LINSCOTT LAW & GREENSPAN engineers

LOCAL MOBILITY ANALYSIS

LOS COCHES PLAZA

San Diego County, California
June 20, 2023

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LOS COCHES PLAZA

San Diego County, California
June 21, 2023

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained to assess the traffic impacts associated with the Los Coches Plaza project. The project proposes to construct one fast food restaurant, an auto parts store and a carwash. This transportation report addresses the potential transportation impacts associated with the proposed project.

The following sections are included in this report:

- Project Description
- Analysis Approach and Methodology
- Vehicular Mobility Criteria
- Existing Conditions Discussion
- Vehicle Miles Travelled Analysis
- Analysis of Existing Vehicular Conditions
- Trip Generation/Distribution/Assignment
- Assessment of Near-Term Vehicular Conditions
- Parking Analysis
- Project Access and Queuing
- Project Driveway Improvements
- Active Transportation Review
- Vehicular Mobility Improvements

2.0 PROJECT DESCRIPTION

2.1 Project Location

The project is located within the northeast quadrant of the I-8 / Los Coches Road interchange in the County of San Diego. ***Figure 2–1*** shows the general vicinity of the project and ***Figure 2–2*** shows a more detailed project area map.

2.2 Project Description

The project proposes to develop a 2,660 Square Foot (SF) fast food restaurant, a 7,385 SF auto parts store and a 3,930 SF car wash. ***Figure 2–3*** contains the conceptual site plan for the project.

2.3 Project Access

The project proposes access via the Los Coches Road / Ora Belle Lane intersection, forming the fourth leg of the existing three-leg intersection.

