Appendix I

Transportation Impact Study

LINSCOTT
LAW &
GREENSPAN

engineers

LOCAL TRANSPORTATION ASSESSMENT

SUNRISE OF OCEANSIDE

Oceanside, California
October 14, 2020

LLG Ref. 3-19-3190

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared this study to assess the transportation impacts associated with the Sunrise of Oceanside project ("Project"). The Project proposes to develop 95 assisted living units. The site is located at 4700 Mesa Drive, north of Mesa Drive and east of College Boulevard in the City of Oceanside.

The Project is calculated to generate approximately 247 ADT with 11 inbound / 7 outbound trips during the AM peak hour and 10 inbound / 15 outbound trips during the PM peak hour.

The Local Transportation Assessment (LTA) study area includes three (3) intersections and four (4) street segments. The analysis determines the transportation impacts of the Project in existing and near-term cumulative conditions. Two (2) cumulative projects were identified and added to near-term cumulative conditions.

Per City of Oceanside criteria, the Project's effects on the local roadway system do not require roadway improvements.

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LOCAL TRANSPORTATION ASSESSMENT

SUNRISE OF OCEANSIDE

Oceanside, California

October 14, 2020

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared this Local Transportation Assessment (LTA) for the Sunrise of Oceanside project (hereby referred to as the "Project"). The Project proposes to develop 95 assisted-living housing units at a site located at 4700 Mesa Drive in the City of Oceanside.

Figure 1–1 shows the Project vicinity and ***Figure 1–2*** illustrates, in more detail, the site location.

This report includes the following sections:

- Project Description
- CEQA VMT Screening
- LTA Study Area, Analysis Approach, Methodology, and Thresholds
- Existing Conditions Discussion
- Analysis of Existing Conditions
- Cumulative Projects Discussion
- Project Trip Generation, Distribution, and Assignment
- Analysis of Near-Term Scenarios
- Site Access and Circulation
- Pedestrian, Bicycle, and Transit Discussion
- Summary and Conclusions

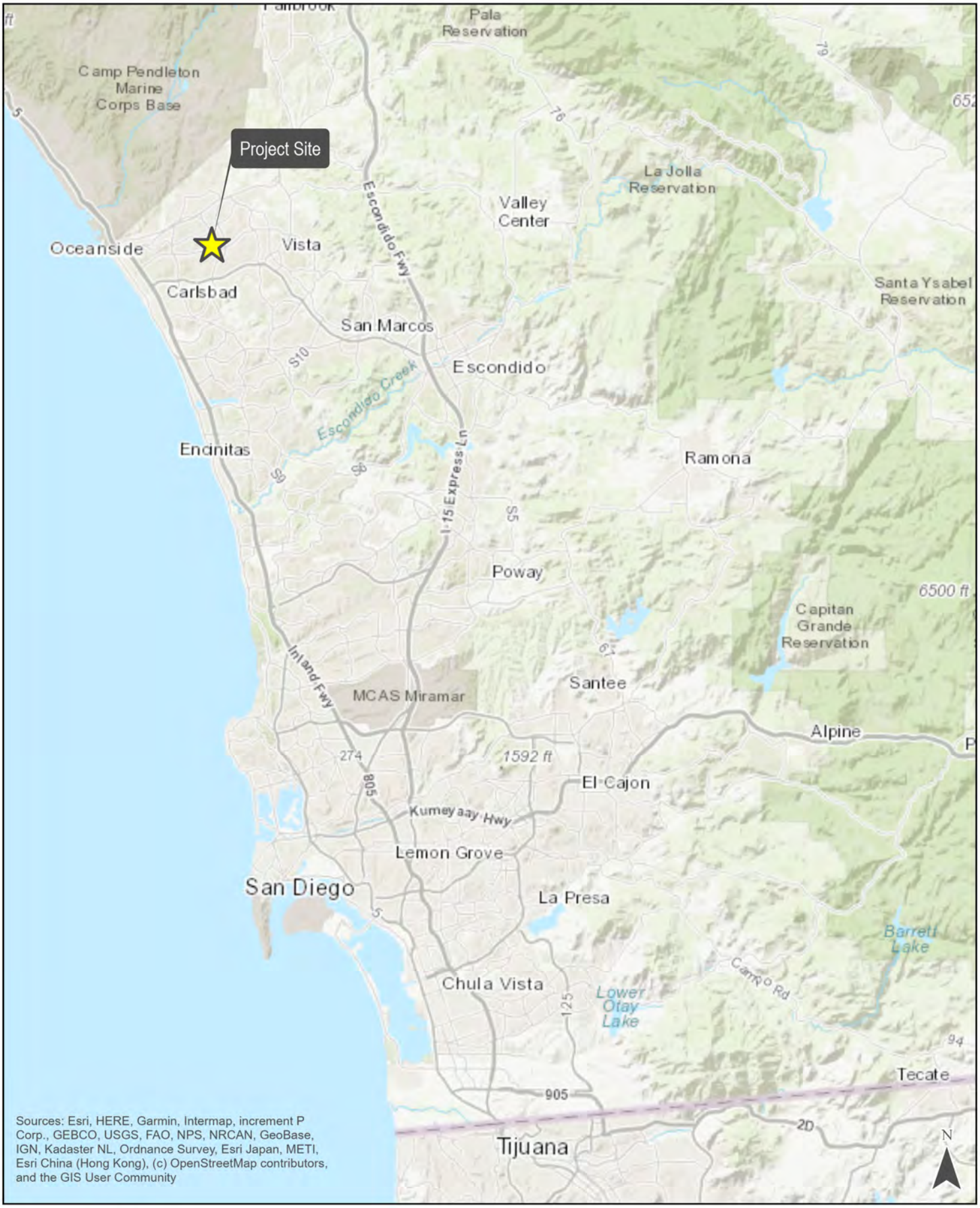

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Figure 1-1
Vicinity Map

SUNRISE OF OCEANSIDE

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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Figure 1-2
Project Area Map

SUNRISE OF OCEANSIDE

2.0 PROJECT DESCRIPTION

2.1 Project Location

The Project area is located in the north-eastern portion of the City of Oceanside. The site is located at 4700 Mesa Drive, north of Mesa Drive and east of College Boulevard. The site is located opposite Rancho Del Oro Park with other surrounding land uses largely residential.

2.2 Project Description

The Project proposes to develop the site with 95 assisted-living housing units. The site currently consists of a church, surface parking lot and undeveloped area. The church will remain on the west side of the site while the undeveloped area to the east will be the site of the proposed project. Project access will be via a single driveway on Mesa Drive located east of the intersection with Rancho Del Oro Park Drive. Access to the assisted living units will be shared with the church providing a secondary access point for church patrons.

The Project site plan is shown on ***Figure 2–1***.

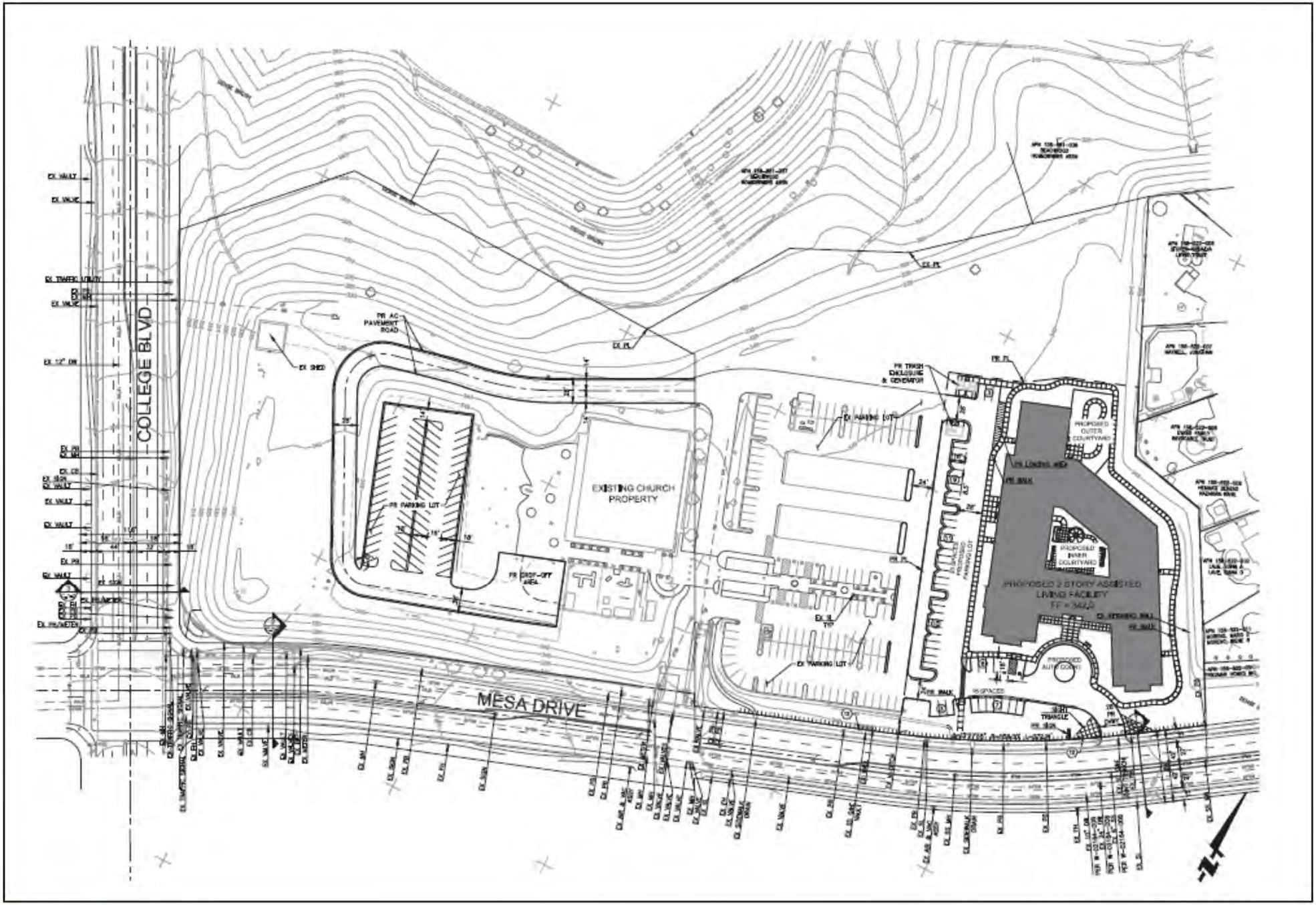

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Figure 2-1
Site Plan

3.0 CEQA VMT SCREENING PROCESS

A VMT analysis was prepared under sperate cover.

4.0 LOCAL TRANSPORTATION ASSESSMENT METHODOLOGY & THRESHOLDS

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 Analysis Approach

The Project proposes to develop the site with 95 assisted-living housing units and is calculated to generate 247 ADT (see *Section 8.1*). Based on the City's LTA guidelines, a project that generates between 200-500 ADT will be required to analyze existing conditions and existing conditions plus the project. As this study was initiated under the prior City guidelines and cumulative projects information was collected, Project traffic was analyzed on local area intersections and street segments under existing and near-term conditions in excess of the scenarios required by the guidelines.

An explanation of each scenario is provided below:

Existing conditions represent the existing on-the-ground network and traffic volume conditions at the time of data collection in December 2019 while schools were in session.

Existing + Project conditions represent the operations of the existing street network with the addition of the traffic generated by the complete development of the proposed Project.

Existing + Cumulative Projects conditions represent the time period in the near future when it would be expected that other nearby development or infrastructure projects would contribute to cumulative growth in the area which would increase the overall study area traffic volumes prior to the Project's anticipated opening year. *Section 7.0* of this report discusses the cumulative conditions in greater detail.

Existing + Cumulative Projects + Project conditions represent the time period in the near future when traffic generated by the total Project would be on the street system and when it would be expected that other nearby development or infrastructure projects would contribute to cumulative growth in the area which would increase the overall study area traffic volumes.

4.2 Study Area

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.

The following locations are included in the study area:

Intersections

1. Mesa Drive / College Boulevard
2. Mesa Drive / Avenida De La Plata
3. Mesa Drive / Rancho Del Oro Park Drive

Street Segments

College Boulevard

1. North of Mesa Drive
2. South of Mesa Drive

Mesa Drive

3. College Boulevard to Rancho Del Oro Park
4. West of College Boulevard

The Project generates a total of 18 AM trips during the AM peak hour and 25 trips during the peak hour (see *Section 8.1*) and as such, this study area exceeds City criteria.

4.3 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*

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 19 of the *Highway Capacity Manual 6th Edition (HCM 6),* with the assistance of the *Synchro 10* computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 20 and Chapter 21 of the *HCM 6* with the assistance of the *Synchro 10* computer software.

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* as shown in Table 11 of the City guidelines. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The roadway classification table is attached in ***Appendix A***.

4.4 Thresholds

Table 4–1 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	Allowable Change Due to Project Effects	
	Roadway Segments	Intersections
	V/C	Delay (sec.)
E & F	0.02	2.0

Source: City of Oceanside. *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment,* Table 12. July 2020.

General Notes:

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

5.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed *Sunrise of Oceanside Project* requires an understanding of the existing transportation system within the Project area. ***Figure 5–1*** shows an existing conditions diagram.

5.1 Existing Street Network

The following is a description of the existing street network in the study area.

College Boulevard is classified as a Major Arterial on the City of Oceanside Master Transportation Roadway Plan. Within the Project study area, College Boulevard is constructed as a four-lane divided roadway that runs north/south. Class II bike lanes and bus stops are provided on both sides of the roadway. North County Transit District (NCTD) bus Route 315 travels along College Boulevard and has stops located on both the east and west side of the roadway. The posted speed limit is 50 mph. Curbside parking is prohibited along both sides of the roadway.

Mesa Drive is an east/west roadway classified as a four-lane Secondary Collector on the City of Oceanside Master Transportation Roadway Plan. It is currently built as a four-lane roadway that has a combination of a raised median, striped median. and Two-Way Left Turn Lane (TWLTL). Class II bike lanes are provided are both sides of the roadway. The posted speed limit is 45 mph. Curbside parking is prohibited along both sides of the roadway.

Avenida De La Plata is a north/south roadway that is classified as a two-lane Collector on the City of Oceanside Master Transportation Roadway Plan. It is constructed as a two-lane roadway. Bike lanes are not provided north of Mesa Drive, but Class II bike lanes are provided on both sides of the roadway along Avenida De La Plata, south of Mesa Drive. Bus stops are not provided within the study area. The posted speed limit is 25 mph. Curbside parking is permitted along both sides of the roadway.

5.2 Existing Pedestrian Conditions

Contiguous and non-contigious sidewalks are provided along College Boulevard, Mesa Drive, Rancho Del Oro Park Drive and Avenida De La Plata, within the study area.

5.3 Existing Bicycle Network

There are Class II bike lanes in both directions on Mesa Drive and College Boulevard, within the study area. No other bicycle facilities provided along the street segments within the study area.

5.4 Existing Transit Conditions

Transit service is provided to the area by NCTD Route 315. Route 315 provides bus service to the area via College Boulevard. The nearest stops to the Project site are located at College Boulevard. Bus stops are located on both the east and west side of the roadway. The Route runs between 6:00 AM and 6:00 PM with a frequency of 60 minutes.

5.5 Existing Traffic Volumes

Weekday existing 7:00-9:00 AM and 4:00-6:00 PM peak hour traffic volumes at key area intersections and 24-hour street segment counts were collected on Tuesday, December 17, 2019 while schools were in session.

Figure 5–2 shows the existing Traffic Volumes. ***Appendix B*** contains the peak hour intersection and daily segment count sheets.

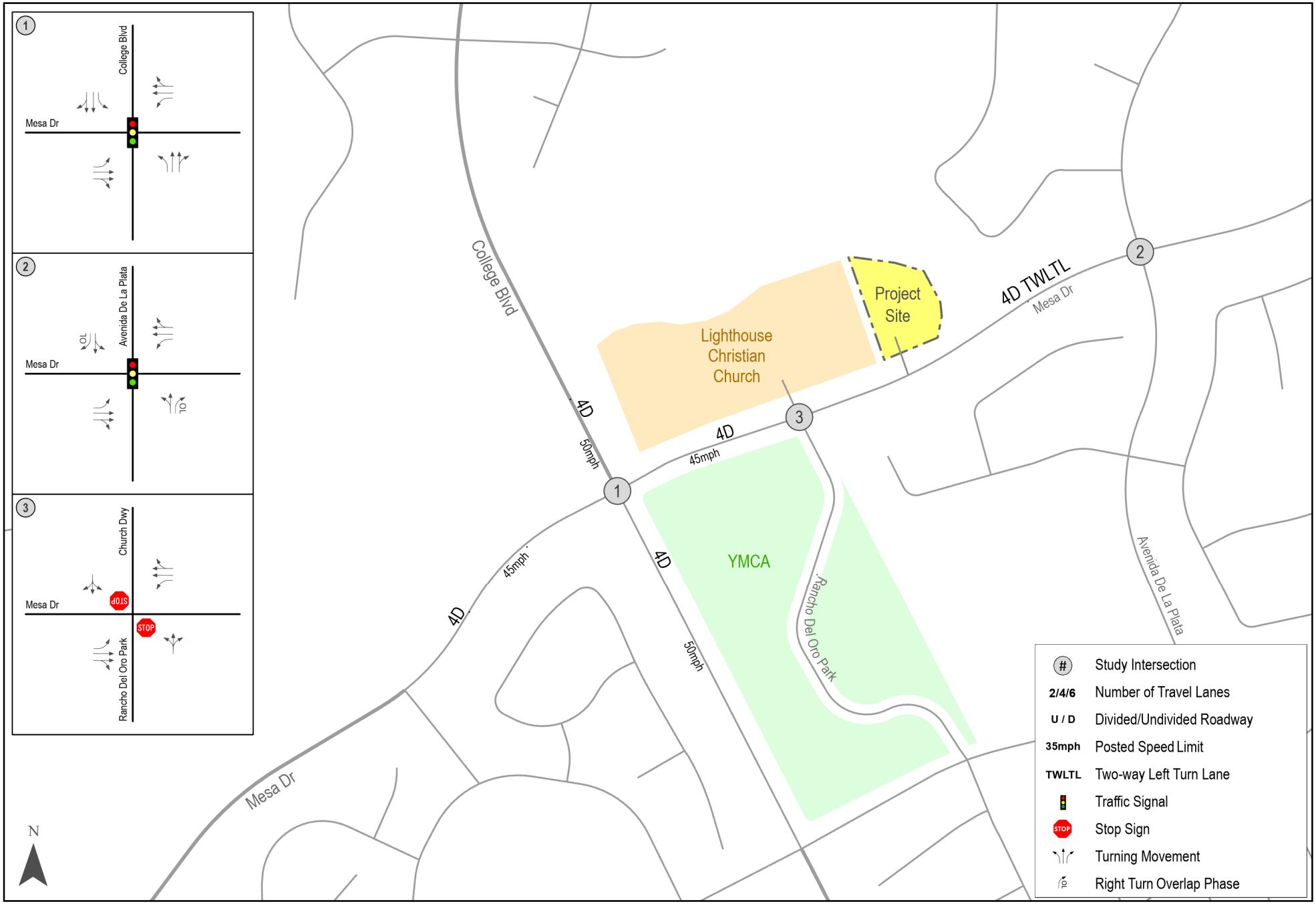

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Figure 5-1
Existing Conditions Diagram

SUNRISE OF OCEANSIDE

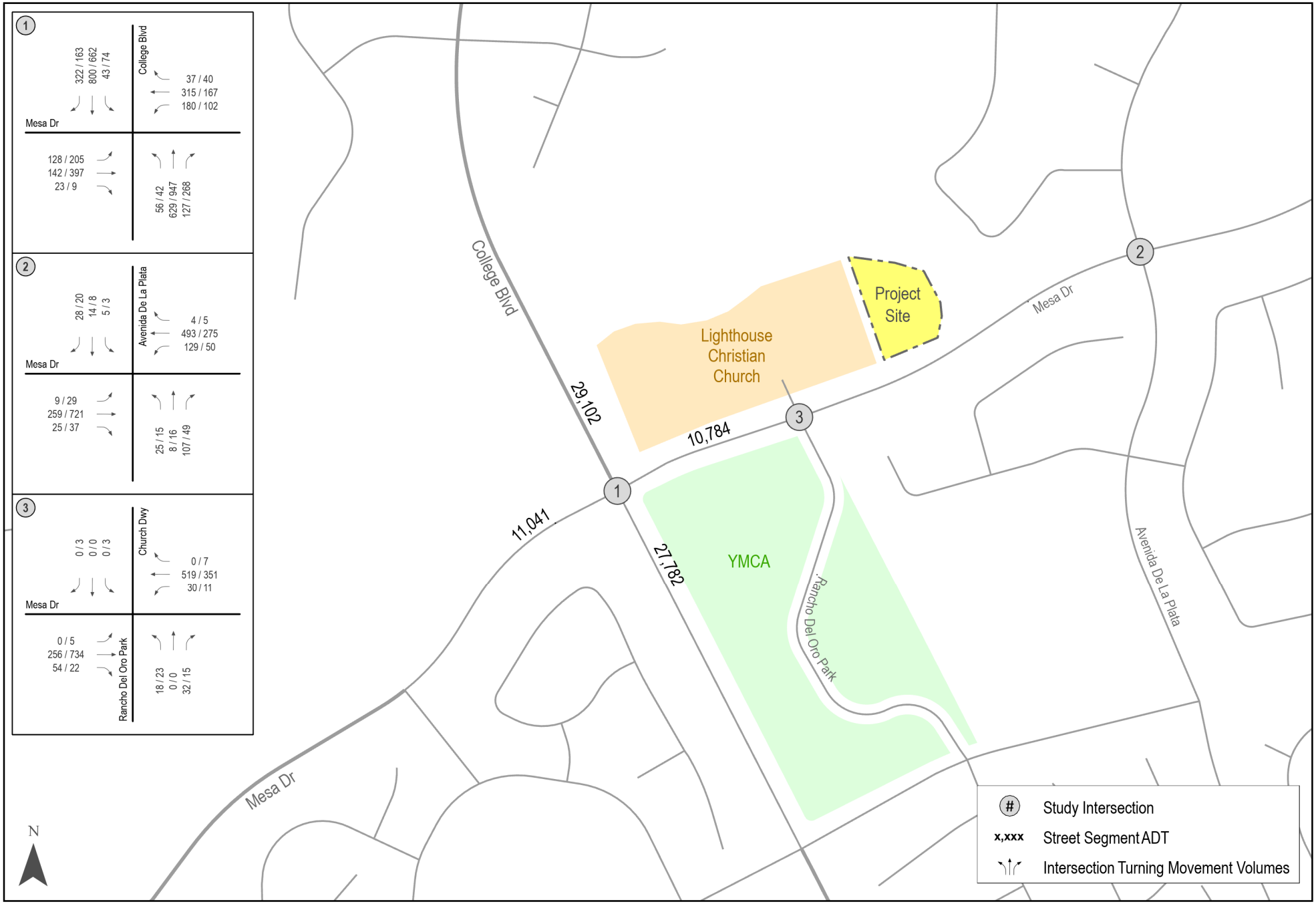

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Figure 5-2
Existing Traffic Volumes

SUNRISE OF OCEANSIDE

6.0 ANALYSIS OF EXISTING CONDITIONS

The following section presents the analysis of existing study area locations.

6.1 Peak Hour Intersection Levels of Service

Table 6–1 summarizes the existing intersections LOS. As seen in *Table 6–1*, all intersections are calculated to currently operate at LOS D or better during AM/PM peak hours.

Appendix C contains the existing intersection analysis worksheets.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Mesa Dr / College Blvd	Signal	AM PM	52.2 49.8	D D
2. Mesa Dr / Avenida De La Plata	Signal	AM PM	10.9 10.1	B B
3. Mesa Dr / Rancho Del Oro Park Dr	TWSC[c]	AM PM	17.6 29.2	C D

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. TWSC = Two-Way Stop Control

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

6.2 Daily Street Segment Levels of Service

Table 6–2 summarizes the existing roadway segment operations. As seen in *Table 6–2*, the study area segments are calculated to currently operate at LOS C or better on a daily basis.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
College Boulevard					
North of Mesa Dr	4-lane Major Arterial	40,000	29,102	C	0.728
South of Mesa Dr	4-lane Major Arterial	40,000	27,782	C	0.695
Mesa Drive					
College Blvd to Rancho Del Oro Park	Secondary Collector	25,000	10,784	B	0.431
West of College Blvd	Secondary Collector	25,000	11,041	B	0.442

Footnotes:

a. Capacities based on Oceanside Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.

7.0 CUMULATIVE PROJECTS

Cumulative project are other projects in the study area that will add traffic to the local circulation system in the near future. Based on research conducted, two (2) cumulative projects are planned for the area that would add traffic to the study area street system. Traffic generated by these projects was added to the existing traffic volumes to develop the Existing + Near-Term Cumulative Project conditions. Project traffic was added to the near-term traffic to arrive at the Existing + Near-Term Cumulative Projects + Project conditions. The following is a brief description of each of the cumulative projects.

