6:41	6:52	7:06	7:19	7:35
7:07	7:21	7:32	7:41	7:52	8:06	8:18	8:32
8:10	8:24	8:34	8:43	8:54	9:06	9:18	9:32
9:12	9:24	9:34	9:43	9:54	10:06	10:17	10:31

311

San Luis Rey Transit Center to Rancho Del Oro SPRINTER Station via Douglas Dr.

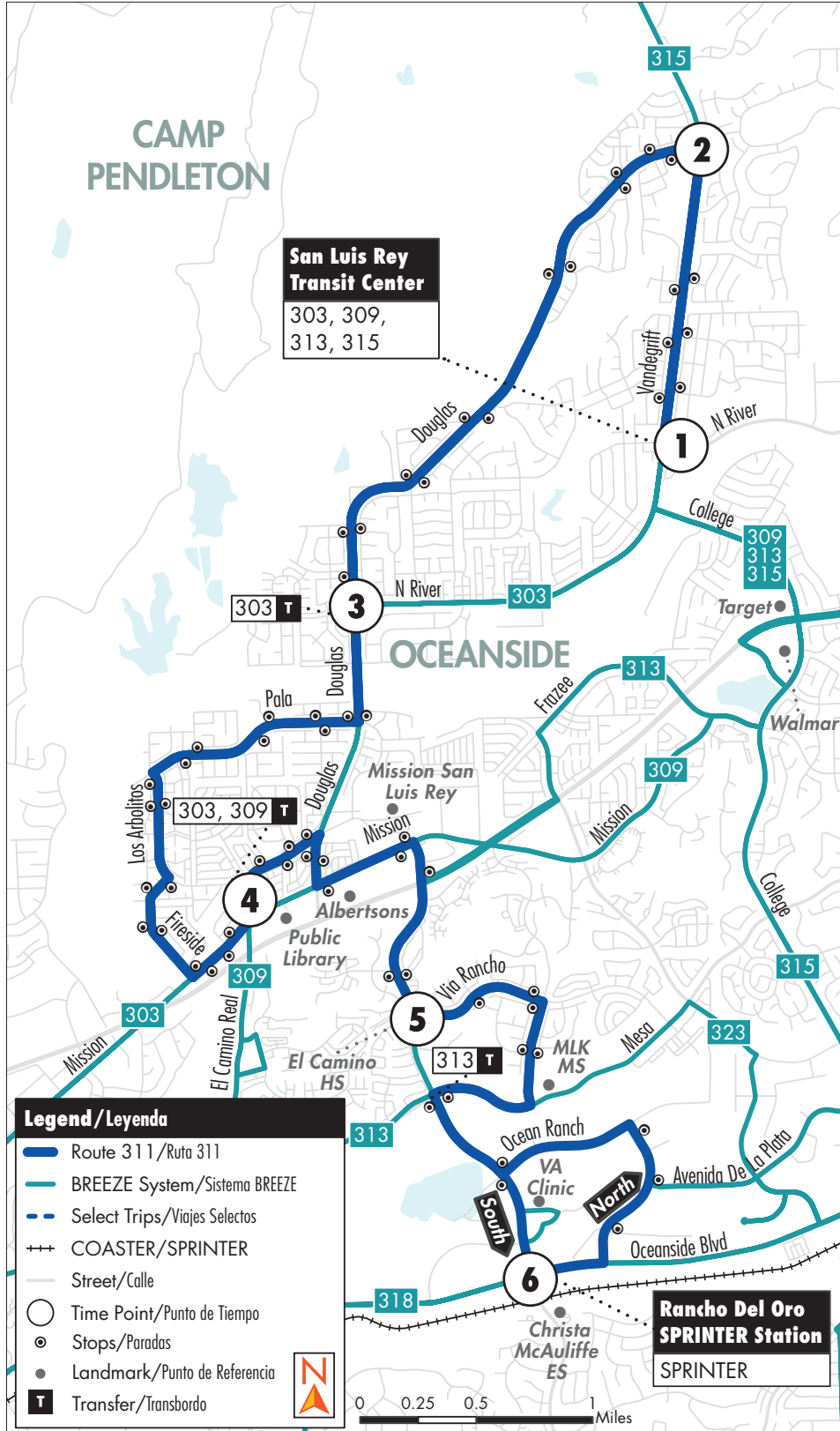
Carlsbad Village Station a 14 Area/College Blvd. Estación de SPRINTER