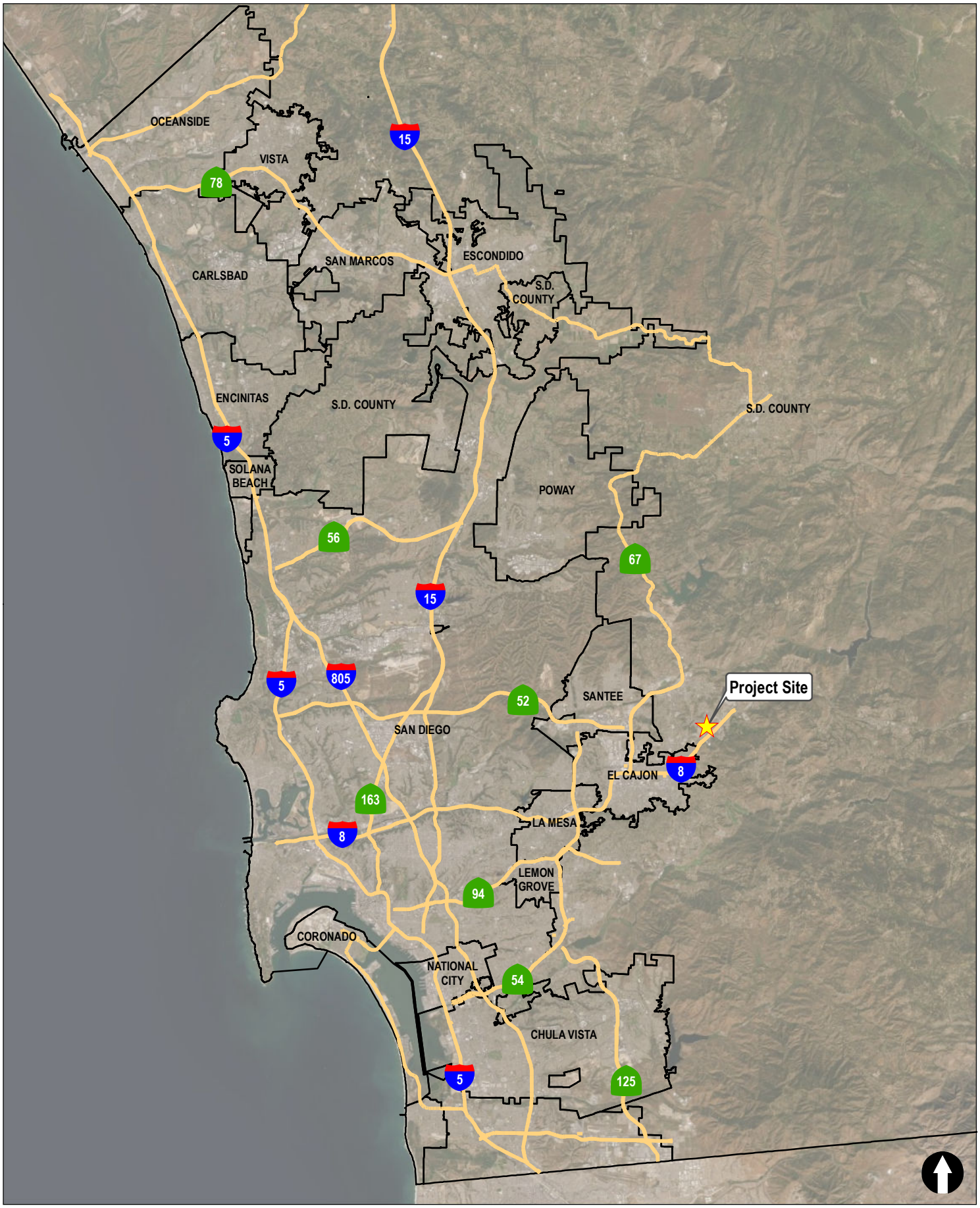

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Figure 2-1

Vicinity Map

LOS COCHES PLAZA

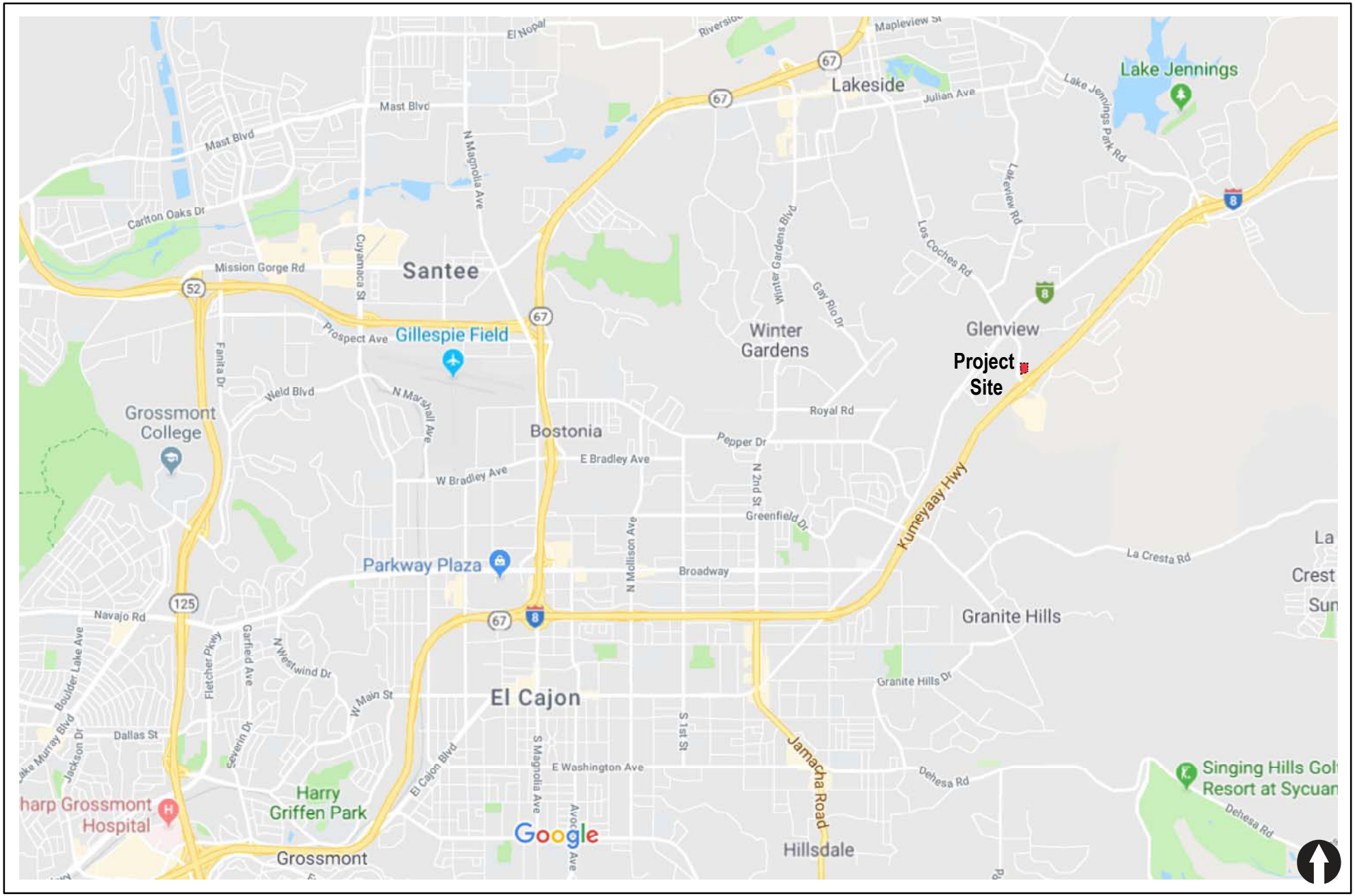

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Figure 2-2

Project Area Map

LOS COCHES PLAZA

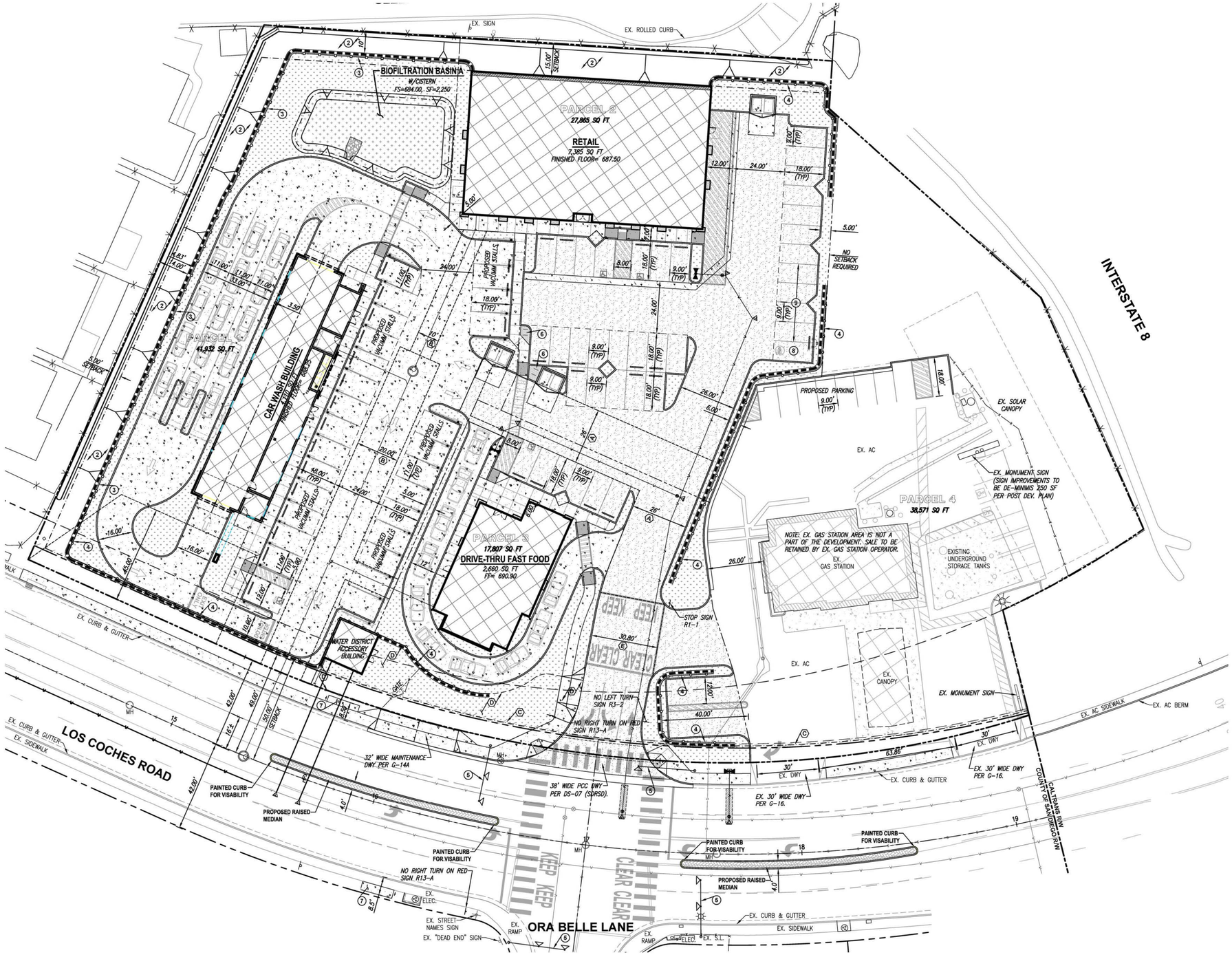

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Figure 2-3

Site Plan

LOS COCHES PLAZA

3.0 VEHICLE MILES TRAVELLED (VMT) ANALYSIS

3.1 CEQA VMT Screening Process

3.1.1 *VMT Background*

Vehicle miles traveled (VMT) is a measurement of miles traveled by vehicles within a specified region and for a specified period. VMT measures the efficiency of the transportation network. VMTs are calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (round-trip) travel and is often estimated for a typical weekday to measure transportation impacts.

On September 27, 2013, Governor Jerry Brown signed Senate Bill 743 (SB 743). SB 743 created a process to change the way analysis of transportation impacts under the California Environmental Quality Act (CEQA) is conducted. The Governor's Office of Planning and Research (OPR) was tasked to amend the CEQA Guidelines to provide an alternative to the traditional metric of automobile delay which would promote three statutory goals: 1) the reduction of greenhouse gas (GHG) emissions; 2) the development of multimodal transportation networks; and 3) a diversity of land uses. OPR concluded that the use of Vehicle Miles Traveled (VMT), with thresholds linked to GHG reduction targets, would adequately analyze a project's transportation impacts while supporting all three statutory goals.

OPR released a preliminary evaluation of alternative methods for transportation analysis in December 2013, and by August 2014, released a preliminary discussion draft of potential updates to the CEQA Guidelines, which specified VMT as the selected metric for analysis. In 2016, OPR released a draft of the proposed revisions to the CEQA Guidelines. At the same time, OPR released a new *Technical Advisory for Evaluating Transportation Impacts In CEQA*, which provides technical recommendations regarding the implementation of VMT analysis state-wide in a document external to the CEQA statute.

After extensive stakeholder outreach, OPR transmitted the final proposed revisions to the CEQA Guidelines and the current draft of the *Technical Advisory* to the California Natural Resources Agency (the body responsible for certifying, adopting, and amending the CEQA Guidelines) in November 2017. Beginning in January 2018, the California Natural Resources Agency initiated the formal rulemaking process to adopt the proposed revisions, including the new Section 15064.3 which specifies VMT as the metric for transportation analysis. On December 28, 2018, the California Office of Administrative Law filed the revised CEQA Guidelines with the Secretary of the State on behalf of the Natural Resources Agency, thereby formally implementing vehicle miles traveled as the metric for transportation analysis under CEQA. Pursuant to the adopted Section 15064.3, a lead agency may elect to implement the new criteria for analyzing transportation impacts immediately. Beginning on July 1, 2020, the criteria must be applied state-wide.

3.1.2 *Local / Regional Agency Transition to SB743*

The County of San Diego recently adopted the Transportation Study Guidelines (TSG) that outlines VMT methodologies and thresholds. This TSG was utilized in this analysis.

3.2 Technical Methodology

According to the TSG, a detailed transportation VMT analysis is required for all land development projects, except those that meet one of the screening criteria. A project that meets at least one of the screening criteria would have less than significant VMT impact due to the project characteristics and/or location. The Project meets the following criteria as described in the TSG:

LOCALLY SERVING RETAIL/SERVICE PROJECTS

If the project leads to a net increase in provision of locally serving retail, transportation impacts from the retail portion of the development should be presumed to be less than significant. If the project consists of regionally serving retail, and increases overall VMT compared to with existing uses, then the project would lead to a significant transportation impact. CEQA VMT Analysis

The Project is a retail development consisting of a fast-food restaurant, an auto parts store and a car wash. This retail service is locally serving in nature. Thus, the Project meets the *Locally Serving Retail/Service Projects* criterion since it is a service project of less than 50,000 SF in size. Therefore, the Project would have a less than significant VMT impact due to the project characteristics. Hence this Project does not have a significant CEQA transportation impact.

4.0 ANALYSIS SCENARIOS, APPROACH AND METHODOLOGY

4.1 Analysis Scenarios

This traffic analysis assesses the study area intersections in the following scenarios to determine the potential impacts to the road network:

- Existing
- Opening Year Without Project
- Opening Year + Project

4.2 Analysis Methodology

There are various methodologies used to analyze signalized intersections and unsignalized intersections. The measure of effectiveness for intersection operations is level of service (LOS), which denotes the operating conditions which occur at a given intersection under various traffic volume loads.

LOS 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 an intersection. Levels of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst. Level of service designation is reported differently for signalized and unsignalized intersections. In the 6th edition of the Highway Capacity Manual (HCM), Level of Service for signalized intersections is defined in terms of delay. The level of service analysis results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time.

Table 4–1 summarizes the signalized intersections levels of service descriptions. ***Table 4–2*** depicts the intersection LOS and corresponding delay ranges, which are based on overall intersection delay (signalized intersections) and the average control delay for any particular minor movement (unsignalized intersections), respectively. LOS relative to signalized and unsignalized intersection is further described below.

4.2.1 *Signalized Intersections*

For signalized intersections, level of service criteria is stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delays include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of service A describes operations with very low delay (i.e., less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of service B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of Average delay.

Level of service C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of service D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher volume (demand) / capacity (v/c) ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

Level of service E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level of service F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

4.2.2 *Unsignalized Intersections*

For unsignalized intersections, level of service is determined by the computed or measured control delay and is defined for each minor movement: level of service is not defined for the intersection as a whole. Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits. LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

TABLE 4–1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally, occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally, results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally, results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels

TABLE 4–2
INTERSECTION LOS & DELAY RANGES

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10.0	≤ 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	≥ 80.1	≥ 50.1

Source: Highway Capacity Manual, 6th Edition.

5.0 VEHICULAR MOBILITY CRITERIA

The following criteria were utilized to evaluate potential vehicular mobility improvements, based on the *Transportation Study Guide,* September 2022.

5.1 Signalized Intersections

Based on the County of San Diego guidelines, an improvement is required at a signalized intersection if any of the following are triggered:

- Consistent with County General Plan Policy, any intersection that is operating at an acceptable LOS or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS E or F should identify improvements to improve operations to LOS D or better.
- Any signalized study intersection that is operating at LOS E or F without project traffic where the project increased delay by 5.0 or more seconds should identify improvements to offset the increase in delay.

5.2 Unsignalized Intersections

Based on the County of San Diego guidelines, an improvement is required at an unsignalized intersection if any of the following are triggered:

5.2.1 *Side Street Stop Controlled*

- The project causes the average intersection delay to be LOS E or F during the peak hour.
- If the worst-case movement is currently operating at LOS E or F:
  - The project adds 5 or more seconds of overall intersection AND
  - The project adds ten (10) or more trips to the worst-case movement OR 50 or more trips to the overall intersection.

5.2.2 *All-Way Stop Controlled*

- The project causes the average intersection delay to be LOS E or F during the peak hour.
- The project adds 5 or more seconds of delay to an intersection that is currently operating at LOS E or F during the peak hour.

6.0 EXISTING CONDITIONS

6.1 Study Area

This study analyzes the following intersections based on the anticipated assignment of project traffic and locations where most likely the project traffic would cause a vehicular mobility deficiency.

Intersections

1. Los Coches Road / Hwy 8 Business (Signalized)
2. Los Coches Road / Aurora Drive (Signalized)
3. Los Coches Road / Ora Belle Lane (Unsignalized)
4. Los Coches Road / I-8 WB Ramps (Signalized)
5. Los Coches Road / I-8 EB Ramps (Signalized)
6. Los Coches Road / Camino Canada (Signalized)

6.2 Existing Transportation Conditions

Following is a description of the street network in the Study Area within San Diego County:

Los Coches Road

North of Hwy 8 Business, Los Coches Road is classified as a 2.1D Community Collector and it is constructed with one lane in each direction and a center Two-Way-Left-Turn Lane (TWLTL). Curb, gutter and sidewalks are provided. Bike lanes are also provided. Curbside parking is permitted.