7.1 Description of Projects

1. **Pacific Coast Business Park** proposes to construct 1,100,000 SF of industrial use, 518,000 SF of general office, and 80,500 SF of medical office located south of Old Grove Road and west of College Boulevard in the City of Oceanside. The proposed project is calculated to generate 21,597 ADT with 2,213 inbound and 273 outbound trips during the AM peak hour and 575 inbound and 2,080 outbound trips during the PM peak hour. Trips were assigned to the street system based on the *Pacific Coast Business Park Traffic Impact Study*, prepared by Kimley-Horn and Associates, Inc. and dated April 2009.

2. **Rancho Del Oro Village XII (Terraza at Rancho Del Oro)** proposes to develop approximately 303 residential dwelling units consisting of a variety of multi-family product types. The project is located at the northwest quadrant of the College Boulevard and Old Grove Road intersection in the City of Oceanside. The proposed project is calculated to generate 2,424 ADT with 39 inbound and 154 outbound trips during the AM peak hour and 169 inbound and 73 outbound trips during the PM peak hour. Trips were assigned to the street system based on the *Rancho Del Oro Village XII Traffic Impact Study*, prepared by RBF and dated September 2010.

7.2 Summary of Cumulative Projects Trips

Table 7–1 summarizes the cumulative projects trip generation. As shown in *Table 7–1*, the two cumulative projects are calculated to generate a total of 24,021 ADT.

Figure 7–1 shows the location of the cumulative projects. ***Figure 7–2*** depicts the Existing + Cumulative Projects traffic volumes.

Appendix D contains the individual cumulative project assignments.

TABLE 7–1
NEAR-TERM CUMULATIVE PROJECTS SUMMARY

No.	Name	Project	ADT	AM		PM	
				In	Out	In	Out
1	Pacific Coast Business Park	1,100 KSF industrial, 518 KSF general office, 80.5 KSF medical office	21,597	2,213	273	575	2,080
2	Rancho Del Oro Village XII	303 residential multi-family units	2,424	39	154	169	73
Total Cumulative Projects			**24,021**	**2,252**	**427**	**744**	**2,153**

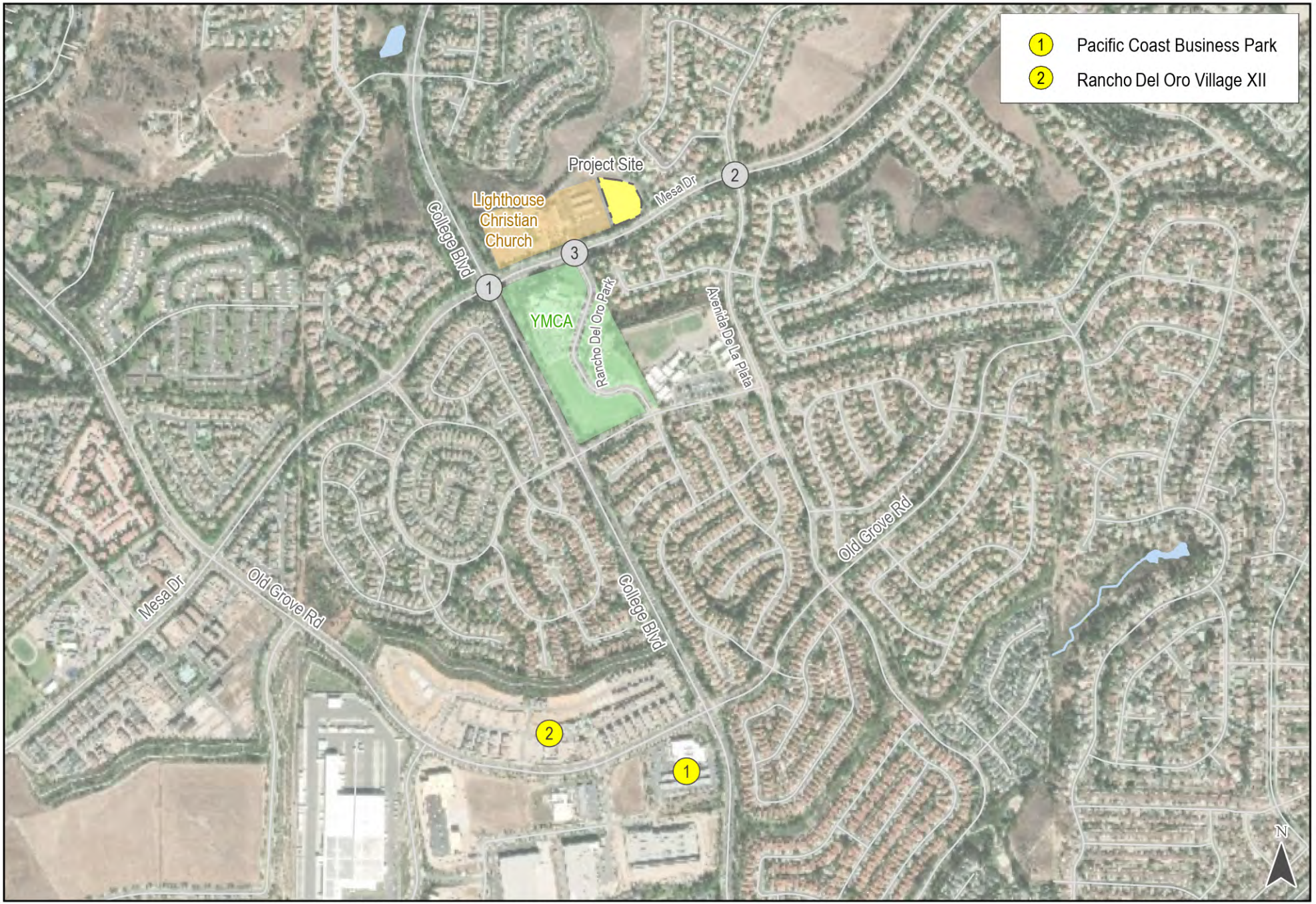

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Figure 7-1
Cumulative Project Location Map

SUNRISE OF OCEANSIDE

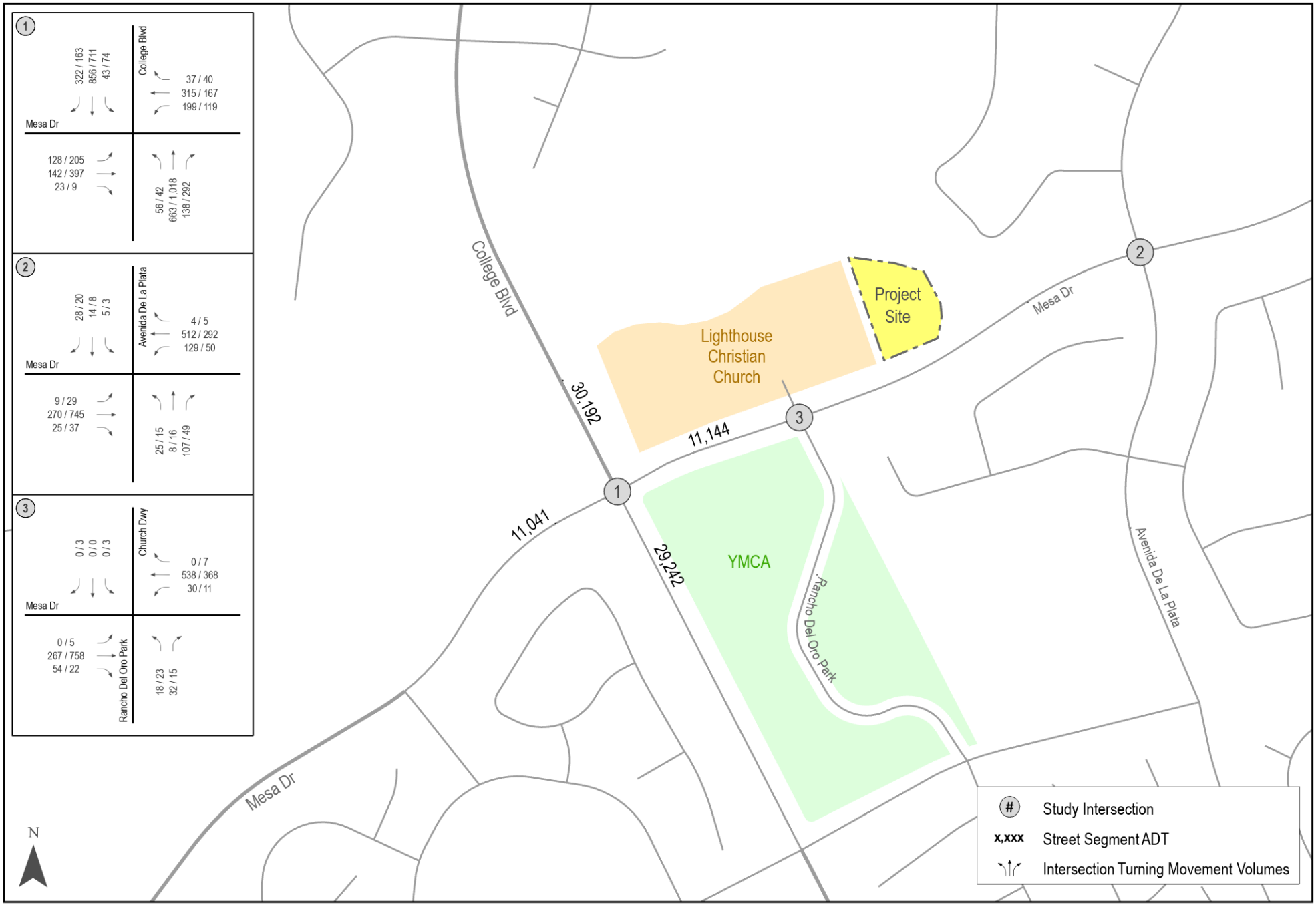

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Figure 7-2
Existing + Cumulative Projects Traffic Volumes

SUNRISE OF OCEANSIDE

8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is a discussion of the Project trip generation calculations and the Project traffic distribution and assignment through the local street system.

8.1 Trip Generation

The Project traffic generation calculations were conducted using the trip generation rates published in the Institute of Transportation Engineers *Trip Generation Manual*, 10th edition for the "assisted living" land use (Land Use Code 254). The typical trip generation rates used in the City of Oceanside are the regional SANDAG "Brief Guide" rates (2002). However, these rates do not include a land use similar to the proposed assisted living.

Table 8–1 tabulates the total Project traffic generation. The total Project is calculated to generate approximately 247 ADT with 11 inbound / 7 outbound trips during the AM peak hour and 10 inbound / 15 outbound trips during the PM peak hour.

TABLE 8–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)[b]		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
Assisted Living	95 DU	2.6 / Bed	247	0.19	63:37	11	7	18	0.26	38:62	10	15	25

Footnotes:

a. Rates based on the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, September 2017, Land Use 254.

b. ADT = Average daily traffic

8.2 Trip Distribution/Assignment

Project trip distribution was developed using professional engineering judgment based on the available local and regional access as well as existing traffic patterns and flows observed from existing traffic count data at study area intersections.

Figure 8–1 depicts the Project trip distribution percentages. ***Figure 8–2*** shows the assigned Project traffic volumes and ***Figure 8–3*** shows the Existing + Project traffic volumes. ***Figure 8–4*** shows Existing + Cumulative Projects + Project traffic volumes.

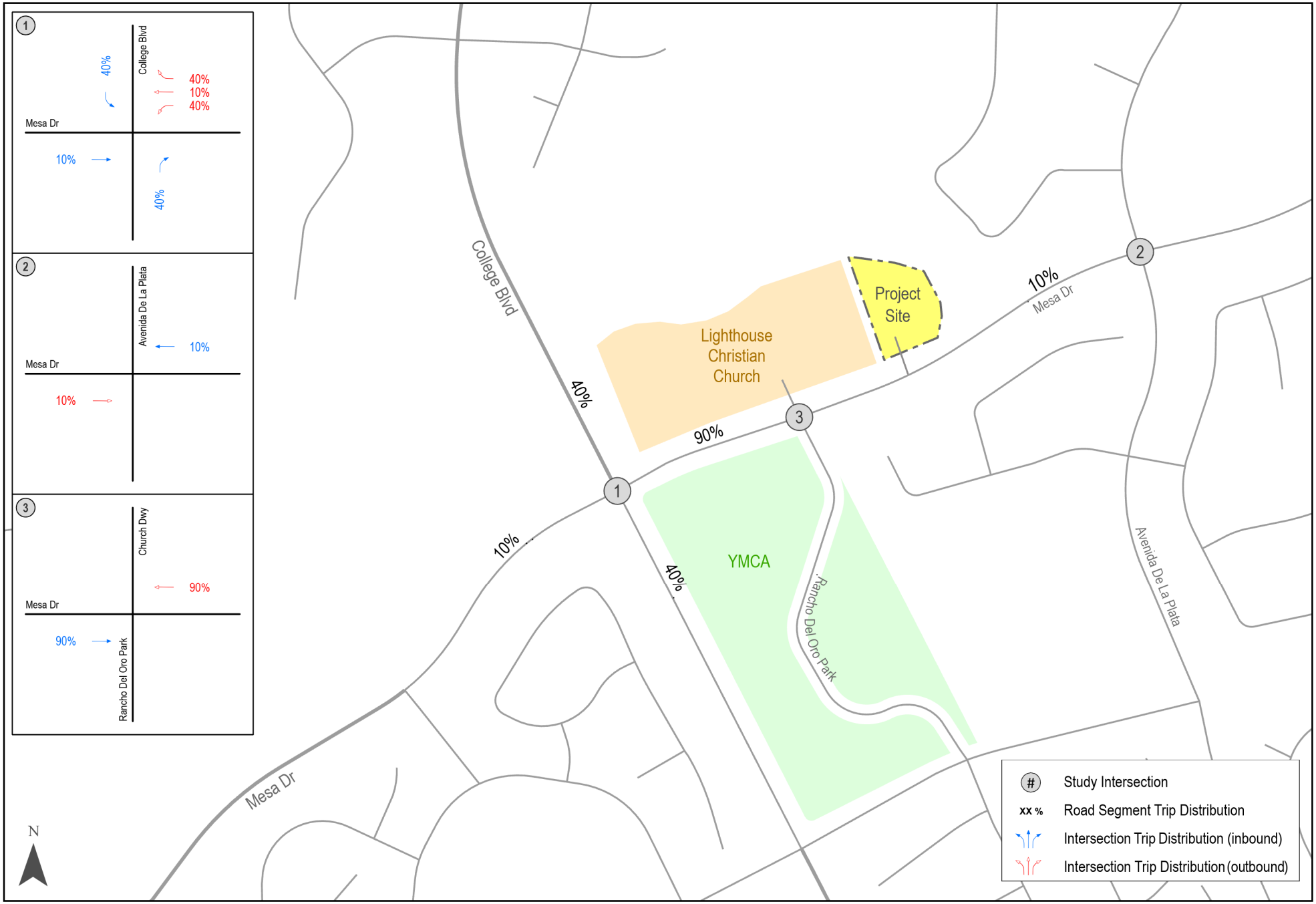

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Figure 8-1
Project Traffic Distribution

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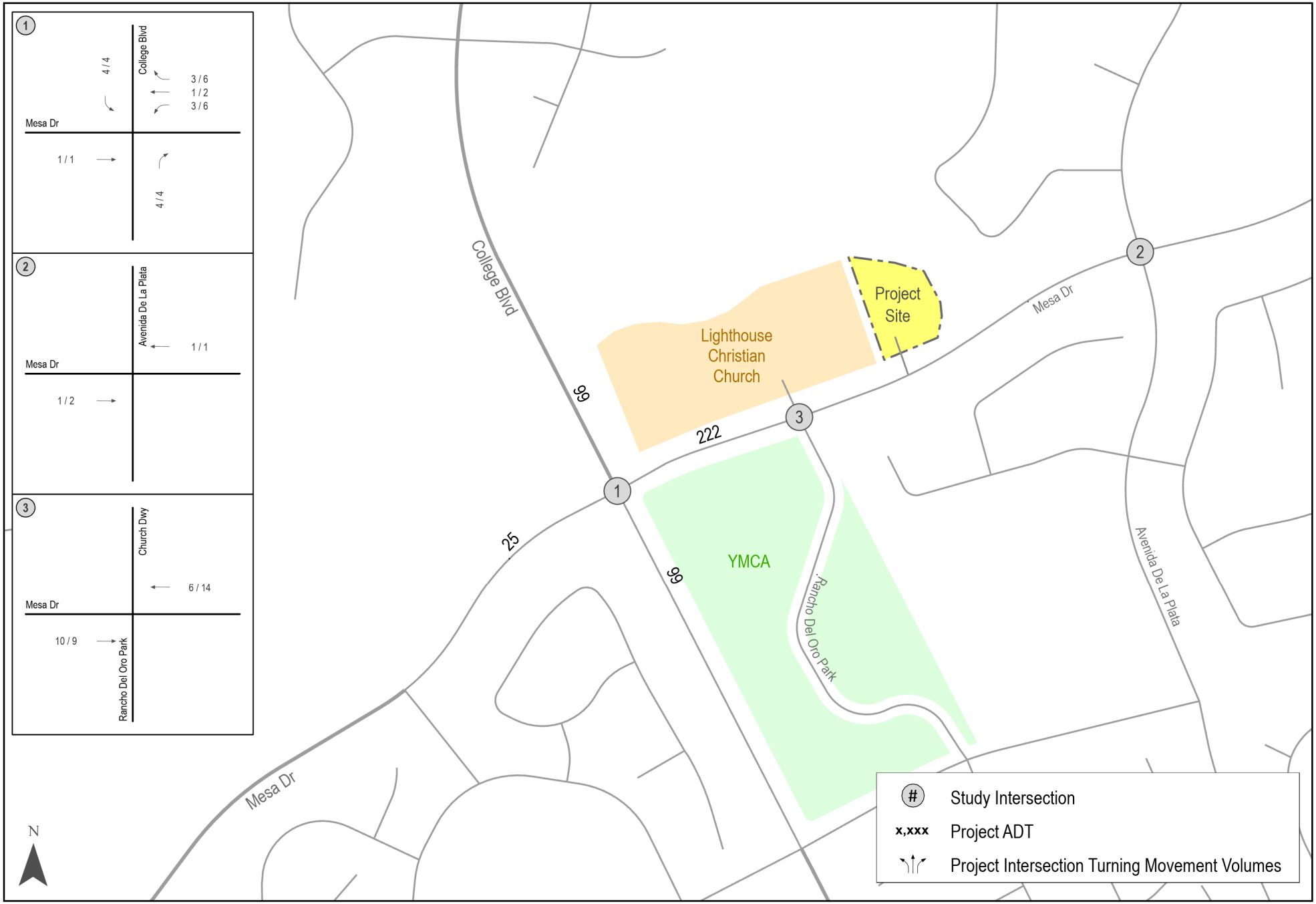

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Figure 8-2
Project Traffic Volumes

SUNRISE OF OCEANSIDE

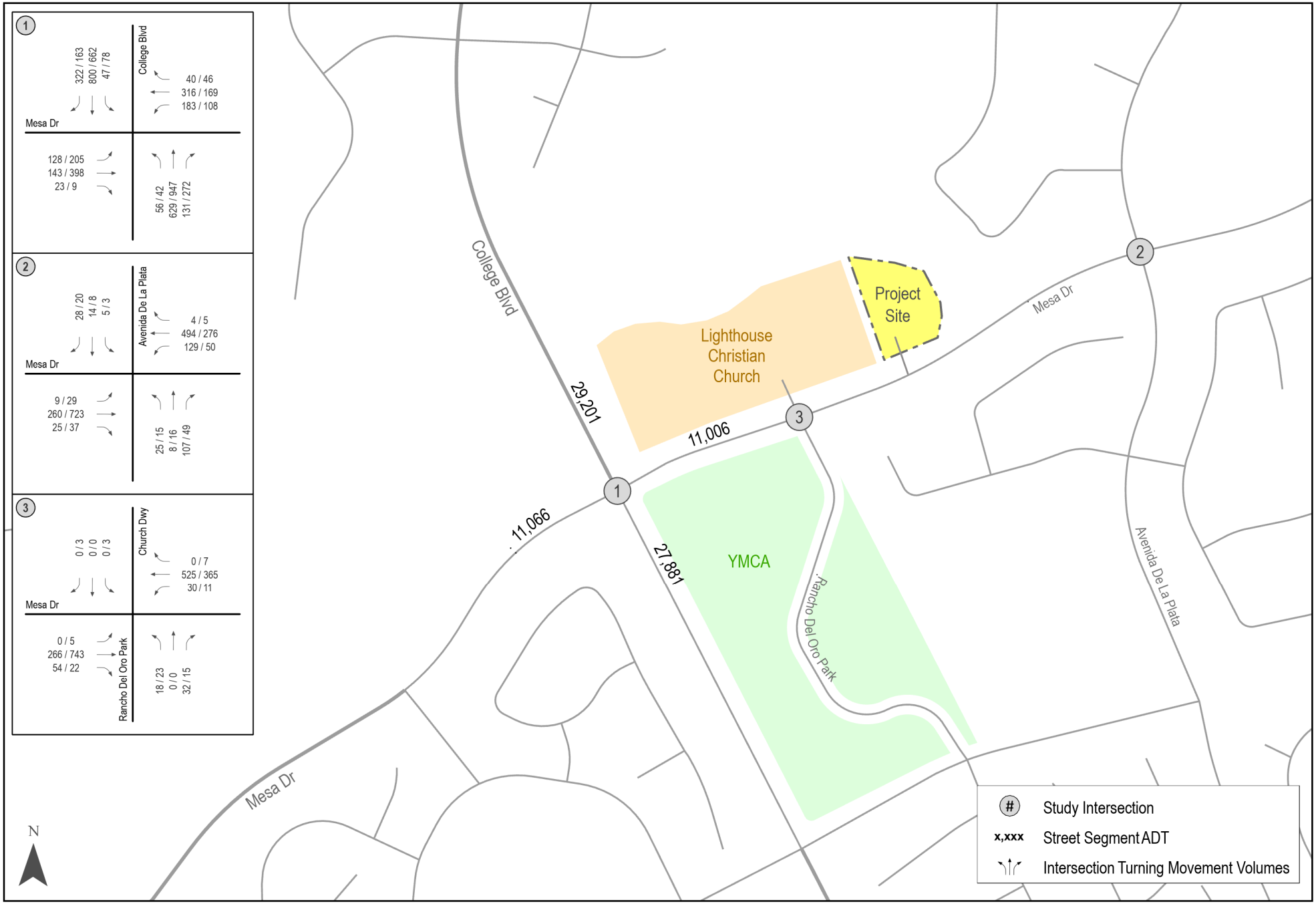

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Figure 8-3
Existing + Project Traffic Volumes

SUNRISE OF OCEANSIDE

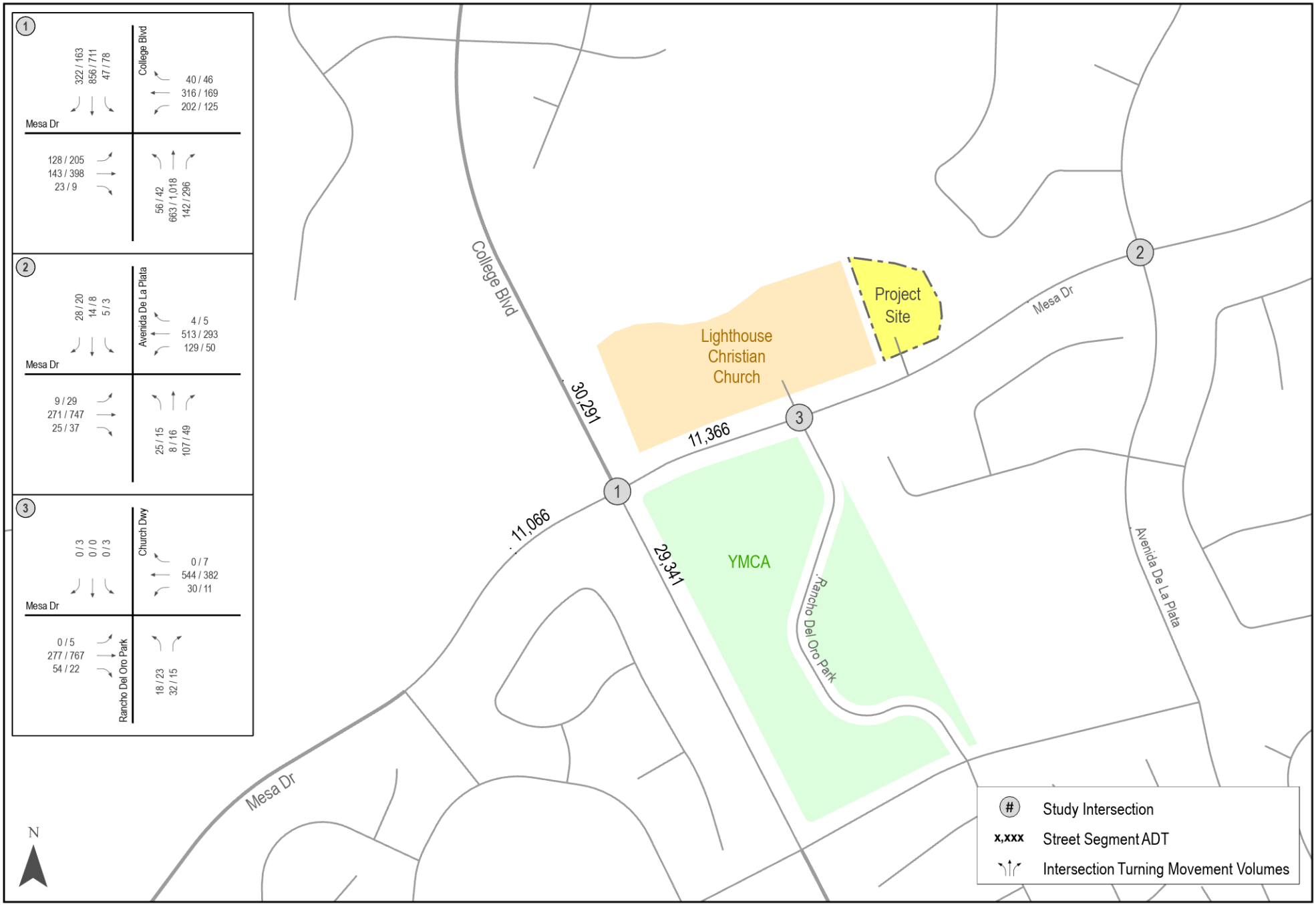

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Figure 8-4
Existing + Cumulative Projects + Project Traffic Volumes

SUNRISE OF OCEANSIDE

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following section presents the near-term analysis of existing study area locations without and with Project traffic.