M-F
L-V

Destinations / Destinos

- El Camino High School
- Martin Luther King Jr. Middle School
- Ocean Ranch Corporate Centre

- Vista Community Clinic
- Mission San Luis Rey



311

San Luis Rey Transit Center to Rancho Del Oro SPRINTER Station via Douglas Dr.

Carlsbad Village Station a 14 Area/College Blvd. Estación de SPRINTER

See pg. 6 for Holiday schedules/Ver pág. 248 para obtener los horarios de días festivos

Approx 30-60 min.
headway

Monday - Friday to Rancho Del Oro SPRINTER Station *Dirección hacia el sur a la Estación SPRINTER Rancho Del Oro*

San Luis Rey Transit Center	Douglas Dr. & Vandegrift Bl.	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Rancho Del Oro & Via Rancho Rd.	Rancho Del Oro SPRINTER Station
1	2	3	4	5	6
5:54	5:57	6:04	6:16	6:26	6:36a
6:20	6:24	6:33	6:45	6:59	7:11
6:37	6:41	6:50	7:02	7:16	7:28
7:20	7:23	7:31	7:43	7:56	8:06
3:24	3:27	3:34	3:47	3:57	4:06p
4:22	4:25	4:32	4:45	4:56	5:06
5:24	5:27	5:34	5:47	5:57	6:06

Approx 30-60 min.
headway

Approx 1 hr.
headway

Monday - Friday to San Luis Rey Transit Center *Dirección hacia el norte al Centro de Tránsito San Luis Rey*

Rancho Del Oro SPRINTER Station	Rancho Del Oro & Via Rancho Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	Douglas Dr. & Vandegrift Bl.	San Luis Rey Transit Center
6	5	4	3	2	1
-	-	-	5:00	5:07	5:12a
-	-	5:53	6:04	6:12	6:18
6:49	7:01	7:10	7:23	7:31	7:37
7:49	8:00	8:09	8:22	8:29	8:35
*1:10	*1:28	*1:39	*1:53	*2:01	*2:09p
**2:00	**2:18	**2:29	**2:43	**2:51	**2:59
***2:10	***2:28	***2:39	***2:53	***3:01	***3:09
2:12	2:30	2:41	2:55	3:03	3:11
2:19	2:37	2:48	3:02	3:10	3:18
3:19	3:31	3:40	3:53	4:01	4:09
4:19	4:30	4:39	4:52	5:00	5:07
5:19	5:30	5:39	5:52	6:00	6:06

Approx 1 hr.
headway

Route 311 does not operate on Saturdays, Sundays, or holidays.

La Ruta 311 no opera los sábados, domingos o en días festivos.

* Monday only/Solamente los Lunes.

** Wednesday only/Solamente los Miércoles.

*** Tuesday, Thursday, and Friday only/Solamente los Martes, Jueves y Viernes.

Please note, BREEZE "school tripper" bus service only runs while El Camino High School and/or MLK Middle School are in session for in-person learning and are subject to change based on bell times. NCTD will update trip planning applications and GoNCTD.com when this service returns.

Tenga en cuenta que el servicio de autobús "school tripper" del BREEZE solo funciona mientras El Camino High School y/o MLK Middle School se encuentren abiertas para clases presenciales y está sujeto a cambios en función de los horarios de entrada y salida. El NCTD actualizará las aplicaciones de planificación de viaje y GoNCTD.com cuando el servicio se reanude.