From Hwy 8 Business to I-8, Los Coches Road is classified as a 4.1B Major Road. It is currently built as a 3-Lane road between Hwy 8 Business to just south of Los Coches Road E. (Aurora Drive) with a center TWLTL and as a 4-Lane road from just south of Los Coches Road E. (Aurora Drive) to I-8 Camino Canada, with a center TWLTL and functions as a 4.2B Boulevard. Curb and gutter are provided. Sidewalks are provided on both curbs from Hwy 8 Business to the Project site. From the Project site to the I-8 EB ramps, sidewalks are provided only on the west curb. Bike lanes are also provided. Curbside parking is not permitted. The posted speed limit is 40 mph.

Ora Belle Lane

Ora Belle Lane is an unclassified residential cul-de-sac. This is a two-lane road with a cul-de-sac. Curb, gutter and sidewalks are provided, and curbside parking is permitted.

Hwy 8 Business

Hwy 8 Business is classified as a 4.1B Major Road in the San Diego County Mobility Element. Curb, gutter and sidewalk are provided intermittently in the Project vicinity. The posted speed limit is 45 mph.

Interstate 8 (I-8)

I-8 is a 4-Lane east/west freeway between I-10 in the east (in Arizona), terminating at Sunset Cliffs Boulevard / Nimitz Boulevard to the west.

Figure 5–1 depicts the existing traffic conditions and the study area intersections graphically.

6.3 Existing Traffic Volumes

6.3.1 *Peak Hour Volumes*

Existing weekday AM and PM peak hour (7:00-9:00 AM and 4:00-6:00 PM) traffic volume counts were commissioned at the study area intersections on July 30, 2019, and August 13, 2019. Since the volume counts were conducted in summer when area schools were closed, a 3% factor was applied to the existing intersection traffic to account for school traffic.

Figure 5–2 depicts the peak hour intersection turning movement volumes at the study area intersections, with the 3% factor for summer counts. ***Appendix A*** contains copies of the intersection count sheets.

6.4 Existing Pedestrian Conditions

Sidewalks are provided along both sides of Los Coches Road between Hwy 8 Business and I-8, except along the Project frontage. A sidewalk is provided only on the west curb of Los Coches Road between the I-8 Westbound and Eastbound ramps. Sidewalks are provided on both curbs of Los Coches Road between the I-8 Eastbound ramps and Camino Canada. The Pedestrian conditions are described in further detail in Section 13.1 Pedestrian Conditions.

6.5 Existing Bicycle Network

Currently, bike lanes are provided on Highway 8 Business. Bike lanes are also provided on Los Coches Road north of Highway 8 Business. The Bicycle conditions are described in further detail in Section 13.2 Bicycle Conditions.

6.6 Existing Transit Conditions

Two NCTD Breeze routes, 838 and 864, both run along Los Coches Road.

Route 838 runs between East County Square and Alpine via Viejas with an hourly schedule. Monday through Friday, the route runs from 6:00 AM through 8:00 PM and Saturdays and Sundays, it runs from 7:00 AM through 7:00 PM.

Route 864 runs El Cajon Transit Center and East County Square via Madison Avenue with a half-hourly schedule. Monday through Friday, the route runs from 5:00 AM through 10:00 PM and Saturdays and Sundays, it runs hourly from 6:00 AM through 9:00 PM. The Transit conditions are described in further detail in Section 13.3 Transit Conditions.

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Figure 5-1

Existing Conditions Diagram

LOS COCHES PLAZA

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Figure 5-2

Existing Traffic Volumes

Los Coches Plaza

7.0 ANALYSIS OF EXISTING VEHICULAR CONDITIONS

7.1 Peak Hour Intersection Levels of Service

Table 6-1 summarizes the delay and levels of service at the study area intersections. As seen in *Table 6-1* all study area intersections are calculated to currently operate at LOS D or better.

Appendix B contains the peak hour intersection analysis worksheets.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay [a]	LOS [b]
1. Los Coches Rd / Hwy 8 Business	Signal	AM	20.9	C
		PM	25.8	C
2. Los Coches Rd / Aurora Dr	Signal	AM	9.8	A
		PM	10.3	B
3. Los Coches Rd / Ora Belle Lane	TWSC[c]	AM	14.2	B
		PM	16.0	C
4. Los Coches Rd / I-8 WB Ramps	Signal	AM	19.8	B
		PM	15.2	B
5. Los Coches Rd / I-8 EB Ramps	Signal	AM	13.2	B
		PM	28.8	C
6. Los Coches Rd / Camino Canada	Signal	AM	19.4	B
		PM	25.6	C

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.

SIGNALIZED		UNSIGNALIZED	
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

8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

8.1 Trip Generation

8.1.1 *Proposed Project*

This report was prepared and submitted in February 2020, when the County *Transportation Study Guidelines* was not yet published. Therefore, the trip generation rates from the *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002 by SANDAG was used to estimate the trips generated by the proposed Project, as was the practice at that time. The following rates were used:

- **Fast Food** - For the fast-food restaurants, the trip rates for "Fast Food (w/drive-through)" were used.
- **Auto Parts Store** – The SANDAG rate for the Auto Parts Store was used for this land use.
- **Car wash** – The trip rate provided by SANDAG for a Car Wash was used to estimate the trips generated for this land use.

Table 8–1 summarizes the Project traffic generation.

8.1.2 *Project Trips*

The proposed Project is calculated to generate a total of 3,072 ADT with 175 AM peak hour trips (88 inbound / 87 outbound), and 246 PM peak hour trips (124 inbound / 122 outbound). This trip generation was used in the analysis in this report.

The trip generation based on the ITE *Trip Generation* Manual 10th Edition was also calculated. Using the ITE rates, the Project is calculated to generate 2,273 ADT, nearly 800 ADT less than the trip generation based on the SANDAG rates (3,072). Hence, this report analyzes more trips than the ITE generated trips. Mixed uses are planned on the site, and users would patronize one or more uses on the site. The Fast-Food and the Auto Parts store will generate pass-by trips/diverted link trips. No credit is applied for mixed use or pass-by /diverted link and hence the analysis is conservative.

8.2 Trip Distribution

Project trip distribution was developed based on the location of the residences and the roadway network in the project vicinity. Based on the above, it was assumed that 70% of the Primary Project traffic is oriented to the north on Los Coches Road and 30% to the south.

Figure 8-1 depicts the Project trip distribution.

8.3 Trip Assignment

The Project trips were assigned using the trip distribution percentages on *Figures 8-1*. The Project traffic volumes were added to the Existing traffic (*Figure 5-2*) to obtain the Existing + Project traffic volumes.

Figure 8-2 the Total Project traffic volumes and ***Figure 8-3*** depicts the Existing + Project traffic volumes.

TABLE 8–1
PROJECT TRIP GENERATION

Land Use	Size		Daily Trip Ends (ADT)		AM Peak Hour					PM Peak Hour				
					% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
			Rate [a]	Volume			In	Out	Total			In	Out	Total
Fast-Food Restaurant W Drive-thru	2.66	KSF	650 /KSF	1,729	7%	50:50	61	60	121	7%	50:50	61	60	121
Auto Parts Sales	7.385	KSF	60 /KSF	443	4%	50:50	9	9	18	10%	50:50	22	22	44
Car Wash	1	Car Wash	900 /FP	900	4%	50:50	18	18	36	9%	50:50	41	40	81
Total Proposed Project Trips at Driveway				**3,072**			**88**	**87**	**175**			**124**	**122**	**246**

General Notes:

a Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

b The inbound / outbound splits are not provided for Auto Sales. A split of 50/50 was applied for AM and PM peak hours.