9.1 Existing + Project

9.1.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations for the Existing + Project condition. As seen in *Table 9–1*, with the addition of Project traffic, all study area intersections are calculated to continue to operate at LOS D or better during AM/PM peak hours.

Appendix E contains the Existing + Project intersection analysis worksheets.

9.1.2 *Segment Analysis*

Table 9–2 summarizes the peak hour intersection operations for the Existing + Project condition. As seen in *Table 9–2*, with the addition of project traffic, all study area intersections are calculated to continue to operate at LOS C or better during AM/PM peak hours.

9.2 Existing + Cumulative Projects

9.2.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations for the Existing + Cumulative Projects condition. As seen in *Table 9–1*, with the addition of cumulative projects traffic, all study area intersections are calculated to continue to operate at LOS D or better during AM/PM peak hours with the exception of the Mesa Drive / College Boulevard intersection which operates at LOS E during the AM peak hour.

Appendix F contains the Existing + Cumulative Projects intersection analysis worksheets.

9.2.2 *Segment Operations*

Table 9–2 summarizes the key segment operations in the study area for the Existing + Cumulative Projects condition. As seen in *Table 9–2*, with the addition of cumulative projects traffic, all study area street segments are calculated to operate at LOS D or better.

9.3 Existing + Cumulative Projects + Project

9.3.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations for Existing + Cumulative Projects + Project conditions. As seen in *Table 9–1*, with the addition of cumulative projects and Project traffic, all study area intersections are calculated to continue to operate at LOS D or better during AM/PM peak hours with the exception of the Mesa Drive / College Boulevard intersection which continues to operate at LOS E during the AM peak hour.

The project results in only a 0.2 seconds of delay increase and therefore no improvements are necessary.

Appendix G contains the Existing + Cumulative Projects + Project intersection analysis worksheets.

9.3.2 *Segment Operations*

Table 9–2 summarizes the key segment operations in the study area for the Existing + Near-Term Cumulative Projects + Project conditions. As seen in *Table 9–2*, with the addition of cumulative projects and Project traffic, all study area street segments are calculated to continue to operate at LOS D or better.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Cumulative Projects + Project		
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Delay	LOS	Δ[c]
1. Mesa Dr / College Blvd	Signal	AM	52.2	D	52.5	D	0.3	**58.0**	**E**	**58.2**	**E**	**0.2**
		PM	49.8	D	50.5	D	0.7	51.9	D	52.4	D	0.5
2. Mesa Dr / Avenida De La Plata	Signal	AM	10.9	B	10.9	B	0.0	10.9	B	10.9	B	0.0
		PM	10.1	B	10.1	B	0.0	10.1	B	10.1	B	0.0
3. Mesa Dr / Rancho Del Oro Park	TWSC[d]	AM	17.6	C	18.0	C	0.4	18.2	C	18.6	C	0.4
		PM	29.2	C	30.2	D	1.0	31.0	D	31.7	D	0.7

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to Project.
d. TWSC – Two-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
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Existing Capacity (LOS E)[a]	Existing			Existing + Project			Existing + Cumulative Projects			Existing + Cumulative Projects + Project			
		ADT[b]	V/C[c]	LOS[d]	ADT	V/C	LOS	ADT	V/C	LOS	ADT	V/C	LOS	Δ[e]
College Boulevard														
North of Mesa Dr	40,000	29,102	0.728	C	29,201	0.730	C	30,192	0.755	D	30,291	0.757	D	0.002
South of Mesa Dr	40,000	27,782	0.695	C	27,881	0.697	C	29,242	0.731	C	29,341	0.734	C	0.003
Mesa Drive														
College Blvd to Rancho Del Oro Park	25,000	10,784	0.431	B	11,006	0.440	B	11,144	0.446	B	11,366	0.455	B	0.009
West of College Blvd	25,000	11,041	0.442	B	11,066	0.443	B	11,041	0.442	B	11,066	0.443	B	0.001

Footnotes:

a. Capacities based on Oceanside Roadway Classification & LOS table (See *Appendix B*)
b. Average Daily Traffic
c. Volume to Capacity ratio
d. Level of Service
e. Δ denotes a Project-induced increase in the Volume to Capacity ratio

10.0 SITE ACCESS AND CIRCULATION

Access is proposed via a single full access driveway east of the existing church driveway on Mesa Drive with Rancho Del Oro Park Drive. With the development of the site, the current secondary church access driveway on the easternmost portion of the site will be vacated and redeveloped with the proposed Project. The new driveway serving the Project will also become the secondary access for the church property.

In order to maintain efficient access into the Project site, it is recommended that the TWLTL along Mesa Drive be extended to the western property line where there is currently a striped median. Left-turns into the site from the west and southbound left-turns exiting the site to the east will be provided a refuge from the through traffic along Mesa Drive.

11.0 PEDESTRIAN, BICYCLE, AND TRANSIT DISCUSSION

11.1 Pedestrian Infrastructure

As discussed in *Section 5.2*, contiguous and non-contigious sidewalks are provided along College Boulevard, Mesa Drive, Rancho Del Oro Park Drive and Avenida De La Plata, within the study area.

No deficiencies such as obstructions or missing sidewalk were identified on Mesa Drive, in either direction from the Project access point, nor College Boulevard, which provides connections to the transit stops (discussed below) located near the Project site.

11.2 Bicycle Infrastructure

As discussed in *Section 5.3*, there are Class II bike lanes in both directions on Mesa Drive and College Boulevard, within the study area. No other bicycle facilities provided along the street segments within the study area.

Per the current City of Oceanside Circulation Element, there are no additional new or upgraded bicycle facilities planned within the Project vicinity.

11.3 Transit Stops & Routes

As noted in *Section 5.4*, transit service is provided to the area by NCTD Route 315 which traverses College Boulevard and provides stops near the Project site at the intersection of College Boulevard / Mesa Drive. There are no other existing transit lines or stops within ½ mile of the Project site and no planned new services were identified.

The following amenities are provided at the bus stops nearest to the project site:

- NE of College Blvd / Mesa Dr (Route 315 northbound) – Bus Stop/Route Signage
- SW of College Blvd / Mesa Dr (Route 315 southbound) – Bus Stop/Route Signage

12.0 SUMMARY AND CONCLUSIONS

12.1 LTA Summary

12.1.1 *Vehicle Improvements*

Per the City of Oceanside thresholds and the analysis methodology presented in this report, the effects of Project-related traffic do not indicate the need for roadway improvements within the study area. No roadway improvements are required or proposed.

12.1.2 *Pedestrian, Bicycle, or Transit Improvements*

No pedestrian or bicycle deficiencies were identified in the Project area. The nearby transit stops in both directions of travel provide for bus stop and route signage. No other amenities are provided.

LINSCOTT LAW & GREENSPAN
engineers

TRANSPORTATION VMT ANALYSIS

SUNRISE OF OCEANSIDE

Oceanside, California
October 14, 2020

LLG Ref. 3-19-3190

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TRANSPORTATION VMT ANALYSIS

SUNRISE OF OCEANSIDE

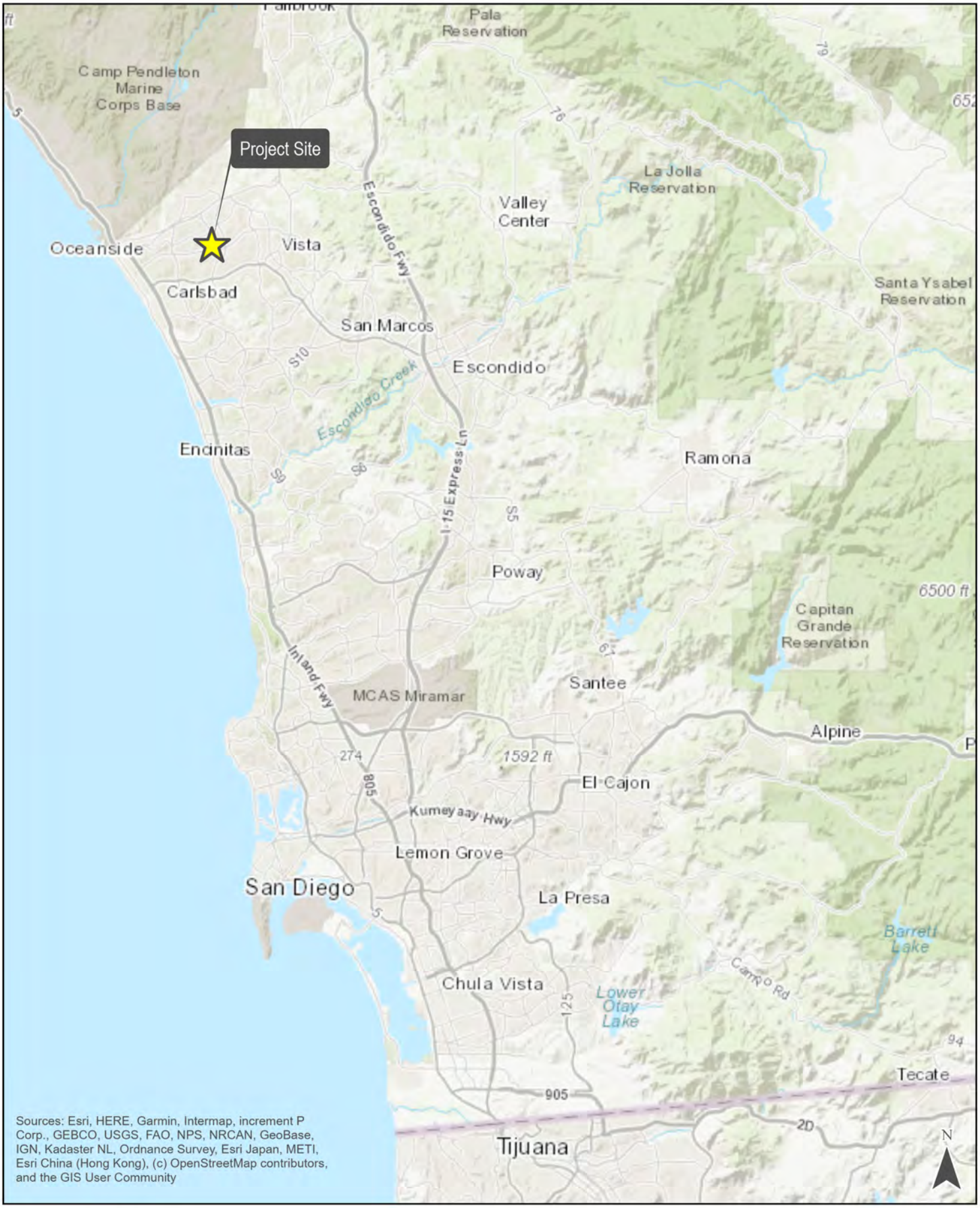
Oceanside, California

October 14, 2020

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has prepared this Transportation Vehicle Miles Travelled (VMT) analysis for the Sunrise of Oceanside project (hereby referred to as the "Project"). The Project proposes to develop 95 assisted-living housing units at a site located at 4700 Mesa Drive in the City of Oceanside.

Figure 1–1 shows the Project vicinity and ***Figure 1–2*** illustrates, in more detail, the site location.



LINSCOTT LAW & GREENSPAN engineers

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Date: 1/31/2020
Time: 11:07 AM

Figure 1-1
Vicinity Map

SUNRISE OF OCEANSIDE

SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

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Figure 1-2
Project Area Map

SUNRISE OF OCEANSIDE

2.0 CEQA VMT SCREENING PROCESS

2.1 VMT Background

In compliance with Senate Bill 743 (SB 743) and the City of Oceanside draft *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (July 2020), a project is required to evaluate transportation impacts under the California Environmental Quality Act (CEQA) using a Vehicle Miles Traveled (VMT) metric, pursuant to guidance from the Governor's Office of Planning and Research (OPR) in December 2018 (*Technical Advisory on Evaluating Transportation Impacts in CEQA*).

VMT refers to the distance a vehicle travels from each origin to destination.

2.2 Technical Methodology

SB 743 allows for some projects that support VMT reduction to qualify as screened out. If a project is screened out it has VMT reducing characteristics and is assumed to decrease VMT. Screened out projects do not have to complete a VMT analysis under CEQA.

The projects listed in ***Table 2–1***, on the following page, are presumed to be VMT-reducing projects. The projects listed, from the City's guidelines (Table 2), are either locally serving or considered to be VMT-reducing based on substantial evidence provided by the OPR Technical Advisory Committee supporting SB 743 implementation.

2.3 VMT Assessment

The City screening criteria presented in *Table 2–1* show that screened out land uses include Assisted Living Facilities, such as the Project, which proposes a 95-unit assisted living facility.

Based on the Project's characteristics it is presumed to have a less than significant VMT impact and is screened out from performing VMT analysis.

TABLE 2–1
SCREENED OUT PROJECTS

Project Type
Projects located in a Transit Priority Areas (TPA) or Smart Growth Opportunity Area as identified in the most recent SANDAG San Diego Forward Regional Plan and is consistent with the General Plan at the time of project application. [a, b]
Projects located in a low-VMT generating area identified on the most recent SANDAG SB 743 VMT Screening map
Locally serving K-12 schools
Day care centers
Local parks
Locally serving retail uses less than 50,000 square feet, including: gas stations, banks, restaurants, grocery stores, and shopping centers
Community institutions (Public libraries, fire stations, local government)
Locally serving hotels (e.g. non-destination hotels, non-regionally serving)
Student housing projects on or adjacent to college campuses
Local serving community colleges that are consistent with the assumptions noted in the most recent SANDAG Regional Transportation Plan/Sustainable Communities Strategy
Affordable housing projects [c]
Assisted living facilities
Senior housing (as defined by HUD)
Transit projects
Bike projects
Pedestrian projects
Safety improvement projects (e.g. RRFBs and high visibility crosswalks at uncontrolled locations, pedestrian count down timers, additionally projects identified through the Highway Safety Improvement Program)
Safe Routes to School
Projects generating less than 110 daily vehicle trips (if consistent or inconsistent with adopted General Plan)

Source: City of Oceanside. *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment,* Table 2. July 2020.

Footnotes:

a. Projects located in a TPA must be able to access the transit station within a ½ mile walking distance or 6 minute walk continuously without discontinuity of sidewalk or obstructions to the route. Qualifying transit stops means a site containing an existing rail transit station served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods (OPR, 2017). A high-quality transit corridor may also be considered if a corridor with fixed route bus service has service intervals no longer than 15 minutes during peak commute hours (OPR, 2017).

b. Smart Growth Opportunity Area Map is provided in Appendix B of the City's guidelines. The most recent version available shall be used.

c. If a project is a mix of affordable housing and market rate housing or unscreened use, only the affordable housing component would qualify as screened out. Additionally, any removal of affordable housing automatically requires CEQA VMT analysis.

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES

SUNRISE OF OCEANSIDE

Oceanside, California
October 14, 2020

LLG Ref. 3-19-3190

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APPENDICES

APPENDIX

A. City of Oceanside Roadway Classification Table

B. Intersection and Segment Count Sheets

C. Existing Intersection Analysis Worksheets

D. Individual Cumulative Projects Assignments

E. Existing + Project Analysis Worksheets

F. Existing + Cumulative Projects Intersection Analysis Worksheets

G. Existing + Cumulative Projects + Project Intersection Analysis Worksheets

APPENDIX A

CITY OF OCEANSIDE ROADWAY CLASSIFICATION TABLE

TABLE 3-3
CIRCULATION ELEMENT ROADWAY CLASSIFICATION LOS & CAPACITY

Class	Lanes	Cross Section[1]	Level of Service				
			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)	2	36/56, 40/60	—	—	2,200	—	—

Footnotes:

1. Cross sections are listed as curb-to-curb width/total right-of-way width, in feet.
2. Vandegrift Boulevard and El Camino Real are the only Circulation Element roadways designated as a 5-lane Major Arterial. It is not intended that other roadways be built to 5-lane Major Arterial standards.
3. This capacity will also be assumed for a two-lane one-way collector.

APPENDIX B

INTERSECTION AND SEGMENT COUNT SHEETS

Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#01	File Name:	ITM-19-151-01
Intersection:	College Boulevard & Mesa Drive	Project:	LLG Ref. 3-19-3190
Date of Count:	Tuesday, December 17, 2019		Oceanside

AM	College Boulevard Southbound			Mesa Drive Westbound			College Boulevard Northbound			Mesa Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	3	172	114	46	74	4	8	154	12	23	37	5	652
7:15	8	201	102	54	77	5	12	166	13	49	41	9	737
7:30	14	214	62	27	73	11	11	132	36	26	40	6	652
7:45	14	204	87	60	77	14	20	164	44	25	31	6	746
8:00	7	181	71	39	88	7	13	167	34	28	30	2	667
8:15	8	186	71	43	41	4	9	115	20	24	35	5	561
8:30	5	206	34	42	56	6	9	133	28	26	22	2	569
8:45	4	171	56	28	42	9	8	105	12	16	25	4	480
Total	63	1535	597	339	528	60	90	1136	199	217	261	39	5064
Approach%	2.9	69.9	27.2	36.6	57.0	6.5	6.3	79.7	14.0	42.0	50.5	7.5	
Total%	1.2	30.3	11.8	6.7	10.4	1.2	1.8	22.4	3.9	4.3	5.2	0.8	

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

Volume	43	800	322	180	315	37	56	629	127	128	142	23	2,802
Approach%	3.7	68.7	27.6	33.8	59.2	7.0	6.9	77.5	15.6	43.7	48.5	7.8	
Total%	1.5	28.6	11.5	6.4	11.2	1.3	2.0	22.4	4.5	4.6	5.1	0.8	
PHF			0.94			0.88			0.89			0.74	0.94

PM	College Boulevard Southbound			Mesa Drive Westbound			College Boulevard Northbound			Mesa Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	20	165	42	14	44	11	13	186	57	53	97	0	702
16:15	19	181	33	23	37	9	11	220	72	50	98	4	757
16:30	21	194	43	25	38	8	9	262	63	41	88	5	797
16:45	22	158	39	19	40	16	10	219	68	51	110	1	753
17:00	14	159	40	32	35	10	12	224	64	51	115	1	757
17:15	17	151	41	26	54	6	11	242	73	62	84	2	769
17:30	21	154	40	14	41	4	13	223	67	45	90	7	719
17:45	22	133	32	28	48	6	10	221	54	50	74	3	681
Total	156	1295	310	181	337	70	89	1797	518	403	756	23	5935
Approach%	8.9	73.5	17.6	30.8	57.3	11.9	3.7	74.8	21.5	34.1	64.0	1.9	
Total%	2.6	21.8	5.2	3.0	5.7	1.2	1.5	30.3	8.7	6.8	12.7	0.4	

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

Volume	74	662	163	102	167	40	42	947	268	205	397	9	3,076
Approach%	8.2	73.6	18.1	33.0	54.0	12.9	3.3	75.3	21.3	33.6	65.0	1.5	
Total%	2.4	21.5	5.3	3.3	5.4	1.3	1.4	30.8	8.7	6.7	12.9	0.3	
PHF			0.87			0.90			0.94			0.91	0.96

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

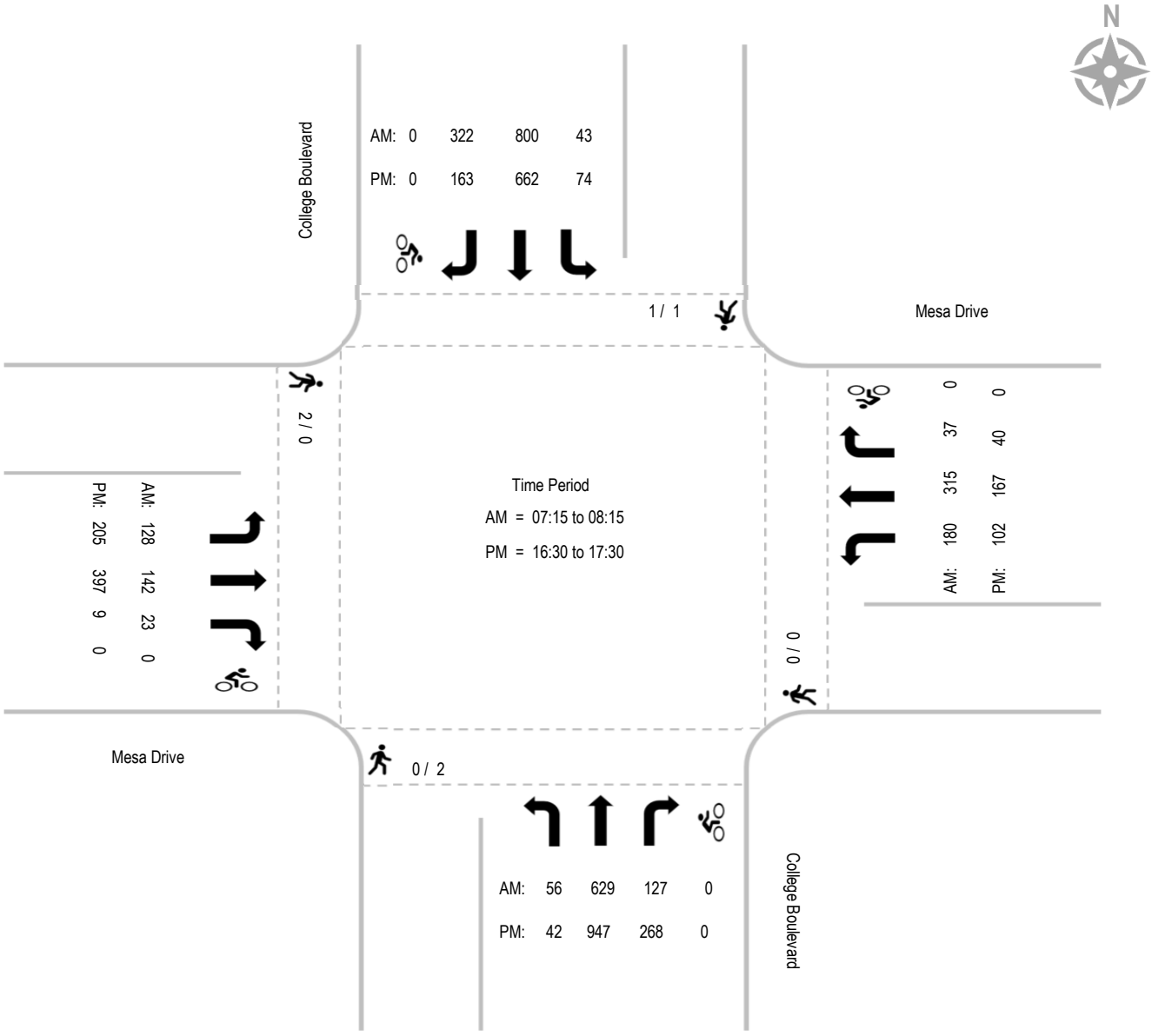
Location:	#01	File Name:	ITM-19-151-01
Intersection:	College Boulevard & Mesa Drive	Project:	LLG Ref. 3-19-3190
Date of Count:	Tuesday, December 17, 2019		Oceanside