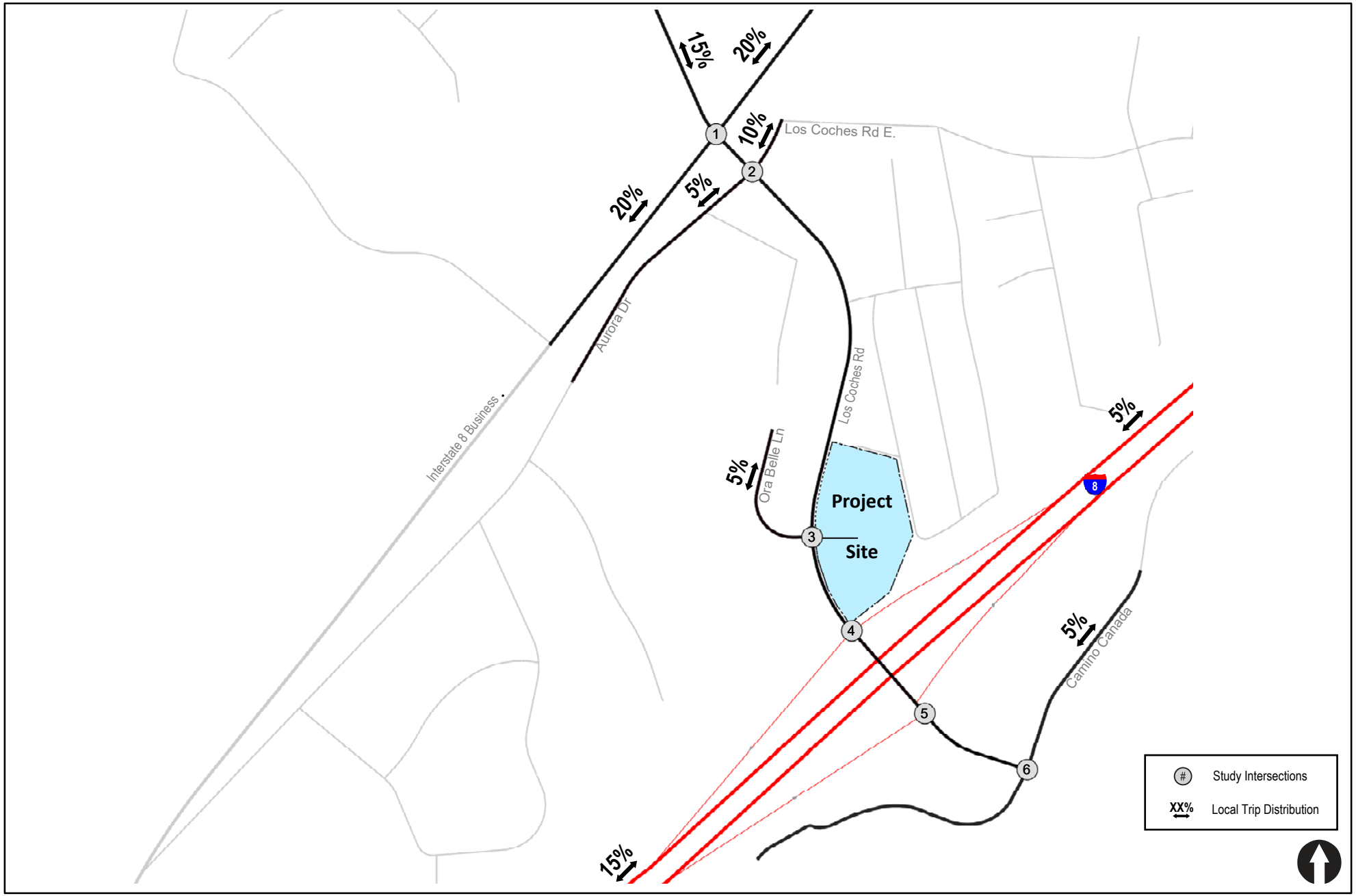

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Figure 8-1

Project Traffic Distribution

LOS COACHES RETAIL

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Figure 8-2

Project Traffic Volumes

Los Coches Plaza

9.0 ASSESSMENT OF OPENING YEAR VEHICULAR CONDITIONS

9.1 Opening Year Traffic Forecasting

Research was conducted to identify known cumulative projects. No new / planned substantial individual projects were identified in the Project vicinity. Therefore, it was determined to apply a growth factor. Typically, historical growth of traffic volumes on the area roadways is used as a basis for annual growth. However, historical traffic volumes are not available for the area roadways. Hence, an annual growth of 2% per year was applied for two years to the existing traffic volumes to account for as yet unknown projects in the Project vicinity.

Figure 9-1 depicts the Opening Year without Project traffic volumes and ***Figure 9-2*** depicts the Opening Year + Project traffic volumes.

9.2 Opening Year without Project Intersection Analysis

Table 9-1 summarizes the Opening Year without Project delay and levels of service at the study area intersections. As seen in *Table 9-1,* the Opening Year without Project, all study area intersections are calculated to continue to operate at LOS C or better.

Appendix C contains the Opening Year without Project peak hour intersection analysis worksheets.

9.3 Opening Year + Project Intersection Analysis

Table 9-1 summarizes the Opening Year + Project delay and levels of service at the study area intersections. 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 except the minor street left-turn movement at the following unsignalized intersection:

- Ora Belle Lane (Project Driveway) / Los Coches Road intersection (LOS E during the AM peak hour and LOS F during the PM peak hour)

The vehicular mobility improvement recommended for the Existing + Project condition will improve the operations at this intersection to LOS B or better.

Appendix D contains the Opening Year + Project peak hour intersection analysis worksheets.

TABLE 9–1
OPENING YEAR INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Opening Year Without Project		Opening Year + Project		Δ [c]	Improvement Triggered?
			Delay	LOS	Delay	LOS		
1. Los Coches Rd / Hwy 8 Business	Signal	AM	21.6	C	25.3	C	3.7	No
		PM	28.0	C	30.3	C	2.3	No
2. Los Coches Rd / Aurora Dr	Signal	AM	10.1	B	10.7	B	0.6	No
		PM	10.4	B	11.8	B	1.4	No
3. Los Coches Rd / Ora Belle Lane	TWSC[c]	AM	14.6	B	**40.1**	**E**	25.5	**Yes**
		PM	18.4	C	**157.7**	**F**	139.3	**Yes**
4. Los Coches Rd / I-8 WB Ramps	Signal	AM	22.4	C	23.9	C	1.5	No
		PM	16.3	B	16.3	B	0.0	No
5. Los Coches Rd / I-8 EB Ramps	Signal	AM	13.3	B	13.5	B	0.2	No
		PM	21.2	C	31.2	C	10.0	No
6. Los Coches Rd / Camino Canada	Signal	AM	19.6	B	19.7	B	0.1	No
		PM	26.1	C	27.2	C	1.1	No

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. Minor street left turn delay is reported.

SIGNALIZED		UNSIGNALIZED	
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

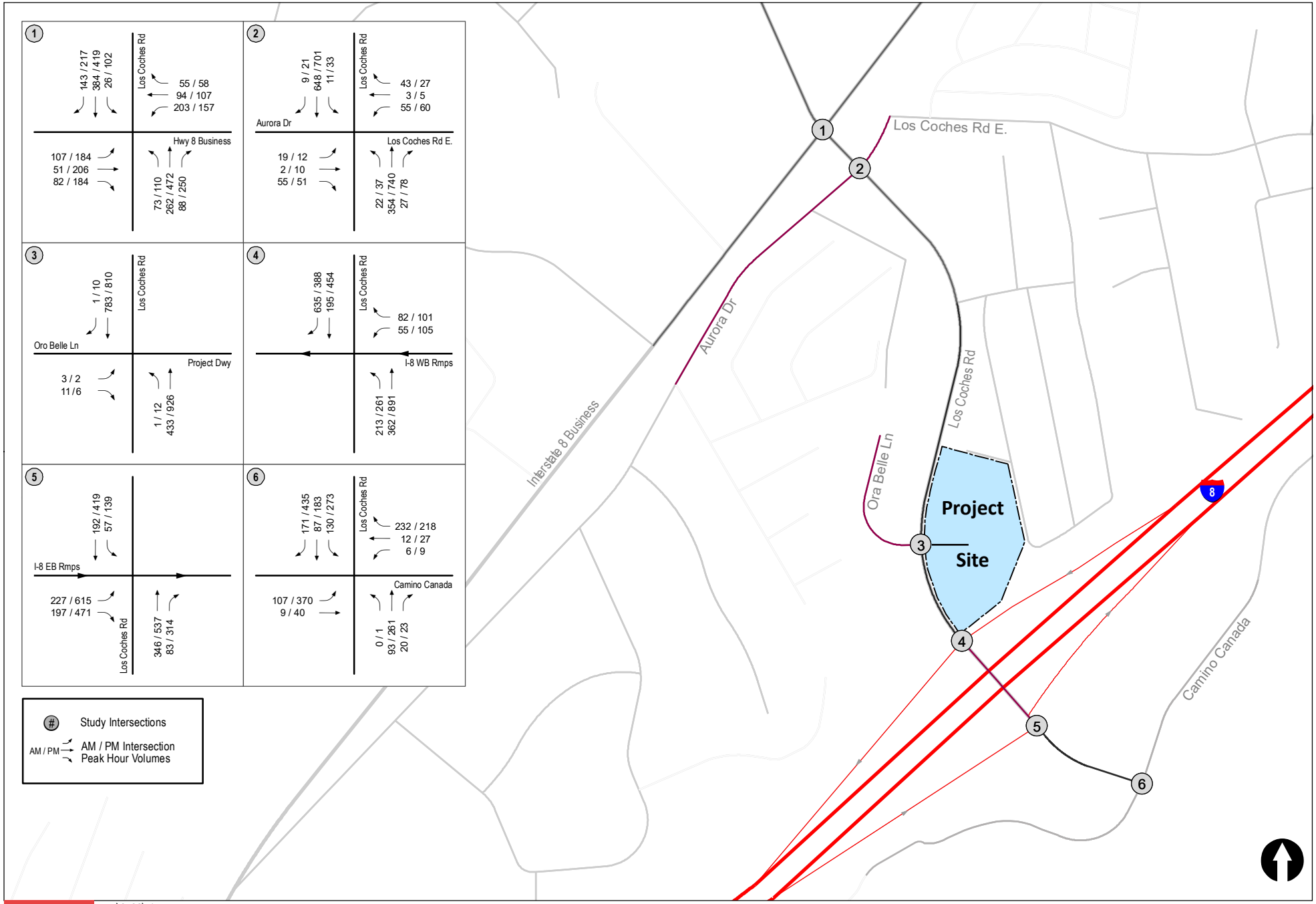

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Figure 9-1

Opening Year without Project Traffic Volumes

Los Coches Plaza

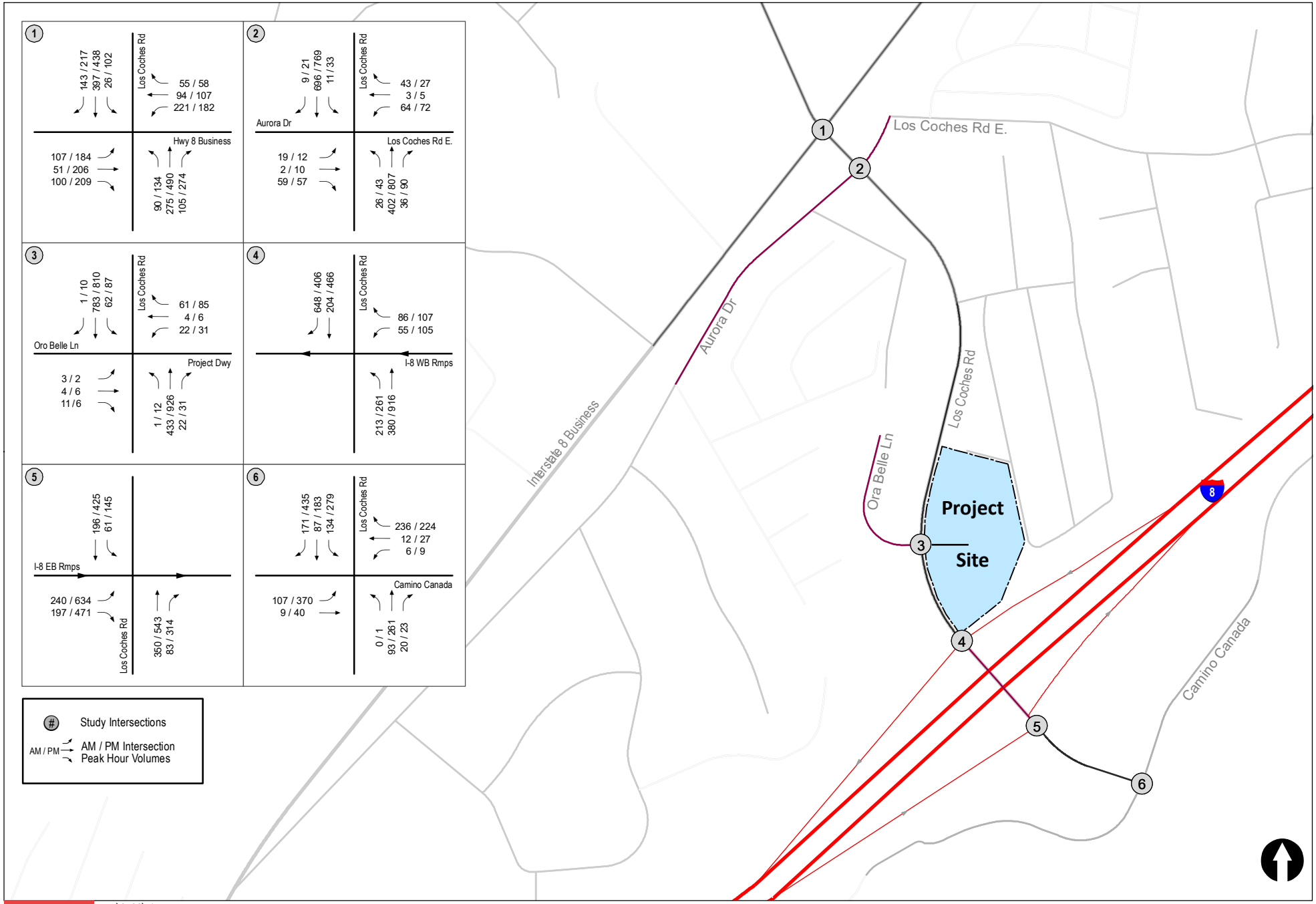

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Figure 9-2

Opening Year + Project Traffic Volumes

Los Coches Plaza

10.0 PARKING ANALYSIS

A parking analysis was conducted to determine the adequacy of the proposed number of parking spaces on site. As seen in the site plan, the Project proposes to provide 38 parking spaces for the Carwash, Fast-food restaurant and the auto parts store. An additional 2 spaces will be provided in Parcel 3 of the site, but access to these two spaces will be from the existing gas station and are therefore not included in the available spaces.

10.1 San Diego County Parking Standards

Table 10-1 summarizes the minimum required parking based on the San Diego *County Parking Regulations*. As seen in *Table 10-1,* a total of 49 spaces are required for the Fast-Food restaurant and the Auto Parts Store, while the provided number of spaces is 38. The maximum number of employees will be around 4 at any given time. Therefore, the required number of spaces for the car wash is _5 spaces at the rate of 1 space per employee for 4 employees and 1 spillover space. Thus, based on San Diego County standards, the number of parking spaces provided is not sufficient.

TABLE 10-1
MINIMUM REQUIRED PARKING (COUNTY RATES)

Land Use	No. of Units	Parking Ratio [a]	Parking Spaces	
			Required Minimum	Provided
Fast-Food [b]	2,660 SF	9.5 Spaces / KSF	25	
Auto Parts Store [c]	7,385 SF	3.3 Spaces / KSF	24	
Total			**49**	**38**
Carwash [d]	4 Employees	1 Space /Employee + 2 Additional spaces	6	2
			55	**40**

Footnote:

a *Schedule of Off-Street Parking Requirements*. San Diego County.
b 6762 - Parking Requirements: Commercial, Stand-Alone Fast-Food Restaurant with Drive-Through Window.
c 6762 - Parking Requirements: Commercial, Automotive or Equipment Sales and Service
d 6780 - Parking Requirements: Other Occupancies and Uses.

The basis and the source of the County parking rates is not known and does not reflect current parking usage. Patrons tend to use the drive-through window more often and therefore do not need to park. Hence, as described in the following section, LLG conducted a parking analysis in 2018 to determine an accurate parking rate for fast-food restaurants.

10.2 LLG Developed Fast-Food Restaurant Parking Rates

Six (6) stand-alone fast-food restaurants with drive-through were identified, four of which are in the City of Vista, one in the City of Oceanside and one in the City of San Diego. The parking rates developed in this study by LLG are more recent and based on counts at 6 fast-food restaurants throughout the San Diego region. These counts were conducted in 2017 and 2018 and reflect the most recent travel patterns. Thus, these rates are considered to be more reliable.

LLG conducted a 3-day peak period parking count at each facility (one Saturday and two weekdays). The parking occupancy counts were conducted every 30 minutes, between 11 AM and 1 PM, and between 4 PM and 6 PM in November 2017 and in 2018. Cars within the drive-through queues were not counted.

Table 10-2 shows the results of the parking counts. The average and peak parking rate is indicated for each restaurant. The overall average peak parking demand is 6.7 spaces per 1,000 square feet and the highest rate counted at any of the restaurants that peak at lunchtime is 8.28 spaces per 1,000 square feet (Chick-Fil-A which is the busiest restaurant). Based on the collected data specifically for fast food restaurants, a ratio of 6.7 spaces per 1000 square feet is recommended.

10.3 Parking Requirement based on LLG Developed Fast-Food Restaurant Parking Rates and ITE Rate for Auto Parts Store

Table 10-3 summarizes the minimum required parking based on rates obtained from a combination of various sources. LLG developed a parking rate for fast-food restaurants based on actual parking demand counts conducted in 2017 at six (6) fast-food restaurants in north San Diego County. The ITE rate for Auto Parts Store, land use 843, Automobile Parts Sales was used for the Auto Parts Store Since the ITE parking rates are developed more recently and reflects current driving patterns.

For the Car Wash, the rate from San Diego *County Parking Regulations,* 6780 - Parking Requirements: Other Occupancies was used.

As seen in *Table 10-3*, a total of 34 spaces are required for the Fast-Food restaurant and the Auto Parts Store, while the provided number of spaces is 38. In addition, 5 spaces are needed for the carwash. The maximum number of employees working at the Carwash being 4 at any given time plus 1 spillover. Thus, the required number of spaces for the car wash is a maximum of 5 spaces (including 1 for spillover). The car wash employees and customers will be able to use the unoccupied parking spaces from the available 38 spaces on the site.

The nearest bus stop is within a walking distance of ¼ mile from the project driveway. A bus stop is proposed to be installed by the Project along the Project frontage as shown on *Figure 2-3*. The carwash customers can patronize the fast-food restaurant while they wait for their cars to be washed and will not use an additional parking space. The auto parts store customers can patronize the fast-food restaurant and hot park again in another space, etc. With the proposed bus stop close to the entrance to the site, some of the fast-food restaurant and auto parts store customers will use the bus and not drive a car. The parking calculations have not applied any reduction to parking to account for these.

TABLE 10–2
FAST-FOOD RESTAURANT PARKING DEMAND

Time of Day	Chick-Fil-A (3475 Marron Rd, Oceanside) *Supply = 36 spaces* Building: 4,466 SF			Del Taco (1037 East Bobier Dr, Vista) *Supply = 24 spaces* Building: 2,742 SF			Jack in the Box (815 E Vista Wy, Vista) *Supply = 21 spaces* Building: 2,987 SF			KFC (840 E Vista Wy, Vista) *Supply = 26 spaces* Building: 2,548 SF			McDonalds (827 S Santa Fe Ave, Vista) *Supply = 36 spaces* Building: 4,770 SF			Starbucks (2365 Cam del Rio N, San Diego) *Supply = 14 Spaces* Building = 1,450 SF		
	Day 1 (W)	**Day 2 (W)**	**Day 3 (S)**	**Day 1 (S)**	**Day 2 (W)**	**Day 3 (W)**	**Day 1 (S)**	**Day 2 (W)**	**Day 3 (W)**	**Day 1 (S)**	**Day 2 (W)**	**Day 3 (W)**	**Day 1 (S)**	**Day 2 (W)**	**Day 3 (W)**	**Day 1 (S)**	**Day 2 (W)**	**Day 3 (W)**
11:00am	18	10	22	3	5	9	13	6	10	6	N/A	12	20	12	16	11	13	13
11:30am	25	19	23	5	9	8	15	7	9	9	N/A	11	15	16	14	14	11	14
12.00 pm	24	32	21	9	17	9	14	12	7	12	N/A	9	25	16	16	12	10	13
12:30pm	26	28	27	13	13	13	10	7	7	11	N/A	11	21	11	15	14	9	12
1:00pm	24	35	37	9	11	7	5	10	6	10	N/A	6	21	9	8	12	10	14
4:00pm	14	12	13	3	5	7	3	9	4	10	9	11	13	10	17	11	13	11
4:30pm	17	11	22	5	5	8	3	7	5	8	11	14	7	13	11	11	11	8
5:00pm	14	29	22	6	7	12	3	8	6	9	10	15	15	13	5	14	13	11
5:30pm	23	17	24	7	6	10	6	9	7	13	12	8	18	12	10	14	14	13
6:00pm	20	19	34	8	5	11	3	8	10	15	7	12	11	14	18	13	14	11
Average Parking Demand per KSF			**4.94**			**2.98**			**2.56**			**4.1**			**2.95**			**8.38**
Peak Parking Demand per KSF			**8.28**			**6.2**			**5.02**			**5.89**			**5.24**			**9.66**
Overall Average Parking Demand			***6.7***															

Footnotes:

a Parking counts conducted on November 2017 and September 2018.

General Notes:

KSF = Thousand square feet.
N/A = Not available.
S= Saturday Count W= Weekday Count
Value in cell is the number of parking cars at that time. Cars in drive-throughs were not counted.

TABLE 10-3
MINIMUM REQUIRED PARKING (HYBRID RATES)

Land Use	No. of Units	Parking Ratio	Parking Spaces	
			Required Minimum	Provided
Fast-Food [a]	2,660 SF	6.7 Spaces / KSF	18	
Auto Parts Store [b]	7,385 SF	2.14 Spaces / KSF	16	
Subtotal			**34**	**38**
Carwash [d]	4 Employees	1 Space /Employee + 2 Additional spaces	6	2
Total Auto Spaces			**40**	**40**

Footnote:

a Actual counts at six (6) fast-Food restaurants in north County and city of San Diego and conducted in 2017 and 2018.
b Institute of Transportation Engineers Parking Generation, 4th Edition, Land Use: 843, Automobile Parts Sales.
c Schedule of Off-Street Parking Requirements. San Diego County, 6780 - Parking Requirements: Other Occupancies and Uses.

10.4 Conclusion

Based on County parking requirements, the parking provided will not be sufficient. However, based on the parking rate developed by LLG based on recent counts at 6 Fast-Food restaurants and the ITE parking rate for Auto Parts Store, the parking provided will be sufficient. As described above, the actual parking demand is likely to be lower due to shared parking and transit use. The Fast-food drive-through provides for the storage of 10 cars and the car wash lanes provide for 23 cars. This is in addition to the 38 parking spaces provided. Thus, there is sufficient parking and circulation on-site.