AM	College Boulevard Southbound				Mesa Drive Westbound				College Boulevard Northbound				Mesa Drive 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	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	0	0	0	1	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				0				2				3	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	College Boulevard Southbound				Mesa Drive Westbound				College Boulevard Northbound				Mesa Drive 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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	2	0	0	0	0	0	0	0	2	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				2				0				3	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#01	File Name:	ITM-19-151-01
	Intersection:	College Boulevard & Mesa Drive	Project:	LLG Ref. 3-19-3190
	Date of Count:	Tuesday, December 17, 2019		Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#02	File Name:	ITM-19-151-02
Intersection:	Avenida Del La Plata & Mesa Drive	Project:	LLG Ref. 3-19-3190
Date of Count:	Tuesday, December 17, 2019		Oceanside

AM	Avenida Del La Plata Southbound			Mesa Drive Westbound			Avenida Del La Plata Northbound			Mesa Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	2	1	11	12	113	1	4	0	28	1	46	1	220
7:15	0	3	9	16	123	1	2	2	25	2	50	4	237
7:30	3	5	11	41	102	0	7	0	28	1	70	11	279
7:45	1	5	6	54	140	1	11	4	25	3	73	7	330
8:00	1	1	2	18	128	2	5	2	29	3	66	3	260
8:15	0	6	4	7	90	0	5	0	14	4	55	6	191
8:30	1	1	7	8	85	0	6	0	3	3	49	0	163
8:45	0	1	2	3	77	0	5	2	5	1	34	2	132
Total	8	23	52	159	858	5	45	10	157	18	443	34	1812
Approach%	9.6	27.7	62.7	15.6	84.0	0.5	21.2	4.7	74.1	3.6	89.5	6.9	
Total%	0.4	1.3	2.9	8.8	47.4	0.3	2.5	0.6	8.7	1.0	24.4	1.9	

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

Volume	5	14	28	129	493	4	25	8	107	9	259	25	1,106
Approach%	10.6	29.8	59.6	20.6	78.8	0.6	17.9	5.7	76.4	3.1	88.4	8.5	
Total%	0.5	1.3	2.5	11.7	44.6	0.4	2.3	0.7	9.7	0.8	23.4	2.3	
PHF			0.62			0.80			0.88			0.88	0.84

PM	Avenida Del La Plata Southbound			Mesa Drive Westbound			Avenida Del La Plata Northbound			Mesa Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	2	2	3	11	61	2	9	4	17	7	141	7	266
16:15	1	1	3	11	71	2	10	1	13	11	172	8	304
16:30	0	2	6	13	64	1	4	7	17	2	170	10	296
16:45	1	2	2	12	66	0	6	3	12	8	184	9	305
17:00	0	1	5	18	70	3	4	3	14	11	177	8	314
17:15	2	3	7	7	75	1	1	3	6	8	190	10	313
17:30	1	1	1	10	55	0	3	0	12	3	147	8	241
17:45	2	1	1	13	85	2	4	2	8	10	133	14	275
Total	9	13	28	95	547	11	41	23	99	60	1314	74	2314
Approach%	18.0	26.0	56.0	14.5	83.8	1.7	25.2	14.1	60.7	4.1	90.7	5.1	
Total%	0.4	0.6	1.2	4.1	23.6	0.5	1.8	1.0	4.3	2.6	56.8	3.2	

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

Volume	3	8	20	50	275	5	15	16	49	29	721	37	1,228
Approach%	9.7	25.8	64.5	15.2	83.3	1.5	18.8	20.0	61.3	3.7	91.6	4.7	
Total%	0.2	0.7	1.6	4.1	22.4	0.4	1.2	1.3	4.0	2.4	58.7	3.0	
PHF			0.65			0.91			0.71			0.95	0.97

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

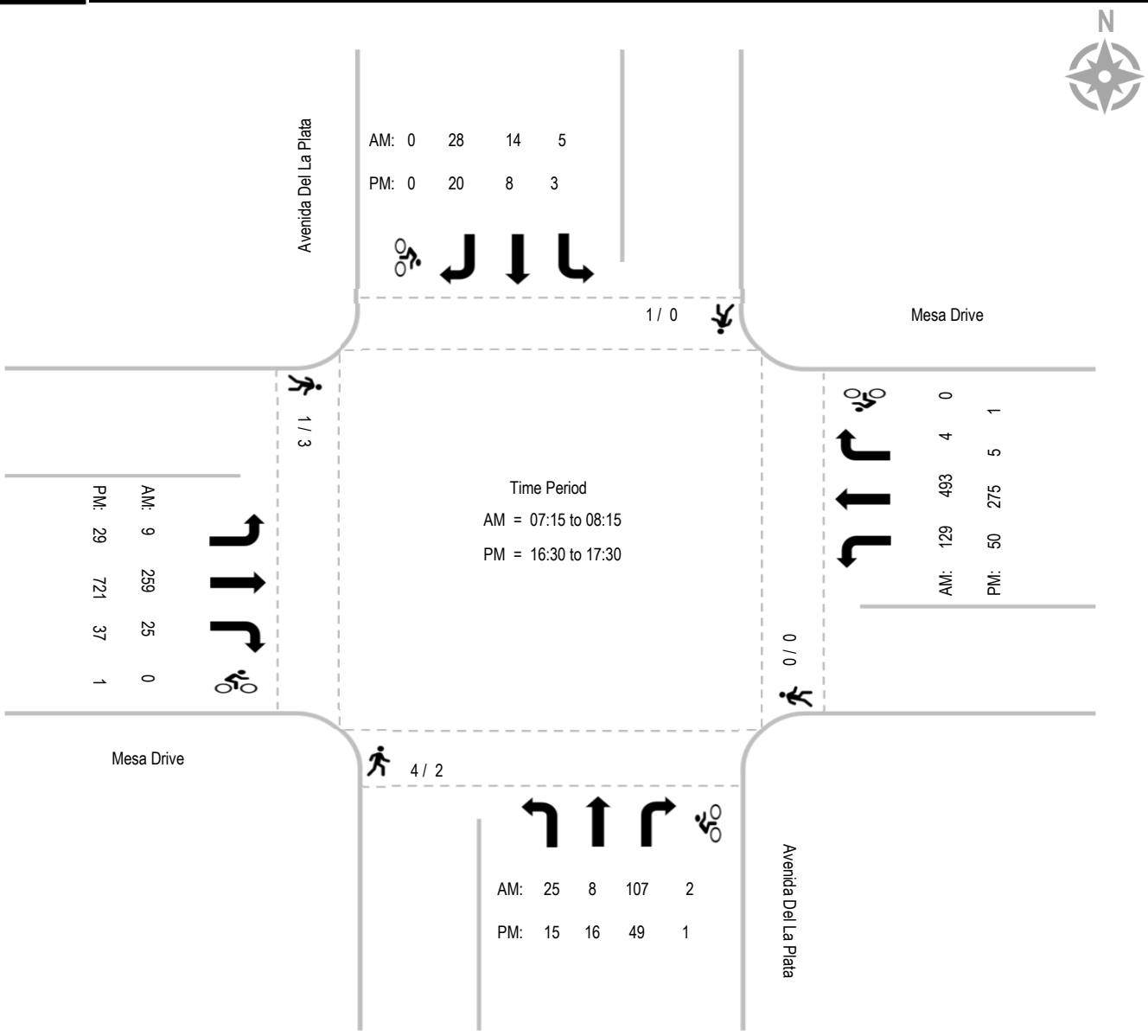
Location:	#02	File Name:	ITM-19-151-02
Intersection:	Avenida Del La Plata & Mesa Drive	Project:	LLG Ref. 3-19-3190
Date of Count:	Tuesday, December 17, 2019		Oceanside

AM	Avenida Del La Plata Southbound				Mesa Drive Westbound				Avenida Del La Plata Northbound				Mesa Drive 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	0	0	0	0	2	0
7:15	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	3	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	0	0	0	2	0	0	0	0	0	2
8:15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Total	1				0				4				1				6	
Bike Total		0	0	0		0	0	0		0	0	2		0	0	0		2

PM	Avenida Del La Plata Southbound				Mesa Drive Westbound				Avenida Del La Plata Northbound				Mesa Drive 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	1	0	0	0	0	0	1
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	1	0	1	0	0	0	1	0	0	0	2	1
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	1	0	1	0	1	1
17:30	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	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				2				3				5	
Bike Total		0	0	0		0	1	0		0	0	1		0	1	0		3

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#02	File Name: ITM-19-151-02
	Intersection:	Avenida Del La Plata & Mesa Drive	Project: LLG Ref. 3-19-3190
	Date of Count:	Tuesday, December 17, 2019	Oceanside



Intersection Turning Movement - Peak Hour Vehicle Count

LINSCOTT LAW & GREENSPAN engineers

Location:	#03	File Name:	ITM-19-151-03
Intersection:	Rancho Del Oro Park Drive & Mesa Drive	Project:	LLG Ref. 3-19-3190
Date of Count:	Tuesday, December 17, 2019		Oceanside

AM	Rancho Del Oro Park Dr Southbound			Mesa Drive Westbound			Rancho Del Oro Park Dr Northbound			Mesa Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
7:00	0	0	0	2	119	0	2	0	5	2	47	2	179
7:15	0	0	0	3	131	0	3	0	2	0	54	8	201
7:30	0	0	0	9	118	0	2	0	4	0	80	15	228
7:45	0	0	0	13	146	0	8	0	16	0	62	25	270
8:00	0	0	0	5	124	0	5	0	10	0	60	6	210
8:15	0	0	0	2	95	0	1	0	0	1	55	4	158
8:30	0	0	0	0	85	1	3	0	3	1	45	3	141
8:45	0	0	0	4	78	0	3	0	3	1	34	4	127
Total	0	0	0	38	896	1	27	0	43	5	437	67	1514
Approach%	-	-	-	4.1	95.8	0.1	38.6	-	61.4	1.0	85.9	13.2	
Total%	-	-	-	2.5	59.2	0.1	1.8	-	2.8	0.3	28.9	4.4	

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

Volume	-	-	-	30	519	-	18	-	32	-	256	54	909
Approach%	-	-	-	5.5	94.5	-	36.0	-	64.0	-	82.6	17.4	
Total%	-	-	-	3.3	57.1	-	2.0	-	3.5	-	28.2	5.9	
PHF			#DIV/0!			0.86			0.52			0.82	0.84

PM	Rancho Del Oro Park Dr Southbound			Mesa Drive Westbound			Rancho Del Oro Park Dr Northbound			Mesa Drive Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total
16:00	0	0	0	2	159	6	3	0	3	3	66	0	242
16:15	2	0	0	2	141	5	2	0	3	1	165	6	327
16:30	0	0	1	3	73	0	5	0	2	1	189	8	282
16:45	1	0	1	1	66	1	5	0	5	1	185	2	268
17:00	0	0	1	5	71	1	11	0	5	2	195	6	297
17:15	0	0	2	2	80	1	12	0	10	3	179	4	293
17:30	0	0	0	0	61	2	4	0	6	5	128	4	210
17:45	0	0	1	5	80	1	6	0	5	12	149	10	269
Total	3	0	6	20	731	17	48	0	39	28	1256	40	2188
Approach%	33.3	-	66.7	2.6	95.2	2.2	55.2	-	44.8	2.1	94.9	3.0	
Total%	0.1	-	0.3	0.9	33.4	0.8	2.2	-	1.8	1.3	57.4	1.8	

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

Volume	3	-	3	11	351	7	23	-	15	5	734	22	1,174
Approach%	50.0	-	50.0	3.0	95.1	1.9	60.5	-	39.5	0.7	96.5	2.9	
Total%	0.3	-	0.3	0.9	29.9	0.6	2.0	-	1.3	0.4	62.5	1.9	
PHF			0.75			0.62			0.59			0.94	0.90

Intersection Turning Movement - Bicycle & Pedestrian Count

LINSCOTT LAW & GREENSPAN engineers

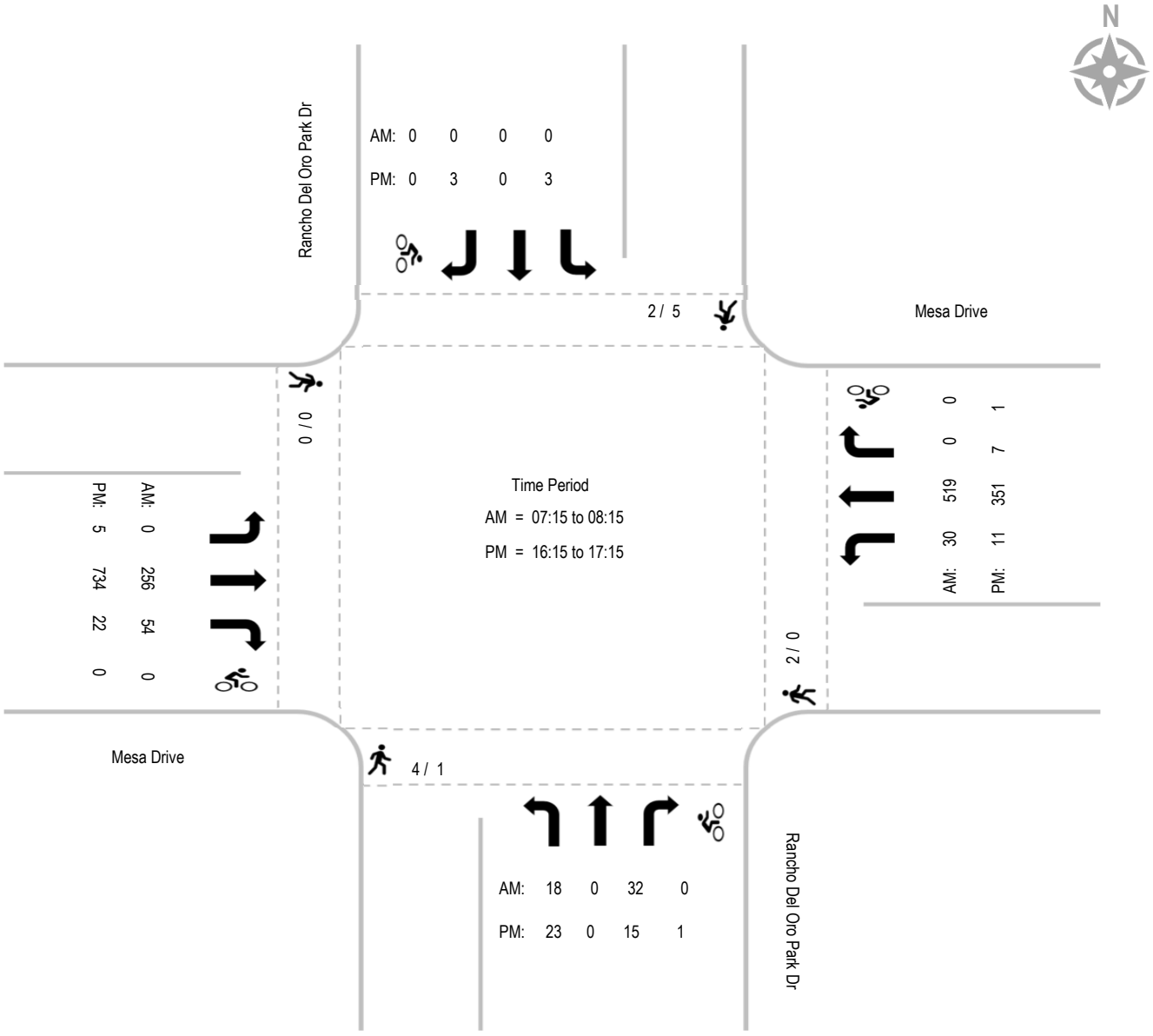
Location:	#03	File Name:	ITM-19-151-03
Intersection:	Rancho Del Oro Park Drive & Mesa Drive	Project:	LLG Ref. 3-19-3190
Date of Count:	Tuesday, December 17, 2019		Oceanside

AM	Rancho Del Oro Park Dr Southbound				Mesa Drive Westbound				Rancho Del Oro Park Dr Northbound				Mesa Drive 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	1	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	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	0	0	0	0	1	0
8:15	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0
8:30	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0
8:45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Ped Total	2				2				4				0				8	
Bike Total		0	0	0		0	0	0		0	0	0		0	0	0		0

PM	Rancho Del Oro Park Dr Southbound				Mesa Drive Westbound				Rancho Del Oro Park Dr Northbound				Mesa Drive 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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
17:15	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
17:30	0	0	0	0	0	0	0	0	1	0	0	0	0	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	5				0				1				0				6	
Bike Total		0	0	0		0	1	0		0	0	1		0	0	0		2

Intersection Turning Movement - Peak Hour Summary

LINSCOTT LAW & GREENSPAN engineers	Location:	#03	File Name: ITM-19-151-03
	Intersection:	Rancho Del Oro Park Drive & Mesa Drive	Project: LLG Ref. 3-19-3190
	Date of Count:	Tuesday, December 17, 2019	Oceanside



Linscott, Law & Greenspan, Engineers

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

Average Daily Traffic

Location: **College Boulevard, North of Mesa Drive**

Date: **Tuesday, December 17, 2019** Total Daily Volume: **29102** 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
232	131	103	162	324	824	1431	2080	1742	1520	1558	1516	1648	1663	1960	2166	2221	2105	1782	1318	992	757	491	376
64	35	25	31	45	139	273	488	511	371	364	336	394	408	417	556	572	545	481	349	244	200	165	112
51	34	32	38	57	176	344	538	408	399	382	377	433	427	529	540	537	551	452	326	276	194	118	113
62	31	22	48	84	237	395	504	435	341	362	378	406	387	519	505	596	516	450	356	230	209	103	75
55	31	24	45	138	272	419	550	388	409	450	425	415	441	495	565	516	493	399	287	242	154	105	76

Date: **Tuesday, December 17, 2019** Total Daily Volume: **14333** 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
123	77	59	78	116	248	481	788	683	610	741	737	839	803	997	1221	1240	1199	977	788	584	437	286	221
27	24	15	20	19	43	87	193	220	143	182	162	203	205	206	321	346	303	279	188	143	115	101	56
28	21	18	14	27	42	122	203	148	163	179	180	232	213	268	299	278	321	238	200	142	114	60	72
37	15	11	22	25	59	130	166	173	147	174	182	205	171	288	299	322	285	245	230	143	112	58	46
31	17	15	22	45	104	142	226	142	157	206	213	199	214	235	302	294	290	215	170	156	96	67	47

Date: **Tuesday, December 17, 2019** Total Daily Volume: **14769** 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
109	54	44	84	208	576	950	1292	1059	910	817	779	809	860	963	945	981	906	805	530	408	320	205	155
37	11	10	11	26	96	186	295	291	228	182	174	191	203	211	235	226	242	202	161	101	85	64	56
23	13	14	24	30	134	222	335	260	236	203	197	201	214	261	241	259	230	214	126	134	80	58	41
25	16	11	26	59	178	265	338	262	194	188	196	201	216	231	206	274	231	205	126	87	97	45	29
24	14	9	23	93	168	277	324	246	252	244	212	216	227	260	263	222	203	184	117	86	58	38	29

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

Average Daily Traffic

Location: **College Boulevard, South of Mesa Drive**

Date: **Tuesday, December 17, 2019** Total Daily Volume: **27782** 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
210	114	92	149	320	803	1335	1824	1596	1505	1493	1468	1601	1613	1869	2033	2105	1983	1786	1311	1011	728	474	359
57	27	22	34	50	129	259	397	475	356	339	328	371	396	396	504	528	520	474	346	255	193	154	107
49	30	28	34	57	180	316	429	356	403	383	375	431	415	523	518	543	508	456	334	253	206	115	106
53	33	19	44	74	240	380	455	420	350	339	364	383	371	489	491	561	473	466	364	237	186	102	75
51	24	23	37	139	254	380	543	345	396	432	401	416	431	461	520	473	482	390	267	266	143	103	71

Date: **Tuesday, December 17, 2019** Total Daily Volume: **14491** 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
118	71	49	73	112	229	437	773	680	626	709	731	841	811	1026	1218	1289	1251	1108	821	566	436	301	215
26	19	12	20	19	43	78	179	231	143	160	165	194	189	207	312	342	319	308	192	155	116	99	60
25	21	14	15	26	40	108	175	137	171	187	190	243	220	294	298	318	319	279	216	138	129	65	65
36	16	10	20	20	54	117	178	181	151	152	169	197	178	275	304	339	307	296	242	143	100	64	46
31	15	13	18	47	92	134	241	131	161	210	207	207	224	250	304	290	306	225	171	130	91	73	44

Date: **Tuesday, December 17, 2019** Total Daily Volume: **13291** 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
92	43	43	76	208	574	898	1051	916	879	784	737	760	802	843	815	816	732	678	490	445	292	173	144
31	8	10	14	31	86	181	218	244	213	179	163	177	207	189	192	186	201	166	154	100	77	55	47
24	9	14	19	31	140	208	254	219	232	196	185	188	195	229	220	225	189	177	118	115	77	50	41
17	17	9	24	54	186	263	277	239	199	187	195	186	193	214	187	222	166	170	122	94	86	38	29
20	9	10	19	92	162	246	302	214	235	222	194	209	207	211	216	183	176	165	96	136	52	30	27

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

Average Daily Traffic

Location: **Mesa Drive, East of College Boulevard**

Date: **Tuesday, December 17, 2019** Total Daily Volume: **10784** 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
40	18	18	29	68	233	421	827	652	490	441	413	500	573	882	968	1051	1068	798	393	477	229	125	70
9	7	3	9	7	25	76	175	213	123	98	112	109	151	151	235	241	286	223	112	91	92	37	24
9	3	3	9	12	61	69	196	158	116	117	111	122	116	240	244	268	284	220	101	85	63	29	17
15	5	8	8	13	56	128	210	155	140	124	93	140	140	262	239	267	234	192	111	144	38	26	18
7	3	4	3	36	91	148	246	126	111	102	97	129	166	229	250	275	264	163	69	157	36	33	11

Date: **Tuesday, December 17, 2019** Total Daily Volume: **6007** 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
25	10	10	11	14	51	82	295	231	206	198	191	283	350	551	659	742	732	569	267	234	148	95	53
7	5	2	3	2	8	19	46	75	48	45	50	66	87	100	168	170	203	159	71	67	53	27	20
5	1	2	5	1	12	10	60	60	48	52	49	67	70	132	143	184	186	149	73	51	43	24	10
10	3	4	2	2	9	22	98	54	63	48	41	72	93	165	166	192	171	147	73	57	27	19	14
3	1	2	1	9	22	31	91	42	47	53	51	78	100	154	182	196	172	114	50	59	25	25	9

Date: **Tuesday, December 17, 2019** Total Daily Volume: **4777** 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
15	8	8	18	54	182	339	532	421	284	243	222	217	223	331	309	309	336	229	126	243	81	30	17
2	2	1	6	5	17	57	129	138	75	53	62	43	64	51	67	71	83	64	41	24	39	10	4
4	2	1	4	11	49	59	136	98	68	65	62	55	46	108	101	84	98	71	28	34	20	5	7
5	2	4	6	11	47	106	112	101	77	76	52	68	47	97	73	75	63	45	38	87	11	7	4
4	2	2	2	27	69	117	155	84	64	49	46	51	66	75	68	79	92	49	19	98	11	8	2

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

Average Daily Traffic

Location: **Mesa Drive, West of College Boulevard**

Date: **Tuesday, December 17, 2019** Total Daily Volume: **11041** 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
52	42	20	38	83	225	500	1009	721	499	456	479	525	583	931	961	994	985	686	409	375	243	128	97
14	12	6	5	7	33	90	262	229	145	95	131	129	138	173	229	241	260	182	117	86	91	41	37
9	7	6	11	13	55	94	302	197	113	105	122	122	149	238	231	252	263	201	108	92	55	31	21
19	14	4	15	21	57	123	220	150	122	133	115	147	155	272	253	236	235	161	105	90	53	26	23
10	9	4	7	42	80	193	225	145	119	123	111	127	141	248	248	265	227	142	79	107	44	30	16

Date: **Tuesday, December 17, 2019** Total Daily Volume: **5494** 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
26	19	15	14	23	57	147	308	225	188	208	206	271	316	522	607	627	601	401	226	212	143	70	62
8	8	5	2	2	7	28	70	67	47	46	49	67	79	95	147	148	172	109	59	57	48	23	22
7	2	5	4	4	11	32	104	65	38	49	46	62	80	123	134	159	152	115	70	46	32	17	12
8	6	2	5	4	16	39	76	49	53	51	53	68	79	155	164	145	145	92	53	47	33	15	17
3	3	3	3	13	23	48	58	44	50	62	58	74	78	149	162	175	132	85	44	62	30	15	11

Date: **Tuesday, December 17, 2019** Total Daily Volume: **5547** 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
26	23	5	24	60	168	353	701	496	311	248	273	254	267	409	354	367	384	285	183	163	100	58	35
6	4	1	3	5	26	62	192	162	98	49	82	62	59	78	82	93	88	73	58	29	43	18	15
2	5	1	7	9	44	62	198	132	75	56	76	60	69	115	97	93	111	86	38	46	23	14	9
11	8	2	10	17	41	84	144	101	69	82	62	79	76	117	89	91	90	69	52	43	20	11	6
7	6	1	4	29	57	145	167	101	69	61	53	53	63	99	86	90	95	57	35	45	14	15	5

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APPENDIX C

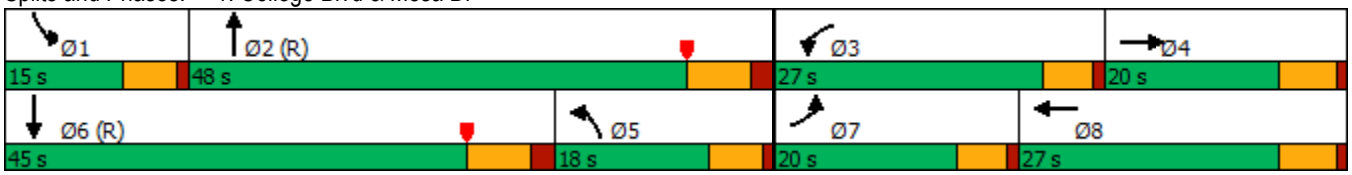
EXISTING INTERSECTION ANALYSIS WORKSHEETS

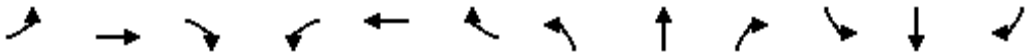
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	128	142	180	315	56	629	43	800
Future Volume (vph)	128	142	180	315	56	629	43	800
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	30.0	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	20.0	20.0	27.0	27.0	18.0	48.0	15.0	45.0
Total Split (%)	18.2%	18.2%	24.5%	24.5%	16.4%	43.6%	13.6%	40.9%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 88 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	142	23	180	315	37	56	629	127	43	800	322
Future Volume (veh/h)	128	142	23	180	315	37	56	629	127	43	800	322
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	136	151	24	191	335	39	60	669	135	46	851	343
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	323	50	224	442	51	349	1533	309	61	850	341
Arrive On Green	0.09	0.11	0.11	0.13	0.14	0.14	0.20	0.52	0.52	0.03	0.34	0.34
Sat Flow, veh/h	1781	3075	479	1781	3209	371	1781	2939	592	1781	2474	994
Grp Volume(v), veh/h	136	86	89	191	184	190	60	404	400	46	610	584
Grp Sat Flow(s),veh/h/ln	1781	1777	1778	1781	1777	1803	1781	1777	1755	1781	1777	1691
Q Serve(g_s), s	8.2	5.0	5.2	11.6	11.0	11.2	3.1	15.5	15.5	2.8	37.8	37.8
Cycle Q Clear(g_c), s	8.2	5.0	5.2	11.6	11.0	11.2	3.1	15.5	15.5	2.8	37.8	37.8
Prop In Lane	1.00		0.27	1.00		0.21	1.00		0.34	1.00		0.59
Lane Grp Cap(c), veh/h	165	187	187	224	245	248	349	927	915	61	611	581
V/C Ratio(X)	0.82	0.46	0.48	0.85	0.75	0.76	0.17	0.44	0.44	0.75	1.00	1.00
Avail Cap(c_a), veh/h	241	229	229	355	342	347	349	927	915	155	611	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	46.3	46.4	47.1	45.6	45.7	36.8	16.3	16.3	52.7	36.1	36.1
Incr Delay (d2), s/veh	13.6	2.5	2.7	11.1	7.6	8.1	0.2	1.5	1.5	16.8	36.3	38.5
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	4.2	2.3	2.4	5.6	5.2	5.4	1.3	6.1	6.0	1.5	21.3	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	48.8	49.1	58.2	53.2	53.8	37.0	17.8	17.8	69.5	72.4	74.6
LnGrp LOS	E	D	D	E	D	D	D	B	B	E	E	F
Approach Vol, veh/h		311			565			864			1240	
Approach Delay, s/veh		54.9			55.1			19.1			73.3	
Approach LOS		D			E			B			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	64.6	18.9	17.4	28.7	45.0	15.3	21.0
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	9.6	40.8	21.9	14.2	12.6	* 38	14.9	21.2
Max Q Clear Time (g_c+I1), s	4.8	17.5	13.6	7.2	5.1	39.8	10.2	13.2
Green Ext Time (p_c), s	0.0	6.7	0.3	0.6	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	52.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

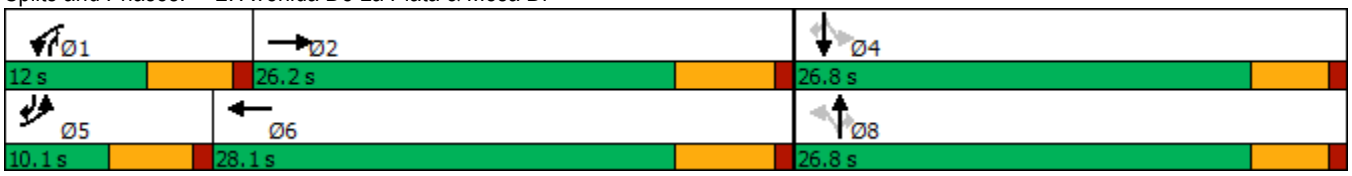
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

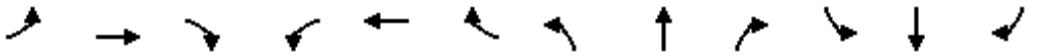
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	259	129	493	25	8	107	5	14	28
Future Volume (vph)	9	259	129	493	25	8	107	5	14	28
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.1	26.2	12.0	28.1	26.8	26.8	12.0	26.8	26.8	10.1
Total Split (%)	15.5%	40.3%	18.5%	43.2%	41.2%	41.2%	18.5%	41.2%	41.2%	15.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 39.9
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	259	25	129	493	4	25	8	107	5	14	28
Future Volume (veh/h)	9	259	25	129	493	4	25	8	107	5	14	28
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	11	308	30	154	587	5	30	10	127	6	17	33
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	814	79	205	1261	11	345	88	435	172	248	275
Arrive On Green	0.01	0.25	0.25	0.12	0.35	0.35	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3274	317	1781	3611	31	955	551	1585	211	1555	1585
Grp Volume(v), veh/h	11	166	172	154	289	303	40	0	127	23	0	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1813	1781	1777	1865	1507	0	1585	1766	0	1585
Q Serve(g_s), s	0.2	2.5	2.6	2.7	4.1	4.1	0.0	0.0	2.1	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	2.5	2.6	2.7	4.1	4.1	0.6	0.0	2.1	0.3	0.0	0.6
Prop In Lane	1.00		0.17	1.00		0.02	0.75		1.00	0.26		1.00
Lane Grp Cap(c), veh/h	26	442	451	205	620	651	433	0	435	420	0	275
V/C Ratio(X)	0.42	0.38	0.38	0.75	0.47	0.47	0.09	0.00	0.29	0.05	0.00	0.12
Avail Cap(c_a), veh/h	272	1108	1131	376	1212	1272	1184	0	1254	1276	0	1094
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.0	10.2	10.2	14.0	8.3	8.3	11.8	0.0	9.4	11.7	0.0	11.4
Incr Delay (d2), s/veh	4.1	0.8	0.8	2.1	1.2	1.1	0.1	0.0	0.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.9	1.0	1.0	0.2	0.0	0.6	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	10.9	11.0	16.1	9.4	9.4	11.9	0.0	9.7	11.8	0.0	11.6
LnGrp LOS	C	B	B	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		349			746			167			56	
Approach Delay, s/veh		11.2			10.8			10.2			11.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	13.9		9.9	5.6	17.2		9.9				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.9	20.4		* 22	5.0	22.3		* 22				
Max Q Clear Time (g_c+I1), s	4.7	4.6		2.6	2.2	6.1		4.1				
Green Ext Time (p_c), s	0.0	2.1		0.1	0.0	5.3		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	256	54	30	519	0	18	0	32	0	0	0
Future Vol, veh/h	0	256	54	30	519	0	18	0	32	0	0	0
Conflicting Peds, #/hr	0	0	4	0	0	2	0	0	2	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	305	64	36	618	0	21	0	38	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	620	0	0	373	0	0	722	-	191	847	-	311
Stage 1	-	-	-	-	-	-	341	-	-	692	-	-
Stage 2	-	-	-	-	-	-	381	-	-	155	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	956	-	-	1182	-	-	314	0	818	255	0	685
Stage 1	-	-	-	-	-	-	647	0	-	400	0	-
Stage 2	-	-	-	-	-	-	613	0	-	832	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	954	-	-	1177	-	-	306	-	813	236	-	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	306	-	-	236	-	-
Stage 1	-	-	-	-	-	-	644	-	-	399	-	-
Stage 2	-	-	-	-	-	-	594	-	-	792	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	12.5	0
HCM LOS			B	A

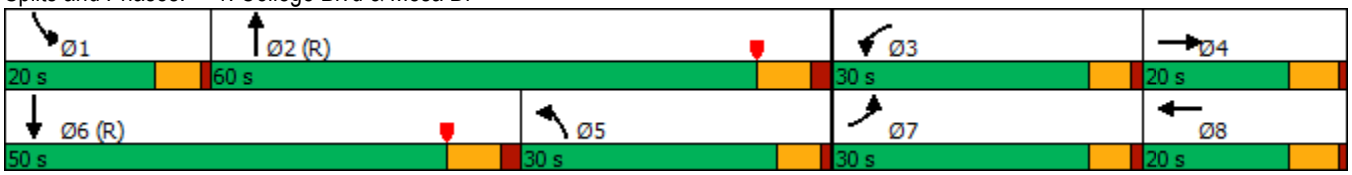
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	306	813	954	-	-	1177	-	-	-	-
HCM Lane V/C Ratio	0.07	0.047	-	-	-	0.03	-	-	-	-
HCM Control Delay (s)	17.6	9.6	0	-	-	8.2	-	-	0	0
HCM Lane LOS	C	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.1	0	-	-	0.1	-	-	-	-

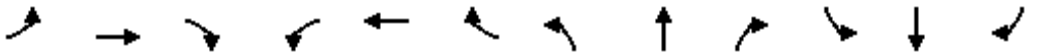
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	397	102	167	42	947	74	662
Future Volume (vph)	205	397	102	167	42	947	74	662
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	25.8	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	30.0	20.0	30.0	20.0	30.0	60.0	20.0	50.0
Total Split (%)	23.1%	15.4%	23.1%	15.4%	23.1%	46.2%	15.4%	38.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	397	9	102	167	40	42	947	268	74	662	163
Future Volume (veh/h)	205	397	9	102	167	40	42	947	268	74	662	163
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	214	414	9	106	174	42	44	986	279	77	690	170
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	512	11	132	234	55	541	1495	421	98	802	197
Arrive On Green	0.14	0.14	0.14	0.07	0.08	0.08	0.30	0.55	0.55	0.05	0.28	0.28
Sat Flow, veh/h	1781	3556	77	1781	2852	671	1781	2737	771	1781	2826	696
Grp Volume(v), veh/h	214	207	216	106	107	109	44	639	626	77	434	426
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1777	1747	1781	1777	1732	1781	1777	1745
Q Serve(g_s), s	15.3	14.6	14.7	7.6	7.6	8.0	2.3	33.1	33.4	5.6	30.1	30.1
Cycle Q Clear(g_c), s	15.3	14.6	14.7	7.6	7.6	8.0	2.3	33.1	33.4	5.6	30.1	30.1
Prop In Lane	1.00		0.04	1.00		0.38	1.00		0.45	1.00		0.40
Lane Grp Cap(c), veh/h	242	256	267	132	146	143	541	971	946	98	504	495
V/C Ratio(X)	0.88	0.81	0.81	0.81	0.73	0.76	0.08	0.66	0.66	0.79	0.86	0.86
Avail Cap(c_a), veh/h	341	256	267	341	194	191	541	971	946	200	585	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	53.9	53.9	59.3	58.3	58.4	32.3	20.9	21.0	60.7	44.1	44.1
Incr Delay (d2), s/veh	17.6	17.9	17.5	10.9	11.6	14.5	0.1	3.5	3.6	12.9	17.2	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	7.7	8.0	3.8	3.8	4.0	1.0	13.5	13.3	2.8	15.1	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.8	71.8	71.4	70.2	69.9	73.0	32.4	24.4	24.6	73.5	61.4	61.7
LnGrp LOS	E	E	E	E	E	E	C	C	C	E	E	E
Approach Vol, veh/h		637			322			1309			937	
Approach Delay, s/veh		72.0			71.0			24.7			62.5	
Approach LOS		E			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	78.2	14.7	24.5	46.7	44.1	22.8	16.5
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	14.6	52.8	24.9	14.2	24.6	* 43	24.9	14.2
Max Q Clear Time (g_c+I1), s	7.6	35.4	9.6	16.7	4.3	32.1	17.3	10.0
Green Ext Time (p_c), s	0.1	9.9	0.2	0.0	0.1	4.8	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

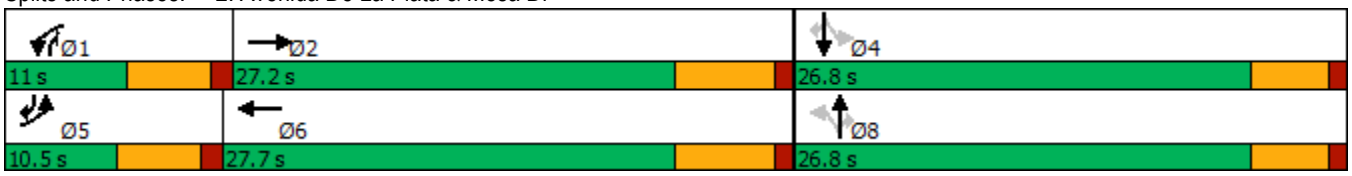
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

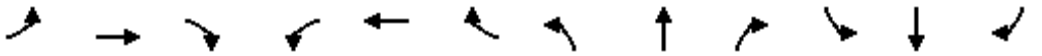
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	29	721	50	275	15	16	49	3	8	20
Future Volume (vph)	29	721	50	275	15	16	49	3	8	20
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.5	27.2	11.0	27.7	26.8	26.8	11.0	26.8	26.8	10.5
Total Split (%)	16.2%	41.8%	16.9%	42.6%	41.2%	41.2%	16.9%	41.2%	41.2%	16.2%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 40.4
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	721	37	50	275	5	15	16	49	3	8	20
Future Volume (veh/h)	29	721	37	50	275	5	15	16	49	3	8	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.98	1.00		0.99
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	30	743	38	52	284	5	15	16	51	3	8	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1285	66	101	1410	25	215	147	284	161	190	253
Arrive On Green	0.04	0.37	0.37	0.06	0.39	0.39	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3435	176	1781	3572	63	506	1180	1561	242	1530	1577
Grp Volume(v), veh/h	30	384	397	52	141	148	31	0	51	11	0	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1834	1781	1777	1857	1686	0	1561	1772	0	1577
Q Serve(g_s), s	0.6	6.1	6.1	1.0	1.8	1.8	0.0	0.0	1.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	0.6	6.1	6.1	1.0	1.8	1.8	0.5	0.0	1.0	0.2	0.0	0.4
Prop In Lane	1.00		0.10	1.00		0.03	0.48		1.00	0.27		1.00
Lane Grp Cap(c), veh/h	64	665	686	101	701	733	362	0	284	351	0	253
V/C Ratio(X)	0.47	0.58	0.58	0.52	0.20	0.20	0.09	0.00	0.18	0.03	0.00	0.08
Avail Cap(c_a), veh/h	274	1084	1119	300	1110	1160	1167	0	1074	1203	0	1051
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.6	8.8	8.8	16.1	7.0	7.0	13.7	0.0	12.2	13.5	0.0	12.5
Incr Delay (d2), s/veh	1.9	1.1	1.1	1.5	0.3	0.3	0.1	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.4	1.5	0.3	0.4	0.4	0.2	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.5	9.9	9.9	17.6	7.3	7.3	13.8	0.0	12.5	13.6	0.0	12.7
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		811			341			82			32	
Approach Delay, s/veh		10.2			8.8			13.0			13.0	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	18.9		9.1	6.4	19.6		9.1				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.9	21.4		* 22	5.4	21.9		* 22				
Max Q Clear Time (g_c+I1), s	3.0	8.1		2.4	2.6	3.8		3.0				
Green Ext Time (p_c), s	0.0	5.0		0.1	0.0	2.5		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		10.1
HCM 6th LOS		B

Notes

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

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	734	22	11	351	7	23	0	15	3	0	3
Future Vol, veh/h	5	734	22	11	351	7	23	0	15	3	0	3
Conflicting Peds, #/hr	0	0	1	0	0	5	0	0	2	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	816	24	12	390	8	26	0	17	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	403	0	0	841	0	0	1060	-	423	845	-	204
Stage 1	-	-	-	-	-	-	841	-	-	423	-	-
Stage 2	-	-	-	-	-	-	219	-	-	422	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	1152	-	-	790	-	-	178	0	579	256	0	803
Stage 1	-	-	-	-	-	-	326	0	-	579	0	-
Stage 2	-	-	-	-	-	-	763	0	-	580	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1147	-	-	789	-	-	174	-	577	243	-	799
Mov Cap-2 Maneuver	-	-	-	-	-	-	174	-	-	243	-	-
Stage 1	-	-	-	-	-	-	324	-	-	573	-	-
Stage 2	-	-	-	-	-	-	748	-	-	559	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	22.2	14.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	174	577	1147	-	-	789	-	-	243	799
HCM Lane V/C Ratio	0.147	0.029	0.005	-	-	0.015	-	-	0.014	0.004
HCM Control Delay (s)	29.2	11.4	8.2	-	-	9.6	-	-	20	9.5
HCM Lane LOS	D	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.5	0.1	0	-	-	0	-	-	0	0

APPENDIX D

INDIVIDUAL CUMULATIVE PROJECTS ASSIGNMENTS

PROPOSED PROJECT

The proposed Rancho Del Oro Village XII project consists of approximately 303 residential dwelling units consisting of a variety of multi-family product types. The project is located at the northwest quadrant of the College Boulevard and Old Grove Road, in the City of Oceanside.

Project Trip Generation

To determine the trips forecast to be generated by the proposed project, *April 2002 SANDAG Trip Generation* rates were utilized in accordance with the City of Oceanside and SANTEC/ITE Traffic Study Guidelines. The SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) showing the trip generation rate for the proposed land use is provided in Appendix D. Table 6 summarizes the project trip generation rates and forecast project generated trips.

As summarized in Table 6, the proposed project is forecast to generate approximately 2,424 trips per day, which includes approximately 193 a.m. peak hour trips and approximately 242 p.m. peak hour trips.

Table 6
Proposed Project Trip Generation Rates

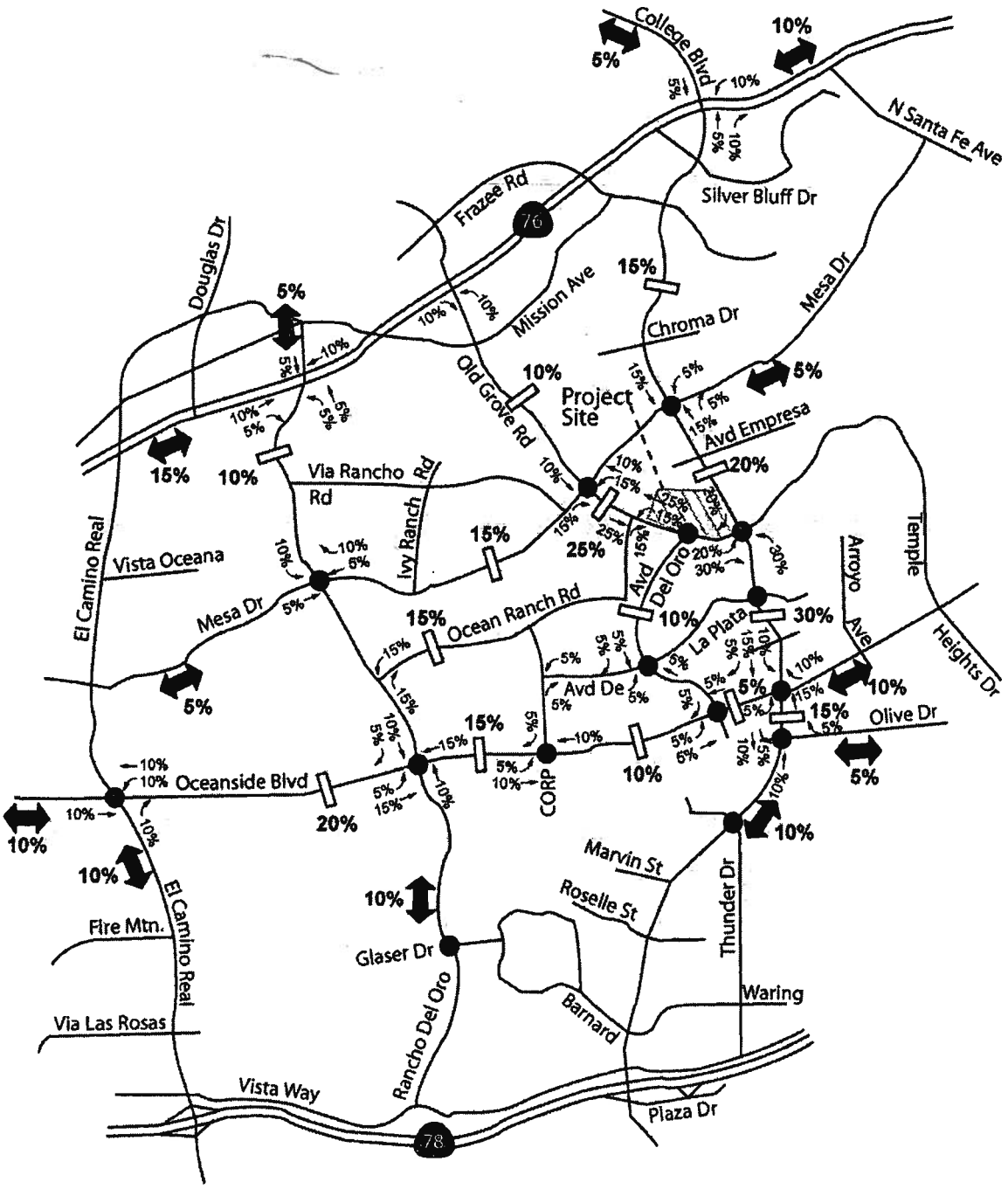
Land Use	Daily Rate	AM Peak Hour			PM Peak Hour		
		Total (% of Daily)	In (% AM)	Out (% AM)	Total (% of Daily)	In (% PM)	Out (% PM)
Trip Generation Rates							
Residential- Condominium (6-20 DU/acre)	8/DU	8%	20%	80%	10%	70%	30%
Forecast Project Generated Trips							
Residential- Condominium (303 DU)	2,424	193	39	154	242	169	73

Source: SANDAG, "Not So Brief Guide", April 2002.
Note: DU = dwelling unit.

Project Trip Distribution

Project traffic was distributed on the roadway network based on discussions with City staff and a Select Zone Assignment model run conducted by SANDAG for the proposed project, using the SANDAG Year 2030 North County Subarea Model (Series 11).

The Select Zone Assignment model used for this project was run under Horizon Year 2030 forecast conditions, which assumes that Rancho Del Oro Drive (RDO)/SR-78 interchange is in place. Exhibit 6 illustrates the forecast trip distribution for the proposed project.