11.0 PROJECT ACCESS AND QUEUING

11.1 Project Access

It is proposed to provide Project access Via the 4th leg of the Los Coches Road / Ora Belle Lane Road intersection. It is recommended that a traffic signal be provided at the Project driveway. The Project driveway is located on the inside of a horizontal curve. It is therefore recommended that a no Right-Turn-On-Red (RTOR) sign be installed for vehicles exiting the Project driveway. This will minimize any sight distance deficiencies for vehicles exiting the Project driveway.

The following intersection geometry is recommended:

- Southbound – One left-turn lane, a through lane and a shared through/right lane
- Westbound – An exclusive left-turn lane and a shared through/right lane (exiting the Project) and install a no RTOR sign [R13A (CA)]
- Northbound – One left-turn lane, one through lane and one shared through/right lane
- Eastbound – A shared left/through/right lane

The Project driveway is located on the inside of a horizontal curve and the no RTOR for vehicles exiting the Project driveway will eliminate any sight distance deficiencies.

11.2 Gas Station Access

The northern driveway to the existing gas station is located south of the Project site, less than 100 feet from the proposed signalized Ora Belle Lane (Project Driveway) / Los Coches Road intersection. This driveway should be restricted to right-in / right-out movements only, with the installation of a 4-foot-wide raised median on Los Coches Road from Ora Belle Lane to just south of the northern driveway, as shown in *Figure 2-3*.

Figure 11-1 depicts the raised median on Los Coches Boulevard / Ora Belle Lane Road intersection (Project driveway).

11.3 Queuing Analysis

A queuing analysis was conducted for the Ora Belle (Project Driveway), Westbound I-8 and Eastbound I-8 ramp intersections on Los Coches Road. ***Table 11-1*** summarizes the queuing on Los Coches Road at all three intersections. As seen in *Table 11-1*, the calculated queue exceeds the available storage in one movement at the Westbound I-8 / Los Coches Road intersection and in two movements at the Eastbound I-8 / Los Coches Road intersection. However, it may be noted that the increase in queue length due to Project traffic is a maximum of 15 feet, less than one car length.

Appendix E contains the queuing analysis worksheets.

TABLE 11-1
OPENING YEAR QUEUING ANALYSIS

Intersection	Movement	Available Storage Length in Feet	Calculated Queue in Feet	
			Without Project	With Project
3. Los Coches Rd / Ora Belle Ln / Project Dwy	SBT	>500	0	225
	SBL	100	0	90
	NBT	340	0	319
	NBL	100	0	23
4. Los Coches Rd / I-8 WB Ramps	SBR	130	95	98
	SBT	338	163	167
	NBT	344	242	252
	NBL	140	**#314**	**#314**
5. Los Coches Rd / I-8 EB Ramps	SBT	344	111	112
	SBL	100	**#151**	**#162**
	NBR	70	**116**	**117**
	NBT	379	191	192

Footnote:

a # indicates 95th percentile volume exceeds capacity. Actual queue may be longer. Queue shown is maximum after two cycles.

General Note:

SBR – Southbound Right-turn movement.
SBT – Southbound Through movement.
SBL – Southbound left-turn movement.
NBR – Northbound Right-turn movement.
NBT – Northbound Through movement.
NBL – Northbound left-turn movement.

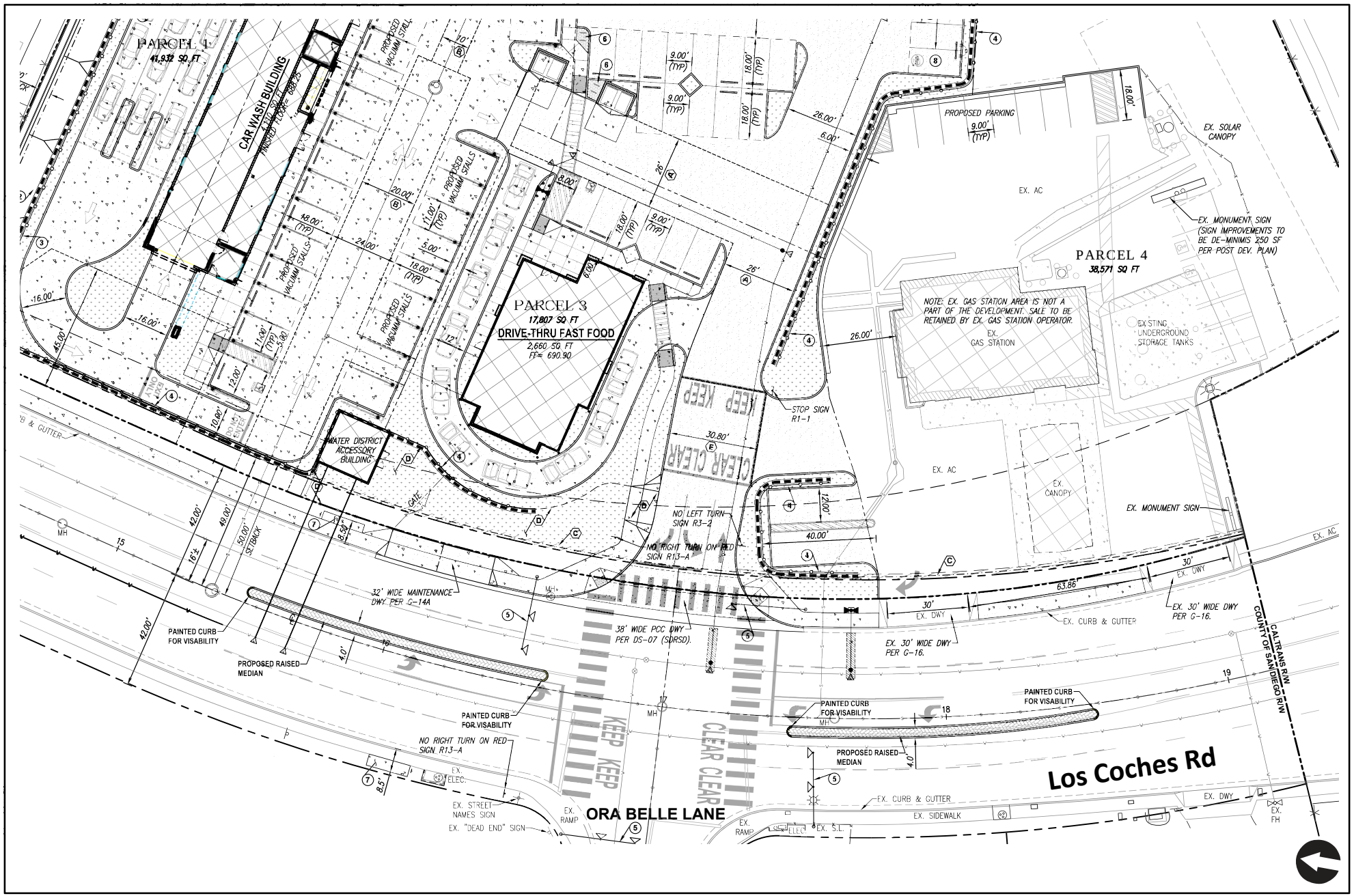

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Figure 11-1

Raised Median

LOS COCHES PLAZA

12.0 PROJECT DRIVEWAY IMPROVEMENTS

In the Opening Year with Project traffic, the Ora Belle Lane (Project Driveway) / Los Coches Road intersection is calculated to operate at LOS F. Installation of either a roundabout or a traffic signal at this intersection were considered, to improve operations at this intersection. The following are descriptions of each improvement alternative.

12.1 Roundabout Alternative

Los Coches Road is a 4-Lane Major Road. The total ADT on Los Coches Road at Ora Belle Lane intersection is approximately 23,500. This ADT is just under the threshold for a 2-lane roundabout.

12.1.1 *Single-Lane Roundabout*

A single-lane roundabout would have a smaller inscribed circle than a two-lane roundabout and the minimum inscribed circle diameter is 105 feet (***Appendix F***). However, since the number of approach lanes is 2, for a single lane entry, one lane will need to be dropped. The distance (330 feet) between Ora Belle Lane and the I-8 Westbound Off ramp (upstream intersection) is not sufficient to accommodate the merge distance. Thus, a single-lane roundabout is not feasible.

12.1.2 *Two-Lane Roundabout*

A two-lane roundabout would have a minimum diameter of 150 feet (*Appendix F*). This would result in the need to acquire right-of-way on all four corners of the Ora Belle Lane (Project Driveway) / Los Coches Road intersection. The inscribed circle would encroach on the northern driveway of the existing gas station adjacent to the Project site and two homes on Ora Belle Lane. Thus, a two-lane roundabout is not feasible.

Based on the above discussion, a roundabout is not a viable option.

12.2 Traffic Signal Alternative

Eight-hour and Four-hour signal warrants were conducted at the Ora Belle Lane (Project Driveway) / Los Coches Road intersection.

12.2.1 *Assumptions*

The Signal Warrant analysis is based on the traffic signal warrants contained in Chapter 4C, "Traffic Control Signal Needs Studies," of the 2009 *California Manual on Uniform Traffic Control Devices*, California MUTCD 2014 Edition Revision 4 (March 29, 2019). The investigation of the need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants. The following two were analyzed:

- Warrant 1 – Eight-Hour Vehicular Volume
- Warrant 2 – Four-Hour Vehicular Volume

The following is a description of the number of approach lanes and the approach volumes with the proposed Project at the subject Ora Belle Lane (Project Driveway) / Los Coches Road intersection.

NUMBER OF LANES PER APPROACH

There are two approach lanes on NB and SB Los Coches Road and one approach lane in the WB Project Driveway and Eastbound Ora Belle Lane.

Table 12–1 summarizes the existing conditions and the traffic data for the Ora Belle Lane (Project Driveway) / Los Coches Road intersection. The proposed lane assignment on each approach at the subject intersection is as follows:

- **SB Los Coches Road** – One through lane and one shared through/right lane
- **WB (Project Driveway)** – Does not exist
- **NB Los Coches Road** – One left-turn lane, one through lane and one shared through/right lane
- **EB (Ora Belle Lane)** – One shared left / right lane

The following number of lanes were assumed on each approach for the warrant anaysis:

- **SB Los Coches Road** – Two lanes
- **WB (Project Driveway)** – One lane
- **NB Los Coches Road** – Two lanes

APPROACH VOLUMES

The proposed Project volumes were added to the existing volumes on all four approaches of the subject intersection. Since the east leg (Project Driveway) does not currently exist, there are no existing volumes on the east leg.