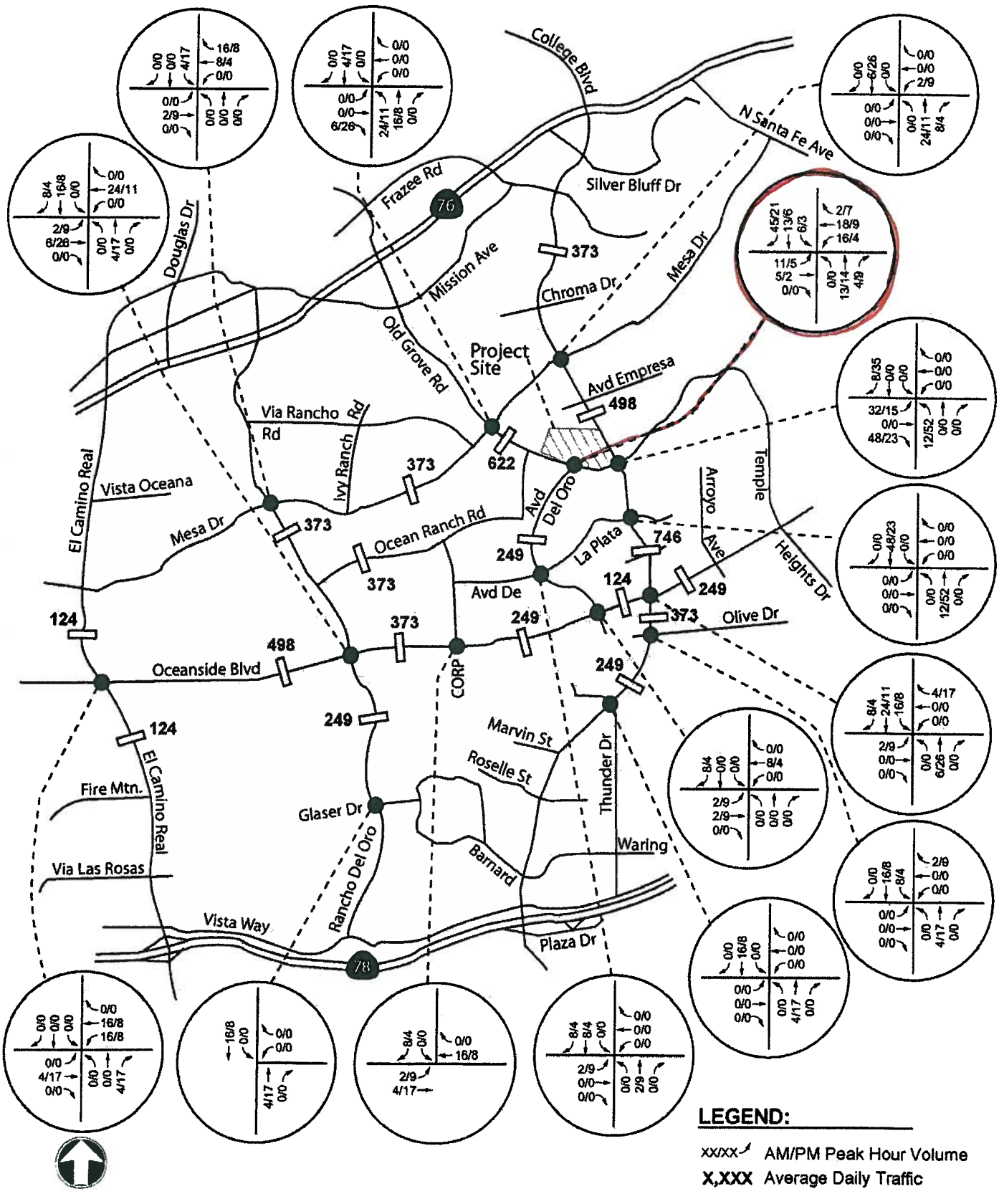


NOT TO SCALE

PROJECT TRIP DISTRIBUTION

55-100706.001 September 2010

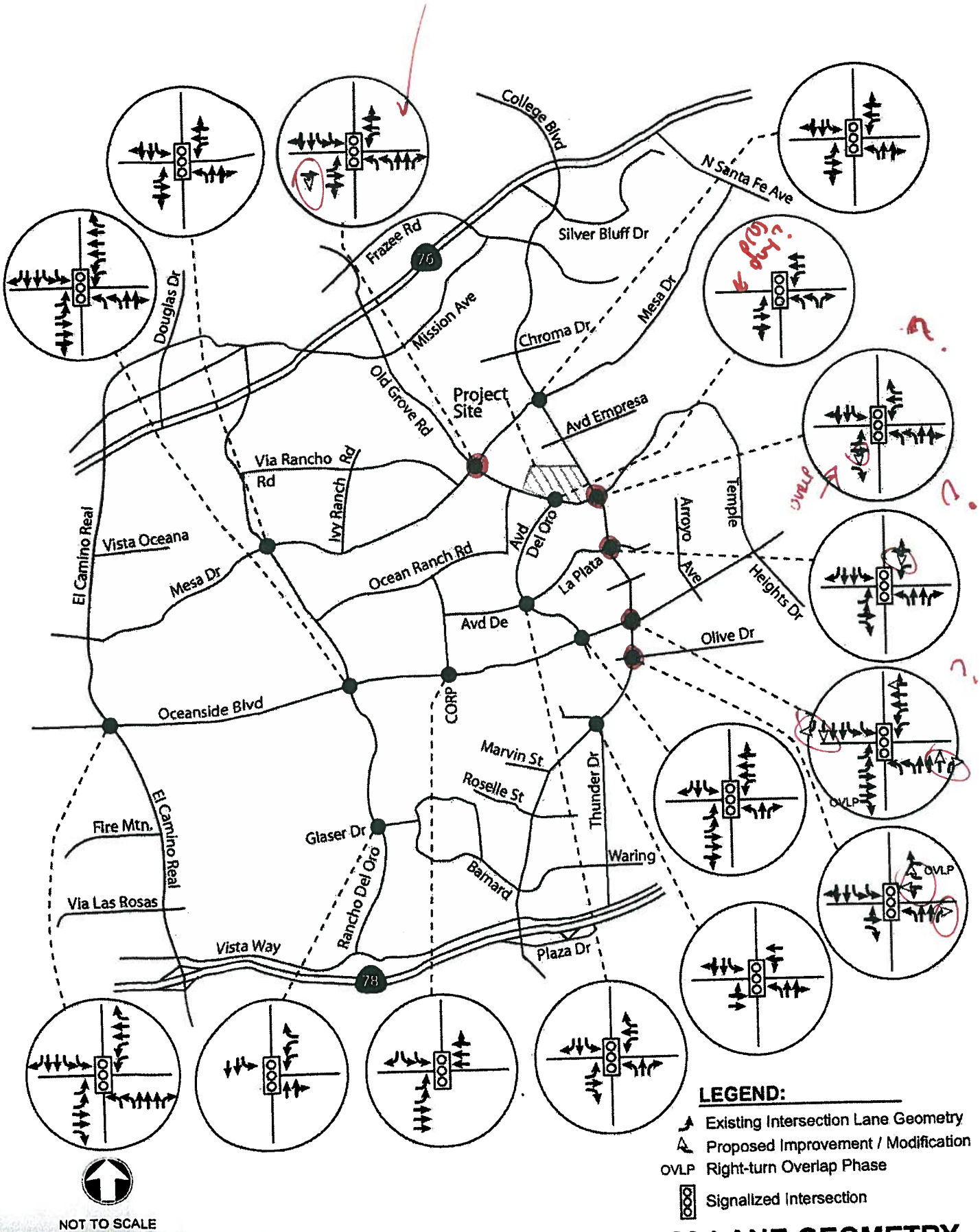
EXHIBIT 6



PROJECT PEAK HOUR AND ADT VOLUMES

55-100706.001 September 2010

EXHIBIT 7



HORIZON YEAR 2030 LANE GEOMETRY

EXHIBIT 13

RBF

55-100706.001 September 2010

Table 1
Summary of Trip Generation
Pacific Coast Business Park
With Alternative Mix of Uses

Land Use	Trips Per:	Trip Generation Rates						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Industrial	KSF	8	0.79	0.09	0.88	0.19	0.77	0.96
General Office	KSF	20	2.52	0.28	2.80	0.52	2.08	2.60
Medical Office	KSF	50	2.40	0.60	3.00	1.65	3.85	5.50

APPROVED PCBP DEVELOPMENT

Land Use	Units	Trip Generation						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Industrial	1,100.000 KSF	8,800	871	97	968	211	845	1,056
General Office	400.000 KSF	8,000	1,008	112	1,120	208	832	1,040
TOTAL	**1,500.000 KSF**	**16,800**	**1,879**	**209**	**2,088**	**419**	**1,677**	**2,096**

PROPOSED PCBP DEVELOPMENT

Land Use	Units	Trip Generation						
			AM Peak Hour			PM Peak Hour		
		Daily	In	Out	Total	In	Out	Total
Industrial	901.500 KSF	7,212	714	79	793	173	692	865
General Office	518.000 KSF	10,360	1,305	145	1,450	269	1,077	1,347
Medical Office	80.500 KSF	4,025	193	48	242	133	310	443
TOTAL	**1,500.000 KSF**	**21,597**	**2,213**	**273**	**2,485**	**575**	**2,080**	**2,655**
DIFFERENCE	**0.000 KSF**	**4,797**	**333**	**64**	**397**	**156**	**403**	**559**

Trip generation rates are from San Diego Traffic Generators, April 2002.
KSF = Thousand Square Feet

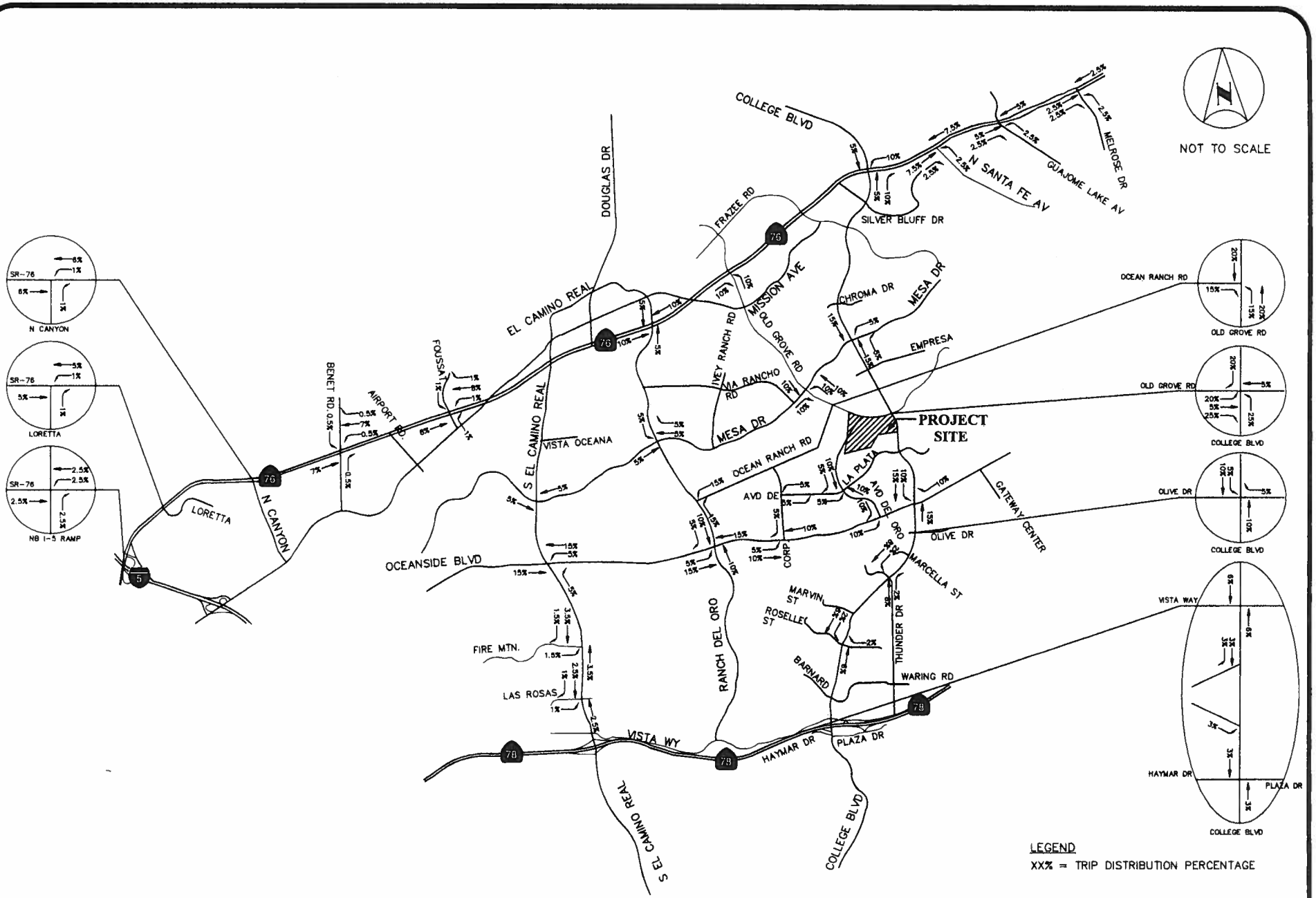


FIGURE 2
PROJECT TRIP DISTRIBUTION

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Kimley-Horn and Associates, Inc.

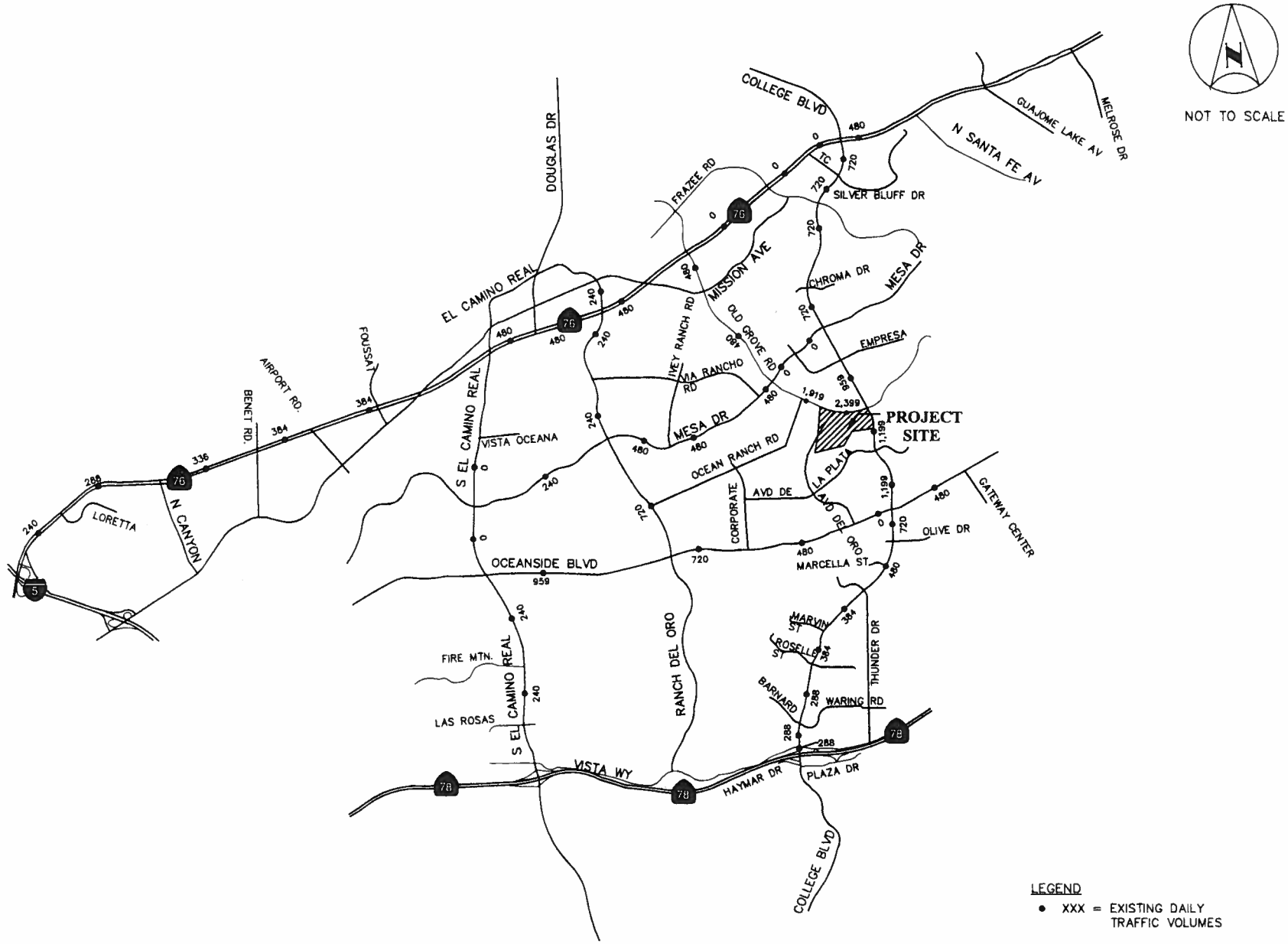

FIGURE 3
PROJECT RELATED
DAILY TRAFFIC VOLUMES

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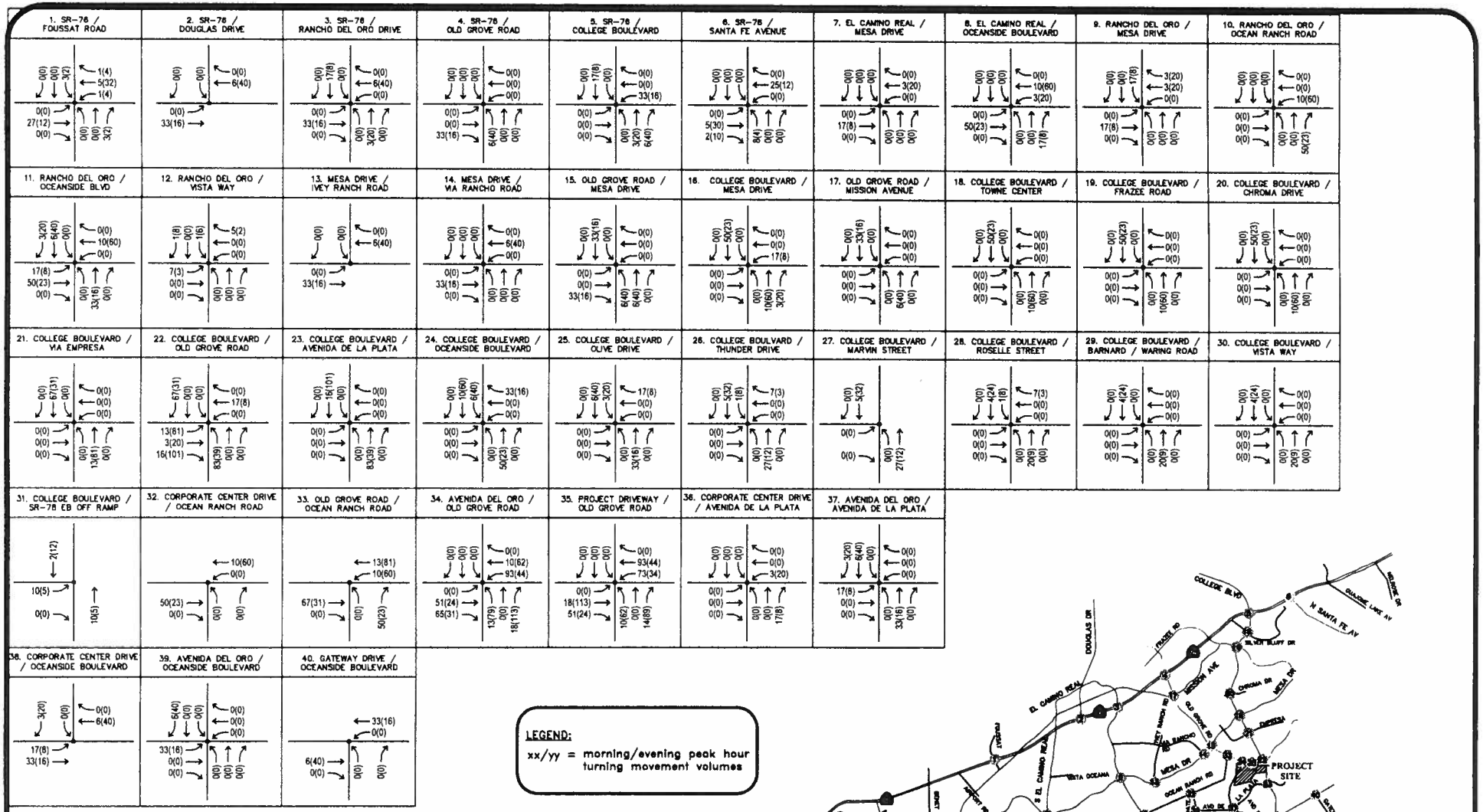

FIGURE 4
PROJECT RELATED
PEAK HOURLY TRAFFIC VOLUMES

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Kimley-Horn and Associates, Inc.

Cumulative Project Assignment
Peak Hour Volumes

INTERSECTION	DIRECTION	TOTAL						Pacific Coast Business Park						RDO Village XII					
		Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm	Ram	Rpm	Tam	Tpm	Lam	Lpm
1. College Blvd / Mesa Dr	Sb	0	0	56	49	0	0			50	23					6	26		
	Wb	0	0	0	0	19	17					17	8					2	9
	Nb	11	24	34	71	0	0	3	20	10	60			8	4	24	11		
	Eb	0	0	0	0	0	0												
2. Avenida De La Plata / Mesa Dr	Sb	0	0	0	0	0	0												
	Wb	0	0	19	17	0	0			17	8					2	9		
	Nb	0	0	0	0	0	0												
	Eb	0	0	11	24	0	0			3	20					8	4		
3. Rancho Del Oro Park Dr / Mesa Dr	Sb	0	0	0	0	0	0												
	Wb	0	0	19	17	0	0			17	8					2	9		
	Nb	0	0	0	0	0	0												
	Eb	0	0	11	24	0	0			3	20					8	4		

Cumulative Project Assignment
ADTs

STREET SEGMENT	Total	Pacific Coast Business Park	RDO Village XII	
	ADT	4797	2424	
College Boulevard				
North of Mesa Dr	1,090	720	373	
South of Mesa Dr	1,460	959	498	
Mesa Drive				
East of College Blvd, west of Rancho Del Oro Park	360	240	121	
West of College Blvd	0	0	0	

APPENDIX E

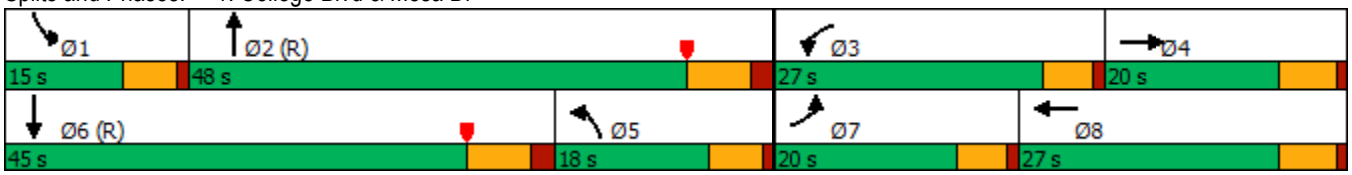
EXISTING + PROJECT ANALYSIS WORKSHEETS

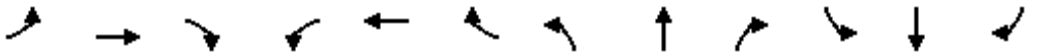
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	128	143	183	316	56	629	47	800
Future Volume (vph)	128	143	183	316	56	629	47	800
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	30.0	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	20.0	20.0	27.0	27.0	18.0	48.0	15.0	45.0
Total Split (%)	18.2%	18.2%	24.5%	24.5%	16.4%	43.6%	13.6%	40.9%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 88 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	143	23	183	316	40	56	629	131	47	800	322
Future Volume (veh/h)	128	143	23	183	316	40	56	629	131	47	800	322
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	136	152	24	195	336	43	60	669	139	50	851	343
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	314	49	228	434	55	351	1525	317	64	850	341
Arrive On Green	0.09	0.10	0.10	0.13	0.14	0.14	0.20	0.52	0.52	0.04	0.34	0.34
Sat Flow, veh/h	1781	3083	478	1781	3171	403	1781	2930	608	1781	2473	993
Grp Volume(v), veh/h	136	86	90	195	187	192	60	405	403	50	611	583
Grp Sat Flow(s),veh/h/ln	1781	1777	1784	1781	1777	1797	1781	1777	1761	1781	1777	1690
Q Serve(g_s), s	8.2	5.1	5.2	11.8	11.2	11.4	3.1	15.6	15.6	3.1	37.8	37.8
Cycle Q Clear(g_c), s	8.2	5.1	5.2	11.8	11.2	11.4	3.1	15.6	15.6	3.1	37.8	37.8
Prop In Lane	1.00		0.27	1.00		0.22	1.00		0.35	1.00		0.59
Lane Grp Cap(c), veh/h	165	181	182	228	243	246	351	925	917	64	611	581
V/C Ratio(X)	0.82	0.48	0.49	0.86	0.77	0.78	0.17	0.44	0.44	0.78	1.00	1.00
Avail Cap(c_a), veh/h	241	229	230	355	342	346	351	925	917	155	611	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	46.6	46.7	47.0	45.8	45.9	36.7	16.4	16.4	52.6	36.1	36.1
Incr Delay (d2), s/veh	13.6	2.8	2.9	11.7	8.5	9.2	0.2	1.5	1.5	17.7	36.4	38.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	2.3	2.4	5.8	5.3	5.5	1.3	6.1	6.1	1.6	21.3	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	49.4	49.7	58.7	54.3	55.0	37.0	17.9	17.9	70.3	72.5	74.7
LnGrp LOS	E	D	D	E	D	E	D	B	B	E	E	F
Approach Vol, veh/h		312			574			868			1244	
Approach Delay, s/veh		55.3			56.0			19.2			73.4	
Approach LOS		E			E			B			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	64.5	19.2	17.0	28.8	45.0	15.3	20.8
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	9.6	40.8	21.9	14.2	12.6	* 38	14.9	21.2
Max Q Clear Time (g_c+I1), s	5.1	17.6	13.8	7.2	5.1	39.8	10.2	13.4
Green Ext Time (p_c), s	0.0	6.7	0.3	0.6	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	52.5
HCM 6th LOS	D

Notes

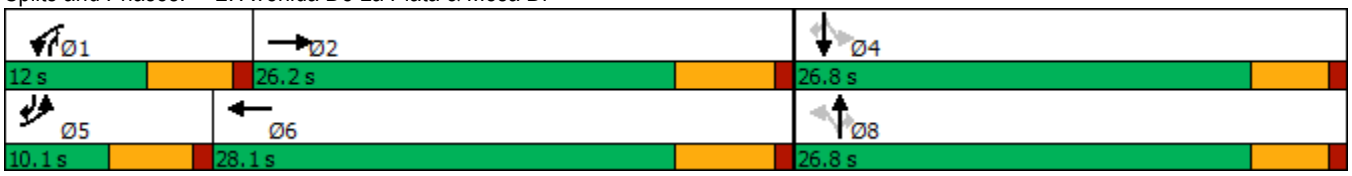
User approved pedestrian interval to be less than phase max green.