Year 2019 northbound and southbound approach volumes on Los Coches Road at Ora Belle Lane are available. *Appendix F* contains the Los Coches Road volumes from Highway 8 Business to Ora Belle Lane and Ora Belle Lane to I-8 WB Ramps.

Westbound approach volumes were calculated as follows:

Westbound (Project Driveway) Approach Volumes

- Hourly Distribution of Vehicle Trips were obtained from the ITE *Trip Generation Manual*, 10th Edition for Land Uses 843, Automobile Parts Sales; 934, Fast-Food Restaurant with Drive-Through Window; and 949, Car Wash and Detail Center (***Table F-1*** in *Appendix F*).

- These distributions were applied to the ADT for all the proposed land uses and the hourly westbound (outbound) volumes were calculated (***Table F-2*** in *Appendix F*).

Project Volumes

Hourly Project approach volumes were obtained as follows:

- Hourly Distribution of Vehicle Trips were obtained from the ITE *Trip Generation Manual*, 10th Edition for Land Uses 843, Automobile Parts Sales; 934, Fast-Food Restaurant with Drive-Through Window; and 949, Car Wash and Detail Center (***Table F-1*** in *Appendix F*).

- The above percentages were applied to the southbound (inbound), westbound (outbound), northbound (inbound) and eastbound (inbound) directions based on the percentage of project traffic in each direction.

The Project traffic was added to the existing volumes in the corresponding approaches to obtain the Existing + Project traffic volumes. As seen in Table 12-2, the westbound approach (Minor Street) has higher hourly volumes than the eastbound approach and hence, the westbound approach volumes were used in the warrant analysis.

Table 12-2 also summarizes the Existing + Project hourly approach volumes for the subject intersection. *Columns E, F, G* and *H* contain the Project SB, NB, EB and WB approach volumes, respectively and *Columns I, J, K* and *L* contain the Existing + Project SB, NB, EB and WB approach volumes, respectively.

TABLE 12-1
EXISTING CONDITIONS

Major Street	Traffic Control	Number of Lanes Per Approach		Daily Approach Volume (vpd)			
		Major Street	Minor Street	SB	NB	WB	EB
Ora Belle Ln (Project Dwy) / Los Coches Rd	MSSC [a]	2	1	10,257 [b]	10,832 [b]	0 [c]	110 [d]

Footnotes:

a. Minor Street Stop Control
b. Volumes obtained from approach counts (*Appendix F*)
c. Since this driveway does not currently exist, there are no northbound approach volumes.
d. Approach volumes estimated as described in Section 12.2.2 and *Table F-2* in *Appendix F*.

TABLE 12–2
EXISTING + PROJECT TRAFFIC VOLUMES - ORA BELLE LANE (PROJECT DRIVEWAY / LOS COCHES ROAD

Hour Begin	Existing Volumes [a]				Project [a] (Table J-2 in *Appendix J*)				Existing + Project Volumes [a]			
	Los Coches Road		Ora Belle Lane (Project Dwy)		Los Coches Road		Ora Belle Lane (Project Dwy)		Los Coches Road		Ora Belle Lane (Project Dwy)	
Approach	SB	NB	WB	EB	SB	NB	WB	EB	SB	NB	WB	EB
	A	B	C	D	E	F	G	H	I	J	K	L
0:00	43	106	0	0	6	2	8	0	49	108	8	0
1:00	16	47	0	0	3	1	4	0	19	48	4	0
2:00	36	38	0	0	2	1	3	0	38	39	3	0
3:00	64	31	0	0	2	1	3	0	66	32	3	0
4:00	160	72	0	1	2	1	3	0	162	73	3	1
5:00	448	147	0	1	5	2	7	0	453	149	7	1
6:00	641	348	0	4	14	5	19	1	655	353	19	5
7:00	641	447	0	7	33	12	46	2	674	459	46	9
8:00	651	433	0	7	46	16	66	3	697	449	66	10
9:00	606	463	0	5	56	20	79	4	662	483	79	9
10:00	595	475	0	5	61	23	87	5	656	498	87	10
11:00	595	644	0	6	95	34	136	7	690	678	136	13
12:00	612	699	0	6	115	41	164	8	727	740	164	14
13:00	605	625	0	7	89	32	128	7	694	657	128	14
14:00	603	798	0	7	80	28	114	6	683	826	114	13
15:00	637	880	0	8	79	28	112	5	716	908	112	13
16:00	688	962	0	10	75	27	107	5	763	989	107	15
17:00	744	925	0	10	74	26	106	6	818	951	106	16
18:00	560	721	0	8	80	29	114	6	640	750	114	14
19:00	461	572	0	6	58	21	83	5	519	593	83	11
20:00	357	576	0	5	44	17	63	4	401	593	63	9
21:00	239	416	0	4	31	11	44	2	270	427	44	6
22:00	156	227	0	2	18	7	26	1	174	234	26	3
23:00	99	180	0	1	11	4	16	1	110	184	16	2
Total	**10,257**	**10,832**	**0**	**110**	**1,079**	**389**	**1,538**	**78**	**11,336**	**11,221**	**1,538**	**188**

Footnote:

a. See *Tables J-1, J-2* and *J-3* in *Appendix J* for the volume calculations.

General Note:

EB – Eastbound, WB – Westbound, and SB – Southbound.

12.3 Warrant Analysis

The following is a discussion of the two signal warrants for the Ora Belle Lane (Project Driveway) / Los Coches Road intersection.

12.3.1 *Warrant 1 – Eight-Hour Vehicular Volume*

Methodology

The need for a traffic signal shall be considered if an engineering study finds that one of the following conditions exist for each of 8 hours of an average day. The post speed limit is 40 mph on Los Coches Road at Town Center. Therefore the 70% criterion does not apply in this study.

A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street (600 vehicles per hour) and the higher-volume minor-street (150 vehicles per hour) approaches, respectively, to the intersection; or
B. The vehicles per hour given in both 100 percent columns of Condition B in Table 4C-1 exist on the major-street (900 vehicles per hour) and the higher-volume minor-street (105 vehicles per hour) approaches, respectively, to the intersection.

In applying each condition, the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.

Calculations

Table 12–3 summarizes the volume thresholds for two lanes or more approach on the major street and one-lane approach on the minor street for conditions A and B.

TABLE 12–3
WARRANT 1: EIGHT - HOUR VEHICULAR VOLUME

Warrant 1	Vehicles per hour on major street (Total of both approaches)	Vehicles per hour on higher-volume minor-street approach (One direction only)
Condition A	600	150
Condition B	900	75

Table 12–4 compares the actual hourly volumes for 24 hours in a day to the minimum volumes (*Table 12-3*) required to satisfy this warrant. As seen in *Table 12–4*, the Condition A warrant volumes are satisfied during one (1) hour in a day and the Condition B warrant volumes are satisfied for eleven (11) hours on a typical day. Thus, Condition A is not met, but Condition B is met. Therefore **Warrant 1 is satisfied**.

TABLE 12–4
WARRANT 1: TRAFFIC VOLUME DATA

Hour Begin	Major Street (Los Coches Road)	Minor Street (Project Driveway)	1-A	1-B
Threshold			**600 (Major) / 150 (Minor)**	**900 (Major) / 75 (Minor)**
0:00	157	8	N	N
1:00	67	4	N	N
2:00	77	3	N	N
3:00	98	3	N	N
4:00	235	3	N	N
5:00	602	7	N	N
6:00	1,008	19	N	N
7:00	1,133	46	N	N
8:00	1,146	66	N	N
9:00	1,145	79	N	Y
10:00	1,154	87	N	Y
11:00	1,368	136	N	Y
12:00	1,467	164	Y	Y
13:00	1,351	126	N	Y
14:00	1,509	116	N	Y
15:00	1,624	112	N	Y
16:00	1,752	107	N	Y
17:00	1,769	104	N	Y
18:00	1,390	116	N	Y
19:00	1,112	83	N	Y
20:00	994	63	N	N
21:00	697	44	N	N
22:00	408	26	N	N
23:00	294	16	N	N
TOTAL	**22,557**	**1,538**	**1**	**11**

12.3.2 *Warrant 2 – Four-Hour Vehicular Volume*

Methodology

The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes, on the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.

Calculations

The posted speed limit is 40 mph on Los Coches Road at Ora Belle Lane (Project Driveway). Therefore, Figure 4C-1 applies. *Table 12–5* summarizes the Warrant 2 calculations. As seen in Figure 4C-1 below, five (5) hourly traffic volumes fall above the curve for the appropriate number of lanes when plotted on Figure 4C-2 of the California MUTCD. The volumes for the four (4) hours from 7 am through 11 am and one (1) hour from 2 pm to 3 pm fall above the *2 or more lanes & 1 lane curve*. The points on Figure 4C-1 indicate the volumes in the Major Street and the corresponding Minor Street volume for the same hour. **Therefore Warrant 2 is satisfied**.

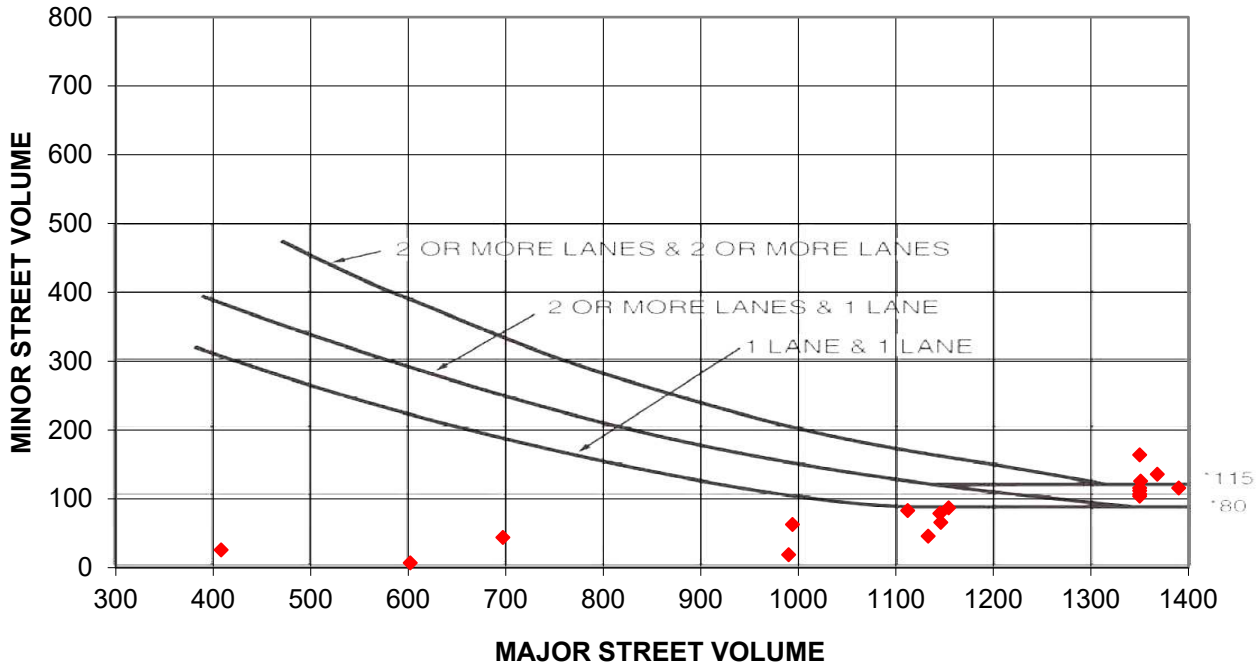
Based on the above, the 8-hour and 4-hour warrants are met at the Ora Belle Lane (Project Driveway) / Los Coches Road intersection. Therefore, it is recommended that a traffic signal be implemented at this intersection.