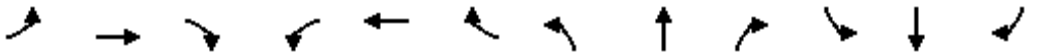
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	260	129	494	25	8	107	5	14	28
Future Volume (vph)	9	260	129	494	25	8	107	5	14	28
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.1	26.2	12.0	28.1	26.8	26.8	12.0	26.8	26.8	10.1
Total Split (%)	15.5%	40.3%	18.5%	43.2%	41.2%	41.2%	18.5%	41.2%	41.2%	15.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary
Cycle Length: 65
Actuated Cycle Length: 39.9
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	260	25	129	494	4	25	8	107	5	14	28
Future Volume (veh/h)	9	260	25	129	494	4	25	8	107	5	14	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	310	30	154	588	5	30	10	127	6	17	33
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	822	79	204	1269	11	345	88	433	171	251	277
Arrive On Green	0.01	0.25	0.25	0.11	0.35	0.35	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3273	314	1781	3611	31	956	548	1562	208	1559	1582
Grp Volume(v), veh/h	11	167	173	154	289	304	40	0	127	23	0	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1811	1781	1777	1865	1504	0	1562	1767	0	1582
Q Serve(g_s), s	0.2	2.6	2.6	2.8	4.2	4.2	0.0	0.0	2.1	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	2.6	2.6	2.8	4.2	4.2	0.6	0.0	2.1	0.3	0.0	0.6
Prop In Lane	1.00		0.17	1.00		0.02	0.75		1.00	0.26		1.00
Lane Grp Cap(c), veh/h	26	446	455	204	624	655	433	0	433	422	0	277
V/C Ratio(X)	0.42	0.37	0.38	0.75	0.46	0.46	0.09	0.00	0.29	0.05	0.00	0.12
Avail Cap(c_a), veh/h	270	1100	1121	373	1203	1262	1174	0	1230	1267	0	1084
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.1	10.2	10.2	14.1	8.3	8.3	11.9	0.0	9.4	11.8	0.0	11.4
Incr Delay (d2), s/veh	4.1	0.7	0.7	2.1	1.1	1.1	0.1	0.0	0.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.9	1.0	1.1	0.2	0.0	0.6	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.2	10.9	11.0	16.3	9.4	9.4	12.0	0.0	9.8	11.8	0.0	11.6
LnGrp LOS	C	B	B	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		351			747			167			56	
Approach Delay, s/veh		11.2			10.8			10.3			11.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	14.1		10.0	5.6	17.4		10.0				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.9	20.4		* 22	5.0	22.3		* 22				
Max Q Clear Time (g_c+I1), s	4.8	4.6		2.6	2.2	6.2		4.1				
Green Ext Time (p_c), s	0.0	2.1		0.1	0.0	5.3		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	266	54	30	525	0	18	0	32	0	0	0
Future Vol, veh/h	0	266	54	30	525	0	18	0	32	0	0	0
Conflicting Peds, #/hr	0	0	4	0	0	2	0	0	2	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	317	64	36	625	0	21	0	38	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	627	0	0	385	0	0	738	-	197	860	-	315
Stage 1	-	-	-	-	-	-	353	-	-	699	-	-
Stage 2	-	-	-	-	-	-	385	-	-	161	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	951	-	-	1170	-	-	306	0	811	250	0	681
Stage 1	-	-	-	-	-	-	637	0	-	397	0	-
Stage 2	-	-	-	-	-	-	610	0	-	825	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	949	-	-	1166	-	-	298	-	806	232	-	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	298	-	-	232	-	-
Stage 1	-	-	-	-	-	-	634	-	-	396	-	-
Stage 2	-	-	-	-	-	-	591	-	-	785	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	12.7	0
HCM LOS			B	A

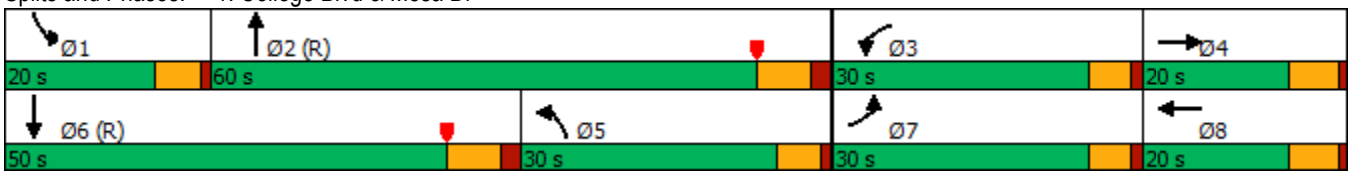
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	298	806	949	-	-	1166	-	-	-	-
HCM Lane V/C Ratio	0.072	0.047	-	-	-	0.031	-	-	-	-
HCM Control Delay (s)	18	9.7	0	-	-	8.2	-	-	0	0
HCM Lane LOS	C	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.1	0	-	-	0.1	-	-	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	398	108	169	42	947	78	662
Future Volume (vph)	205	398	108	169	42	947	78	662
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	25.8	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	30.0	20.0	30.0	20.0	30.0	60.0	20.0	50.0
Total Split (%)	23.1%	15.4%	23.1%	15.4%	23.1%	46.2%	15.4%	38.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	398	9	108	169	46	42	947	272	78	662	163
Future Volume (veh/h)	205	398	9	108	169	46	42	947	272	78	662	163
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	214	415	9	112	176	48	44	986	283	81	690	170
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	505	11	138	232	61	538	1479	423	103	802	197
Arrive On Green	0.14	0.14	0.14	0.08	0.08	0.08	0.30	0.54	0.54	0.06	0.28	0.28
Sat Flow, veh/h	1781	3556	77	1781	2775	736	1781	2728	779	1781	2825	696
Grp Volume(v), veh/h	214	207	217	112	111	113	44	641	628	81	434	426
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1777	1735	1781	1777	1730	1781	1777	1743
Q Serve(g_s), s	15.3	14.7	14.8	8.0	7.9	8.3	2.3	33.6	33.9	5.8	30.1	30.1
Cycle Q Clear(g_c), s	15.3	14.7	14.8	8.0	7.9	8.3	2.3	33.6	33.9	5.8	30.1	30.1
Prop In Lane	1.00		0.04	1.00		0.42	1.00		0.45	1.00		0.40
Lane Grp Cap(c), veh/h	242	252	263	138	148	145	538	963	938	103	504	495
V/C Ratio(X)	0.88	0.82	0.82	0.81	0.75	0.78	0.08	0.67	0.67	0.79	0.86	0.86
Avail Cap(c_a), veh/h	341	252	263	341	194	189	538	963	938	200	585	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	54.2	54.2	59.0	58.2	58.4	32.5	21.3	21.4	60.5	44.1	44.1
Incr Delay (d2), s/veh	17.6	19.8	19.3	10.8	13.1	16.7	0.1	3.6	3.8	12.6	17.2	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	7.8	8.1	4.0	4.0	4.2	1.0	13.8	13.6	2.9	15.1	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.8	74.0	73.5	69.8	71.3	75.1	32.5	24.9	25.2	73.1	61.4	61.7
LnGrp LOS	E	E	E	E	E	E	C	C	C	E	E	E
Approach Vol, veh/h		638			336			1313			941	
Approach Delay, s/veh		73.4			72.1			25.3			62.5	
Approach LOS		E			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	77.7	15.2	24.3	46.5	44.1	22.8	16.7
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	14.6	52.8	24.9	14.2	24.6	* 43	24.9	14.2
Max Q Clear Time (g_c+I1), s	7.8	35.9	10.0	16.8	4.3	32.1	17.3	10.3
Green Ext Time (p_c), s	0.1	9.7	0.2	0.0	0.1	4.8	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	50.5
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

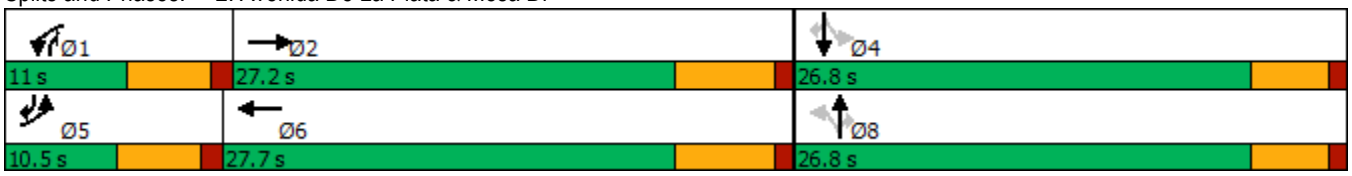
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

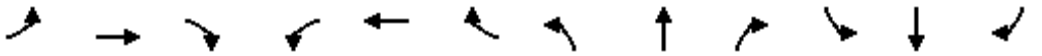
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	29	723	50	276	15	16	49	3	8	20
Future Volume (vph)	29	723	50	276	15	16	49	3	8	20
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.5	27.2	11.0	27.7	26.8	26.8	11.0	26.8	26.8	10.5
Total Split (%)	16.2%	41.8%	16.9%	42.6%	41.2%	41.2%	16.9%	41.2%	41.2%	16.2%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 40.4
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	723	37	50	276	5	15	16	49	3	8	20
Future Volume (veh/h)	29	723	37	50	276	5	15	16	49	3	8	20
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	30	745	38	52	285	5	15	16	51	3	8	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1295	66	101	1419	25	217	132	273	163	174	240
Arrive On Green	0.04	0.38	0.38	0.06	0.40	0.40	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3440	175	1781	3573	63	539	1140	1585	261	1504	1585
Grp Volume(v), veh/h	30	385	398	52	142	148	31	0	51	11	0	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1839	1781	1777	1859	1679	0	1585	1765	0	1585
Q Serve(g_s), s	0.6	6.0	6.0	1.0	1.8	1.8	0.0	0.0	1.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	0.6	6.0	6.0	1.0	1.8	1.8	0.5	0.0	1.0	0.2	0.0	0.4
Prop In Lane	1.00		0.10	1.00		0.03	0.48		1.00	0.27		1.00
Lane Grp Cap(c), veh/h	64	669	692	101	706	738	348	0	273	336	0	240
V/C Ratio(X)	0.47	0.58	0.58	0.51	0.20	0.20	0.09	0.00	0.19	0.03	0.00	0.09
Avail Cap(c_a), veh/h	278	1100	1138	304	1126	1178	1185	0	1103	1219	0	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	8.6	8.6	15.8	6.8	6.8	13.8	0.0	12.2	13.6	0.0	12.6
Incr Delay (d2), s/veh	1.9	1.1	1.1	1.5	0.3	0.3	0.1	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.4	1.4	0.3	0.4	0.4	0.2	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.3	9.7	9.7	17.3	7.1	7.1	13.9	0.0	12.6	13.6	0.0	12.8
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		813			342			82			32	
Approach Delay, s/veh		10.0			8.7			13.1			13.1	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	18.8		8.7	6.4	19.5		8.7				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.9	21.4		* 22	5.4	21.9		* 22				
Max Q Clear Time (g_c+I1), s	3.0	8.0		2.4	2.6	3.8		3.0				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	2.5		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		9.9	
HCM 6th LOS		A	

Notes

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

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	743	22	11	365	7	23	0	15	3	0	3
Future Vol, veh/h	5	743	22	11	365	7	23	0	15	3	0	3
Conflicting Peds, #/hr	0	0	4	0	0	5	0	0	2	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	826	24	12	406	8	26	0	17	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	419	0	0	854	0	0	1081	-	431	866	-	212
Stage 1	-	-	-	-	-	-	854	-	-	439	-	-
Stage 2	-	-	-	-	-	-	227	-	-	427	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	1137	-	-	781	-	-	172	0	573	247	0	793
Stage 1	-	-	-	-	-	-	320	0	-	567	0	-
Stage 2	-	-	-	-	-	-	755	0	-	576	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1132	-	-	778	-	-	168	-	570	234	-	789
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	-	-	234	-	-
Stage 1	-	-	-	-	-	-	317	-	-	561	-	-
Stage 2	-	-	-	-	-	-	740	-	-	555	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	22.8	15.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	168	570	1132	-	-	778	-	-	234	789
HCM Lane V/C Ratio	0.152	0.029	0.005	-	-	0.016	-	-	0.014	0.004
HCM Control Delay (s)	30.2	11.5	8.2	-	-	9.7	-	-	20.6	9.6
HCM Lane LOS	D	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.5	0.1	0	-	-	0	-	-	0	0

APPENDIX F

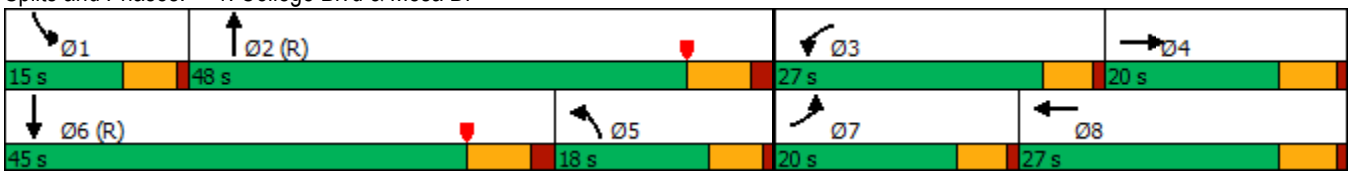
EXISTING + CUMULATIVE PROJECT ANALYSIS WORKSHEETS

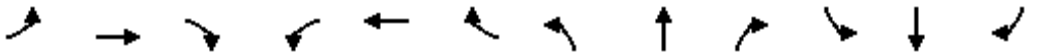
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	128	142	199	315	56	663	43	856
Future Volume (vph)	128	142	199	315	56	663	43	856
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	30.0	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	20.0	20.0	27.0	27.0	18.0	48.0	15.0	45.0
Total Split (%)	18.2%	18.2%	24.5%	24.5%	16.4%	43.6%	13.6%	40.9%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 88 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 115
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	142	23	199	315	37	56	663	138	43	856	322
Future Volume (veh/h)	128	142	23	199	315	37	56	663	138	43	856	322
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	136	151	24	212	335	39	60	705	147	46	911	343
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	279	44	245	434	50	353	1534	320	61	869	325
Arrive On Green	0.09	0.09	0.09	0.14	0.14	0.14	0.20	0.52	0.52	0.03	0.34	0.34
Sat Flow, veh/h	1781	3080	481	1781	3209	371	1781	2927	610	1781	2528	947
Grp Volume(v), veh/h	136	86	89	212	184	190	60	428	424	46	639	615
Grp Sat Flow(s),veh/h/ln	1781	1777	1784	1781	1777	1803	1781	1777	1761	1781	1777	1698
Q Serve(g_s), s	8.2	5.1	5.3	12.8	11.0	11.2	3.1	16.6	16.6	2.8	37.8	37.8
Cycle Q Clear(g_c), s	8.2	5.1	5.3	12.8	11.0	11.2	3.1	16.6	16.6	2.8	37.8	37.8
Prop In Lane	1.00		0.27	1.00		0.21	1.00		0.35	1.00		0.56
Lane Grp Cap(c), veh/h	165	161	162	245	240	244	353	931	923	61	611	583
V/C Ratio(X)	0.82	0.53	0.55	0.87	0.77	0.78	0.17	0.46	0.46	0.75	1.05	1.05
Avail Cap(c_a), veh/h	241	229	230	355	342	347	353	931	923	155	611	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	47.8	47.9	46.5	45.9	46.0	36.6	16.4	16.4	52.7	36.1	36.1
Incr Delay (d2), s/veh	13.6	3.9	4.1	14.3	8.3	8.8	0.2	1.6	1.6	16.8	49.1	52.4
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	4.2	2.4	2.5	6.5	5.3	5.4	1.3	6.5	6.4	1.5	23.5	22.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	51.7	52.0	60.7	54.2	54.8	36.8	18.0	18.1	69.5	85.2	88.5
LnGrp LOS	E	D	D	E	D	D	D	B	B	E	F	F
Approach Vol, veh/h		311			586			912			1300	
Approach Delay, s/veh		56.6			56.7			19.3			86.2	
Approach LOS		E			E			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	64.8	20.2	15.8	29.0	45.0	15.3	20.7
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	9.6	40.8	21.9	14.2	12.6	* 38	14.9	21.2
Max Q Clear Time (g_c+I1), s	4.8	18.6	14.8	7.3	5.1	39.8	10.2	13.2
Green Ext Time (p_c), s	0.0	7.0	0.3	0.6	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	58.0
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

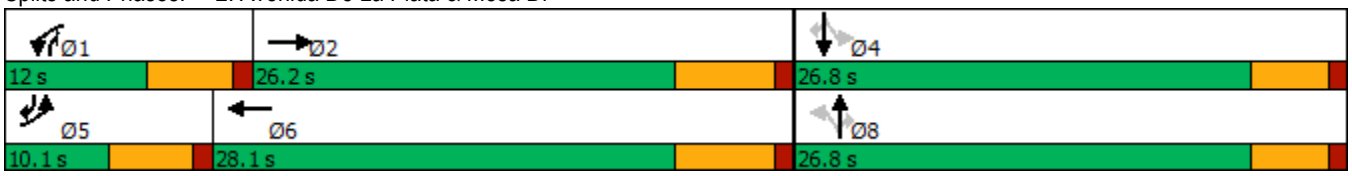
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

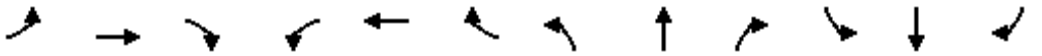
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	270	129	512	25	8	107	5	14	28
Future Volume (vph)	9	270	129	512	25	8	107	5	14	28
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.1	26.2	12.0	28.1	26.8	26.8	12.0	26.8	26.8	10.1
Total Split (%)	15.5%	40.3%	18.5%	43.2%	41.2%	41.2%	18.5%	41.2%	41.2%	15.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 40.1
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	270	25	129	512	4	25	8	107	5	14	28
Future Volume (veh/h)	9	270	25	129	512	4	25	8	107	5	14	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	321	30	154	610	5	30	10	127	6	17	33
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	850	79	203	1294	11	341	87	430	169	249	275
Arrive On Green	0.01	0.26	0.26	0.11	0.36	0.36	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3285	305	1781	3612	30	957	548	1562	208	1559	1582
Grp Volume(v), veh/h	11	173	178	154	300	315	40	0	127	23	0	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1813	1781	1777	1865	1504	0	1562	1768	0	1582
Q Serve(g_s), s	0.2	2.7	2.7	2.8	4.3	4.3	0.0	0.0	2.1	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	2.7	2.7	2.8	4.3	4.3	0.6	0.0	2.1	0.3	0.0	0.6
Prop In Lane	1.00		0.17	1.00		0.02	0.75		1.00	0.26		1.00
Lane Grp Cap(c), veh/h	26	460	469	203	636	668	429	0	430	418	0	275
V/C Ratio(X)	0.43	0.38	0.38	0.76	0.47	0.47	0.09	0.00	0.30	0.06	0.00	0.12
Avail Cap(c_a), veh/h	267	1087	1109	369	1189	1248	1161	0	1216	1252	0	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	10.1	10.2	14.3	8.3	8.3	12.0	0.0	9.6	11.9	0.0	11.6
Incr Delay (d2), s/veh	4.1	0.7	0.7	2.2	1.2	1.1	0.1	0.0	0.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.7	0.9	1.1	1.1	0.2	0.0	0.6	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	10.9	10.9	16.5	9.4	9.4	12.1	0.0	10.0	12.0	0.0	11.8
LnGrp LOS	C	B	B	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		362			769			167			56	
Approach Delay, s/veh		11.2			10.8			10.5			11.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	14.4		10.0	5.6	17.7		10.0				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.9	20.4		* 22	5.0	22.3		* 22				
Max Q Clear Time (g_c+I1), s	4.8	4.7		2.6	2.2	6.3		4.1				
Green Ext Time (p_c), s	0.0	2.2		0.1	0.0	5.5		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	267	54	30	538	0	18	0	32	0	0	0
Future Vol, veh/h	0	267	54	30	538	0	18	0	32	0	0	0
Conflicting Peds, #/hr	0	0	4	0	0	2	0	0	2	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	318	64	36	640	0	21	0	38	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	642	0	0	386	0	0	746	-	197	875	-	322
Stage 1	-	-	-	-	-	-	354	-	-	714	-	-
Stage 2	-	-	-	-	-	-	392	-	-	161	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	939	-	-	1169	-	-	302	0	811	243	0	674
Stage 1	-	-	-	-	-	-	636	0	-	388	0	-
Stage 2	-	-	-	-	-	-	604	0	-	825	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	937	-	-	1165	-	-	294	-	806	225	-	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	294	-	-	225	-	-
Stage 1	-	-	-	-	-	-	633	-	-	387	-	-
Stage 2	-	-	-	-	-	-	585	-	-	785	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	12.8	0
HCM LOS			B	A

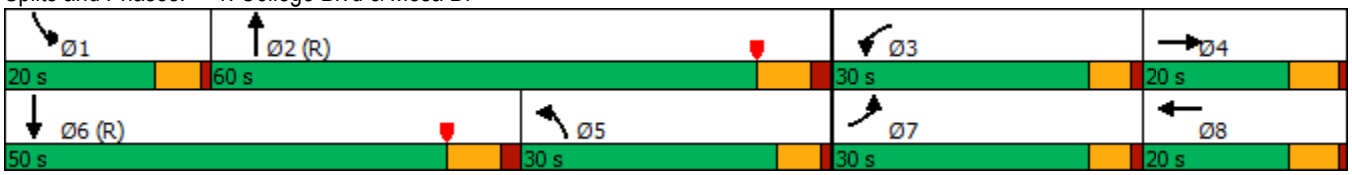
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	294	806	937	-	-	1165	-	-	-	-
HCM Lane V/C Ratio	0.073	0.047	-	-	-	0.031	-	-	-	-
HCM Control Delay (s)	18.2	9.7	0	-	-	8.2	-	-	0	0
HCM Lane LOS	C	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.1	0	-	-	0.1	-	-	-	-

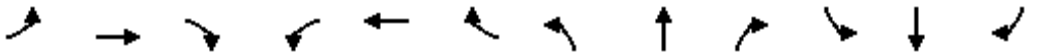
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	397	119	167	42	1018	74	711
Future Volume (vph)	205	397	119	167	42	1018	74	711
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	25.8	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	30.0	20.0	30.0	20.0	30.0	60.0	20.0	50.0
Total Split (%)	23.1%	15.4%	23.1%	15.4%	23.1%	46.2%	15.4%	38.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	397	9	119	167	40	42	1018	292	74	711	163
Future Volume (veh/h)	205	397	9	119	167	40	42	1018	292	74	711	163
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	214	414	9	124	174	42	44	1060	304	77	741	170
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	470	10	151	231	54	523	1494	425	98	847	194
Arrive On Green	0.14	0.13	0.13	0.08	0.08	0.08	0.29	0.55	0.55	0.05	0.30	0.30
Sat Flow, veh/h	1781	3556	77	1781	2852	671	1781	2730	777	1781	2869	658
Grp Volume(v), veh/h	214	207	216	124	107	109	44	687	677	77	459	452
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1777	1747	1781	1777	1731	1781	1777	1750
Q Serve(g_s), s	15.3	14.8	14.9	8.9	7.6	8.0	2.3	37.1	37.8	5.6	31.9	31.9
Cycle Q Clear(g_c), s	15.3	14.8	14.9	8.9	7.6	8.0	2.3	37.1	37.8	5.6	31.9	31.9
Prop In Lane	1.00		0.04	1.00		0.38	1.00		0.45	1.00		0.38
Lane Grp Cap(c), veh/h	242	235	246	151	144	142	523	972	947	98	524	517
V/C Ratio(X)	0.88	0.88	0.88	0.82	0.74	0.77	0.08	0.71	0.71	0.79	0.88	0.88
Avail Cap(c_a), veh/h	341	235	246	341	194	191	523	972	947	200	585	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	55.4	55.4	58.5	58.4	58.6	33.3	21.7	21.9	60.7	43.5	43.5
Incr Delay (d2), s/veh	17.6	29.9	29.3	10.5	12.2	15.3	0.1	4.3	4.6	12.9	18.2	18.4
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	7.9	8.4	8.8	4.4	3.9	4.1	1.0	15.2	15.2	2.8	16.0	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.8	85.3	84.7	69.1	70.6	73.8	33.3	26.0	26.5	73.5	61.7	62.0
LnGrp LOS	E	F	F	E	E	E	C	C	C	E	E	E
Approach Vol, veh/h		637			340			1408			988	
Approach Delay, s/veh		80.9			71.1			26.5			62.7	
Approach LOS		F			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	78.4	16.1	23.0	45.3	45.6	22.8	16.3
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	14.6	52.8	24.9	14.2	24.6	* 43	24.9	14.2
Max Q Clear Time (g_c+I1), s	7.6	39.8	10.9	16.9	4.3	33.9	17.3	10.0
Green Ext Time (p_c), s	0.1	8.6	0.2	0.0	0.1	4.4	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	51.9
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

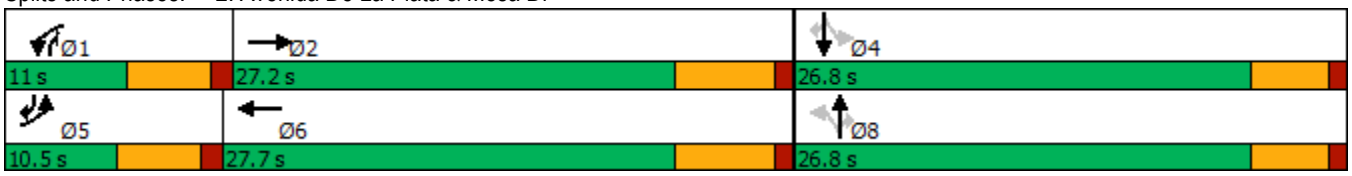
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

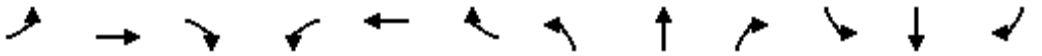
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	29	745	50	292	15	16	49	3	8	20
Future Volume (vph)	29	745	50	292	15	16	49	3	8	20
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.5	27.2	11.0	27.7	26.8	26.8	11.0	26.8	26.8	10.5
Total Split (%)	16.2%	41.8%	16.9%	42.6%	41.2%	41.2%	16.9%	41.2%	41.2%	16.2%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 40.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	745	37	50	292	5	15	16	49	3	8	20
Future Volume (veh/h)	29	745	37	50	292	5	15	16	49	3	8	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.98	1.00		0.99
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	30	768	38	52	301	5	15	16	51	3	8	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1309	65	101	1433	24	213	146	283	159	189	252
Arrive On Green	0.04	0.38	0.38	0.06	0.40	0.40	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3441	170	1781	3576	59	505	1181	1561	241	1532	1577
Grp Volume(v), veh/h	30	396	410	52	149	157	31	0	51	11	0	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1835	1781	1777	1858	1687	0	1561	1773	0	1577
Q Serve(g_s), s	0.6	6.3	6.3	1.0	2.0	2.0	0.0	0.0	1.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	0.6	6.3	6.3	1.0	2.0	2.0	0.5	0.0	1.0	0.2	0.0	0.4
Prop In Lane	1.00		0.09	1.00		0.03	0.48		1.00	0.27		1.00
Lane Grp Cap(c), veh/h	64	676	698	101	712	745	359	0	283	348	0	252
V/C Ratio(X)	0.47	0.59	0.59	0.52	0.21	0.21	0.09	0.00	0.18	0.03	0.00	0.08
Avail Cap(c_a), veh/h	271	1071	1106	296	1096	1146	1152	0	1061	1189	0	1039
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.8	8.8	8.8	16.3	7.0	7.0	13.9	0.0	12.3	13.7	0.0	12.7
Incr Delay (d2), s/veh	2.0	1.2	1.1	1.5	0.3	0.3	0.1	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	1.6	0.4	0.4	0.5	0.2	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	9.9	9.9	17.8	7.3	7.3	14.0	0.0	12.6	13.8	0.0	12.8
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		836			358			82			32	
Approach Delay, s/veh		10.2			8.8			13.1			13.2	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	19.3		9.1	6.4	20.0		9.1				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.9	21.4		* 22	5.4	21.9		* 22				
Max Q Clear Time (g_c+I1), s	3.0	8.3		2.4	2.6	4.0		3.0				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	2.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.1	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	758	22	11	368	7	23	0	15	3	0	3
Future Vol, veh/h	5	758	22	11	368	7	23	0	15	3	0	3
Conflicting Peds, #/hr	0	0	1	0	0	5	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	842	24	12	409	8	26	0	17	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	422	0	0	867	0	0	1096	-	434	875	-	214
Stage 1	-	-	-	-	-	-	867	-	-	442	-	-
Stage 2	-	-	-	-	-	-	229	-	-	433	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	1134	-	-	772	-	-	168	0	570	243	0	791
Stage 1	-	-	-	-	-	-	314	0	-	564	0	-
Stage 2	-	-	-	-	-	-	753	0	-	571	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1129	-	-	771	-	-	164	-	569	231	-	787
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	-	-	231	-	-
Stage 1	-	-	-	-	-	-	312	-	-	558	-	-
Stage 2	-	-	-	-	-	-	738	-	-	551	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	23.3	15.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	164	569	1129	-	-	771	-	-	231	787
HCM Lane V/C Ratio	0.156	0.029	0.005	-	-	0.016	-	-	0.014	0.004
HCM Control Delay (s)	31	11.5	8.2	-	-	9.7	-	-	20.8	9.6
HCM Lane LOS	D	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.5	0.1	0	-	-	0	-	-	0	0

APPENDIX G

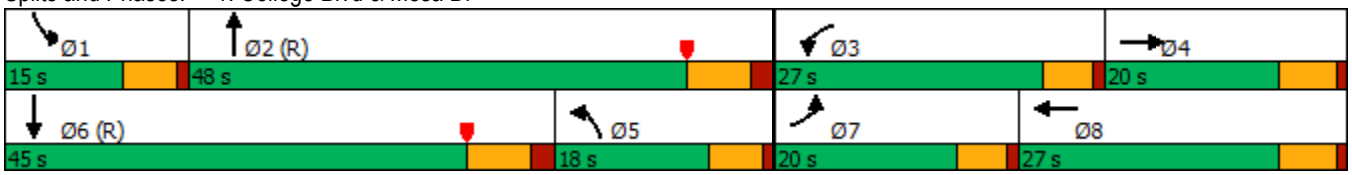
EXISTING + CUMULATIVE PROJECTS + PROJECT INTERSECTION ANALYSIS WORKSHEETS

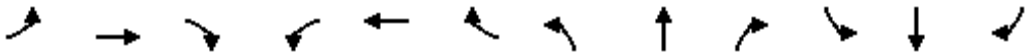
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	128	143	202	316	56	663	47	856
Future Volume (vph)	128	143	202	316	56	663	47	856
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	13.8	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	20.0	20.0	27.0	27.0	18.0	48.0	15.0	45.0
Total Split (%)	18.2%	18.2%	24.5%	24.5%	16.4%	43.6%	13.6%	40.9%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 88 (80%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	143	23	202	316	40	56	663	142	47	856	322
Future Volume (veh/h)	128	143	23	202	316	40	56	663	142	47	856	322
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	136	152	24	215	336	43	60	705	151	50	911	343
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	279	43	248	434	55	351	1516	324	64	869	325
Arrive On Green	0.09	0.09	0.09	0.14	0.14	0.14	0.20	0.52	0.52	0.04	0.34	0.34
Sat Flow, veh/h	1781	3083	478	1781	3171	403	1781	2912	623	1781	2528	947
Grp Volume(v), veh/h	136	86	90	215	187	192	60	430	426	50	639	615
Grp Sat Flow(s),veh/h/ln	1781	1777	1784	1781	1777	1797	1781	1777	1758	1781	1777	1698
Q Serve(g_s), s	8.2	5.1	5.3	13.0	11.2	11.4	3.1	16.8	16.9	3.1	37.8	37.8
Cycle Q Clear(g_c), s	8.2	5.1	5.3	13.0	11.2	11.4	3.1	16.8	16.9	3.1	37.8	37.8
Prop In Lane	1.00		0.27	1.00		0.22	1.00		0.35	1.00		0.56
Lane Grp Cap(c), veh/h	165	161	162	248	243	246	351	925	915	64	611	583
V/C Ratio(X)	0.82	0.54	0.55	0.87	0.77	0.78	0.17	0.46	0.47	0.78	1.05	1.05
Avail Cap(c_a), veh/h	241	229	230	355	342	346	351	925	915	155	611	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.0	47.8	47.9	46.4	45.8	45.9	36.7	16.7	16.7	52.6	36.1	36.1
Incr Delay (d2), s/veh	13.6	3.9	4.2	14.7	8.5	9.2	0.2	1.7	1.7	17.7	49.1	52.4
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	4.2	2.4	2.5	6.6	5.3	5.5	1.3	6.6	6.5	1.6	23.5	22.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	51.7	52.1	61.1	54.3	55.0	37.0	18.4	18.4	70.3	85.2	88.5
LnGrp LOS	E	D	D	E	D	E	D	B	B	E	F	F
Approach Vol, veh/h		312			594			916			1304	
Approach Delay, s/veh		56.6			57.0			19.6			86.2	
Approach LOS		E			E			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	64.5	20.4	15.8	28.8	45.0	15.3	20.8
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	9.6	40.8	21.9	14.2	12.6	* 38	14.9	21.2
Max Q Clear Time (g_c+I1), s	5.1	18.9	15.0	7.3	5.1	39.8	10.2	13.4
Green Ext Time (p_c), s	0.0	7.0	0.3	0.6	0.0	0.0	0.1	1.6

Intersection Summary	
HCM 6th Ctrl Delay	58.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

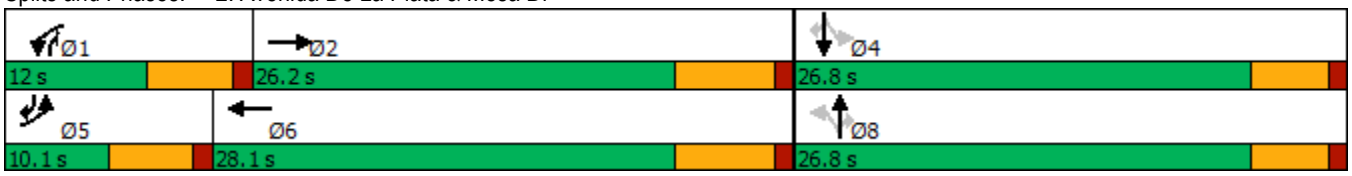
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

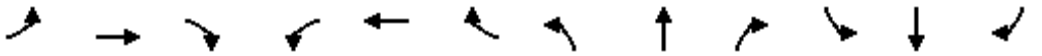
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	271	129	513	25	8	107	5	14	28
Future Volume (vph)	9	271	129	513	25	8	107	5	14	28
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.1	26.2	12.0	28.1	26.8	26.8	12.0	26.8	26.8	10.1
Total Split (%)	15.5%	40.3%	18.5%	43.2%	41.2%	41.2%	18.5%	41.2%	41.2%	15.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 40.1
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	271	25	129	513	4	25	8	107	5	14	28
Future Volume (veh/h)	9	271	25	129	513	4	25	8	107	5	14	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	323	30	154	611	5	30	10	127	6	17	33
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	26	851	79	203	1295	11	341	87	429	169	248	275
Arrive On Green	0.01	0.26	0.26	0.11	0.36	0.36	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3287	303	1781	3612	30	957	548	1562	208	1559	1582
Grp Volume(v), veh/h	11	174	179	154	300	316	40	0	127	23	0	33
Grp Sat Flow(s),veh/h/ln	1781	1777	1813	1781	1777	1865	1504	0	1562	1768	0	1582
Q Serve(g_s), s	0.2	2.7	2.7	2.8	4.4	4.4	0.0	0.0	2.1	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	2.7	2.7	2.8	4.4	4.4	0.6	0.0	2.1	0.3	0.0	0.6
Prop In Lane	1.00		0.17	1.00		0.02	0.75		1.00	0.26		1.00
Lane Grp Cap(c), veh/h	26	460	470	203	637	668	429	0	429	418	0	275
V/C Ratio(X)	0.43	0.38	0.38	0.76	0.47	0.47	0.09	0.00	0.30	0.06	0.00	0.12
Avail Cap(c_a), veh/h	267	1087	1109	369	1188	1247	1160	0	1216	1252	0	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	10.1	10.2	14.3	8.3	8.3	12.0	0.0	9.6	11.9	0.0	11.6
Incr Delay (d2), s/veh	4.1	0.7	0.7	2.2	1.2	1.1	0.1	0.0	0.4	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.8	0.9	1.1	1.1	0.2	0.0	0.6	0.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.4	10.9	10.9	16.5	9.4	9.4	12.1	0.0	10.0	12.0	0.0	11.8
LnGrp LOS	C	B	B	B	A	A	B	A	A	B	A	B
Approach Vol, veh/h		364			770			167			56	
Approach Delay, s/veh		11.2			10.8			10.5			11.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	14.4		10.0	5.6	17.8		10.0				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.9	20.4		* 22	5.0	22.3		* 22				
Max Q Clear Time (g_c+I1), s	4.8	4.7		2.6	2.2	6.4		4.1				
Green Ext Time (p_c), s	0.0	2.2		0.1	0.0	5.5		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		10.9	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	277	54	30	544	0	18	0	32	0	0	0
Future Vol, veh/h	0	277	54	30	544	0	18	0	32	0	0	0
Conflicting Peds, #/hr	0	0	4	0	0	2	0	0	2	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	330	64	36	648	0	21	0	38	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	650	0	0	398	0	0	762	-	203	889	-	326
Stage 1	-	-	-	-	-	-	366	-	-	722	-	-
Stage 2	-	-	-	-	-	-	396	-	-	167	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	932	-	-	1157	-	-	294	0	804	238	0	670
Stage 1	-	-	-	-	-	-	626	0	-	384	0	-
Stage 2	-	-	-	-	-	-	601	0	-	818	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	930	-	-	1153	-	-	286	-	799	220	-	669
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	-	-	220	-	-
Stage 1	-	-	-	-	-	-	623	-	-	383	-	-
Stage 2	-	-	-	-	-	-	582	-	-	778	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.4	12.9	0
HCM LOS			B	A

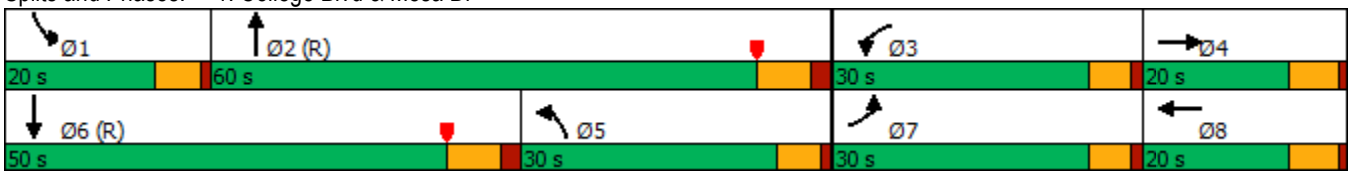
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	286	799	930	-	-	1153	-	-	-	-
HCM Lane V/C Ratio	0.075	0.048	-	-	-	0.031	-	-	-	-
HCM Control Delay (s)	18.6	9.7	0	-	-	8.2	-	-	0	0
HCM Lane LOS	C	A	A	-	-	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	0.1	0	-	-	0.1	-	-	-	-

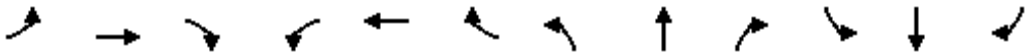
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	205	398	125	169	42	1018	78	711
Future Volume (vph)	205	398	125	169	42	1018	78	711
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.1	25.8	10.1	25.8	16.0	26.2	10.4	26.2
Total Split (s)	30.0	20.0	30.0	20.0	30.0	60.0	20.0	50.0
Total Split (%)	23.1%	15.4%	23.1%	15.4%	23.1%	46.2%	15.4%	38.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	4.4	5.2	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	5.4	7.2	5.4	7.2
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min

Intersection Summary

Cycle Length: 130
Actuated Cycle Length: 130
Offset: 90 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 1: College Blvd & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	398	9	125	169	46	42	1018	296	78	711	163
Future Volume (veh/h)	205	398	9	125	169	46	42	1018	296	78	711	163
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	214	415	9	130	176	48	44	1060	308	81	741	170
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	470	10	157	234	62	517	1473	425	103	847	194
Arrive On Green	0.14	0.13	0.13	0.09	0.08	0.08	0.29	0.54	0.54	0.06	0.30	0.30
Sat Flow, veh/h	1781	3556	77	1781	2775	736	1781	2722	784	1781	2870	658
Grp Volume(v), veh/h	214	207	217	130	111	113	44	689	679	81	459	452
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1781	1777	1735	1781	1777	1729	1781	1777	1752
Q Serve(g_s), s	15.3	14.9	14.9	9.3	7.9	8.3	2.3	37.8	38.5	5.8	31.9	31.9
Cycle Q Clear(g_c), s	15.3	14.9	14.9	9.3	7.9	8.3	2.3	37.8	38.5	5.8	31.9	31.9
Prop In Lane	1.00		0.04	1.00		0.42	1.00		0.45	1.00		0.38
Lane Grp Cap(c), veh/h	242	235	245	157	150	146	517	962	936	103	524	517
V/C Ratio(X)	0.88	0.88	0.88	0.83	0.74	0.77	0.09	0.72	0.73	0.79	0.87	0.88
Avail Cap(c_a), veh/h	341	235	245	341	194	189	517	962	936	200	585	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	55.4	55.4	58.3	58.1	58.3	33.6	22.3	22.5	60.5	43.5	43.5
Incr Delay (d2), s/veh	17.6	30.6	30.0	10.5	12.5	16.0	0.1	4.6	4.9	12.6	18.2	18.4
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	7.9	8.5	8.9	4.6	4.0	4.2	1.0	15.6	15.6	2.9	16.0	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.8	86.0	85.4	68.8	70.6	74.2	33.7	26.9	27.4	73.1	61.7	61.9
LnGrp LOS	E	F	F	E	E	E	C	C	C	E	E	E
Approach Vol, veh/h		638			354			1412			992	
Approach Delay, s/veh		81.4			71.1			27.3			62.7	
Approach LOS		F			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	77.6	16.6	23.0	44.9	45.6	22.8	16.8
Change Period (Y+Rc), s	5.4	7.2	5.1	5.8	7.2	* 7.2	5.1	5.8
Max Green Setting (Gmax), s	14.6	52.8	24.9	14.2	24.6	* 43	24.9	14.2
Max Q Clear Time (g_c+I1), s	7.8	40.5	11.3	16.9	4.3	33.9	17.3	10.3
Green Ext Time (p_c), s	0.1	8.3	0.2	0.0	0.1	4.5	0.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

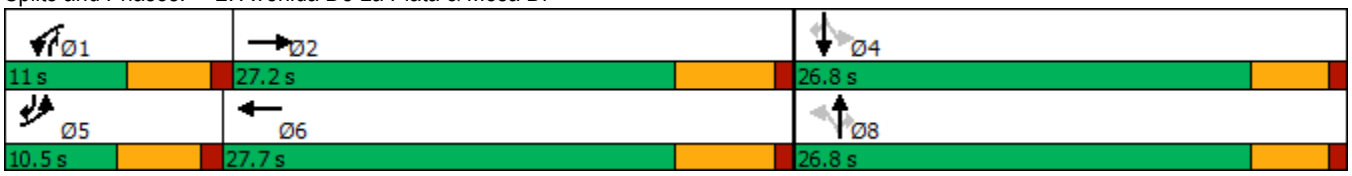
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

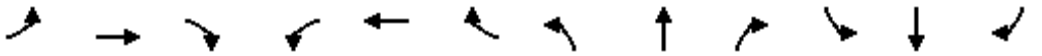
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	29	747	50	293	15	16	49	3	8	20
Future Volume (vph)	29	747	50	293	15	16	49	3	8	20
Turn Type	Prot	NA	Prot	NA	Perm	NA	pm+ov	Perm	NA	pm+ov
Protected Phases	5	2	1	6		8	1		4	5
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	1	4	4	5
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	5.0	6.0	6.0	5.0
Minimum Split (s)	10.1	25.7	10.1	25.7	26.8	26.8	10.1	26.8	26.8	10.1
Total Split (s)	10.5	27.2	11.0	27.7	26.8	26.8	11.0	26.8	26.8	10.5
Total Split (%)	16.2%	41.8%	16.9%	42.6%	41.2%	41.2%	16.9%	41.2%	41.2%	16.2%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.7	3.7	4.1	3.7	3.7	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.7	5.1		4.7	5.1
Lead/Lag	Lead	Lag	Lead	Lag			Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	Min	None	Min	None	None	None	None	None	None

Intersection Summary

Cycle Length: 65
Actuated Cycle Length: 40.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Avenida De La Plata & Mesa Dr





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	747	37	50	293	5	15	16	49	3	8	20
Future Volume (veh/h)	29	747	37	50	293	5	15	16	49	3	8	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.99		0.99	1.00		0.99
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	30	770	38	52	302	5	15	16	51	3	8	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	1312	65	101	1437	24	213	142	279	159	185	249
Arrive On Green	0.04	0.38	0.38	0.06	0.40	0.40	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1781	3442	170	1781	3576	59	512	1172	1564	245	1527	1577
Grp Volume(v), veh/h	30	397	411	52	150	157	31	0	51	11	0	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1835	1781	1777	1858	1684	0	1564	1772	0	1577
Q Serve(g_s), s	0.6	6.3	6.3	1.0	1.9	2.0	0.0	0.0	1.0	0.0	0.0	0.4
Cycle Q Clear(g_c), s	0.6	6.3	6.3	1.0	1.9	2.0	0.5	0.0	1.0	0.2	0.0	0.4
Prop In Lane	1.00		0.09	1.00		0.03	0.48		1.00	0.27		1.00
Lane Grp Cap(c), veh/h	64	678	700	101	714	747	355	0	279	345	0	249
V/C Ratio(X)	0.47	0.59	0.59	0.52	0.21	0.21	0.09	0.00	0.18	0.03	0.00	0.08
Avail Cap(c_a), veh/h	272	1074	1109	297	1099	1150	1155	0	1066	1192	0	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	8.7	8.7	16.2	6.9	6.9	13.9	0.0	12.4	13.7	0.0	12.7
Incr Delay (d2), s/veh	2.0	1.2	1.1	1.5	0.3	0.3	0.1	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.5	1.6	0.3	0.4	0.5	0.2	0.0	0.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	9.9	9.8	17.7	7.2	7.2	14.0	0.0	12.7	13.8	0.0	12.9
LnGrp LOS	B	A	A	B	A	A	B	A	B	B	A	B
Approach Vol, veh/h		838			359			82			32	
Approach Delay, s/veh		10.2			8.7			13.2			13.2	
Approach LOS		B			A			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	19.3		9.0	6.4	20.0		9.0				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.9	21.4		* 22	5.4	21.9		* 22				
Max Q Clear Time (g_c+I1), s	3.0	8.3		2.4	2.6	4.0		3.0				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	2.7		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.0	
HCM 6th LOS		B	

Notes

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

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	767	22	11	382	7	23	0	15	3	0	3
Future Vol, veh/h	5	767	22	11	382	7	23	0	15	3	0	3
Conflicting Peds, #/hr	0	0	1	0	0	5	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	130	-	-	135	-	-	0	-	0	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	852	24	12	424	8	26	0	17	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	437	0	0	877	0	0	1113	-	439	895	-	221
Stage 1	-	-	-	-	-	-	877	-	-	457	-	-
Stage 2	-	-	-	-	-	-	236	-	-	438	-	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	-	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	-	3.32
Pot Cap-1 Maneuver	1119	-	-	766	-	-	163	0	566	235	0	783
Stage 1	-	-	-	-	-	-	310	0	-	553	0	-
Stage 2	-	-	-	-	-	-	746	0	-	567	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1114	-	-	765	-	-	160	-	565	223	-	779
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	-	-	223	-	-
Stage 1	-	-	-	-	-	-	308	-	-	547	-	-
Stage 2	-	-	-	-	-	-	731	-	-	547	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	23.8	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	160	565	1114	-	-	765	-	-	223	779
HCM Lane V/C Ratio	0.16	0.029	0.005	-	-	0.016	-	-	0.015	0.004
HCM Control Delay (s)	31.7	11.6	8.2	-	-	9.8	-	-	21.4	9.6
HCM Lane LOS	D	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0.6	0.1	0	-	-	0	-	-	0	0