TABLE 12–5
WARRANT 2 VOLUMES - ORA BELLE LANE (PROJECT DRIVEWAY / LOS COCHES ROAD

Hour Begin	Existing + Project Volumes [a]	
Approach	Total of Major Street (Los Coches Road)	Higher of Minor Street (Project Driveway)
0:00	157	8
1:00	67	4
2:00	77	3
3:00	98	3
4:00	235	3
5:00	602	7
6:00	1,008	19
7:00	1,133	46
8:00	1,146	66
9:00	1,145	79
10:00	1,154	87
11:00	1,368	136
12:00	1,467	164
13:00	1,351	126
14:00	1,509	116
15:00	1,624	112
16:00	1,752	107
17:00	1,769	104
18:00	1,390	116
19:00	1,112	83
20:00	994	63
21:00	697	44
22:00	408	26
23:00	294	16
Total	**22,557**	**1,538**

Los Coches Road / Project Driveway

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



Note: The points on Figure 4C-1 above represent the hourly volumes.

TABLE 12–5
WARRANT 2, FOUR-HOUR VEHICULAR WARRANT: BASE

Warrant 2 - Four-Hour Vehicular Warrant Satisfied * **Yes** ✓ **No** ☐

Approach Lanes	One	2 or More	
Both Approaches -Major Street		X	5
Highest Approach -Minor Street	X		5

* Five plotted points fall above the curves in MUTCD Figure 4C-1 or 4C-2 **Yes** ✓ **No** ☐

13.0 ACTIVE TRANSPORTATION REVIEW

13.1 Pedestrian Conditions

Paved sidewalks are provided intermittently along Los Coches Road, Interstate 8 Business, Ora Belle Lane, and Camino Canada. Paved sidewalks are missing along several segments of Interstate 8 Business and several segments of Los Coches Road, west of Aurora Drive.

Standard crosswalks are provided at all the study intersections. High visibility crosswalks are provided at Los Coches Road / I-8 EB and WB Ramp intersections. ADA tactile paving is provided at Los Coches road / I-8 Business, and the Los Coches Road / I-8 EB and WB Ramp intersections. Pedestrian crossing is prohibited for some movements at the I-8 Los Coches Road / Ora Belle Lane (Project Driveway) and Los Coches Road / I-8 EB and WB Ramp intersections.

A paved AC sidewalk is provided along the west curb of Los Coches Road between the westbound and eastbound ramps for the convenience of pedestrians. A guard rail is provided along most of this segment.

The Project shall provide a sidewalk along the Project frontage and connect to the existing sidewalk on either end.

13.2 Bicycle Conditions

There are currently Class II bike lanes in each direction of travel on Highway 8 Business and on Los Coches Road north of Highway 8 Business. There are no bike lanes on Los Coches Road between Highway 8 Business and I-8, consistent with the *County of San Diego Bicycle Transportation Plan*, December 2003. There are currently no plans for improvements to the bicycle infrastructure in the Project vicinity.

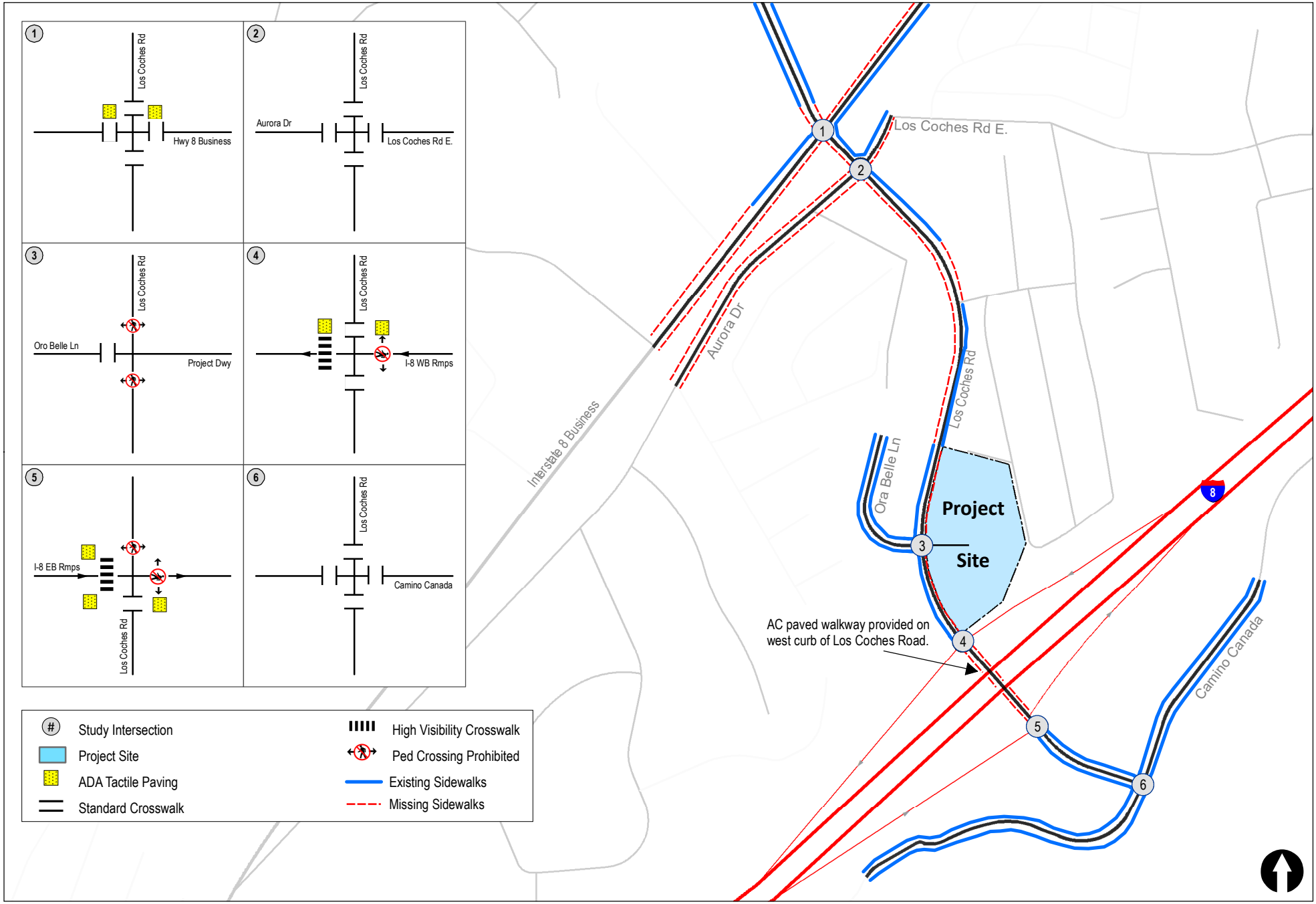
13.3 Transit Conditions

Public transportation is provided in the project area by the Metropolitan Transit System (MTS). Routes 838 and 864 provide transit service within the project area. The following is a description of the routes.

Route 838 runs from East County Square to the Viejas Reservation with destinations to Alpine Creek Shopping, East County Square, Kaiser Permanente Bostonia, and Viejas Casino & Outlets. There are 43 stops along this route. Route 838 currently operates Monday through Friday from 5:49 AM through 7:54 PM departing from the East County Square and from 5:05 AM through 8:08 PM departing from Viejas Reservation. The weekend route schedule begins at 6:51AM through 6:54 PM departing from East County Square and begins at 7:05 AM to 7:05 PM departing from Viejas Reservation. Route 838 travels at 1-hour headways on weekdays and on weekends.

Route 864 runs from East County Square to the Viejas Reservation with destinations to Alpine Creek Shopping, East County Square, Kaiser Permanente Bostonia, and Viejas Casino & Outlets. There are 23 stops along this route. Route 864 currently operates Monday through Friday from 5:49 AM through 7:54 PM departing from the East County Square and from 5:05 AM through 8:08 PM departing from Viejas Reservation. The weekend route schedule begins at 6:51AM through 6:54 PM departing from East County Square and begins at 7:05 AM to 7:05 PM departing from Viejas Reservation. Route 838 travels at 1-hour headways on weekdays, and 1-hour headways on weekends. There are currently no plans for transit improvements.

With the construction of the sidewalk along the Project frontage, pedestrians will be able to cross to the west curb of Los Coches Road at the Project Driveway, use the sidewalk on the west curb of Los Coches Road to the bus stop at Los Coches Road / Camino Canada.



LINSCOTT LAW & GREENSPAN engineers

N:\3138\Figures
Date: 5/11/2021
Time: 7:39 AM

Figure 13-1

Pedestrian Network

Los Coches Plaza

14.0 VEHICULAR MOBILITY IMPROVEMENTS

14.1 Improvements

Based on the peak hour intersection analysis, vehicular mobility improvements are required at the following intersection:

- **Ora Bell Lane (Project Driveway) / Los Coches Road Intersection**

  Install the fourth (east) leg and provide a traffic signal with the following intersection geometry:

  - **Southbound:** One left-turn lane, a through lane and a shared through/right lane
  - **Westbound** – An exclusive left-turn lane and a shared through/right lane (exiting the Project) and install a no Right-Turn-On-Red (RTOR) sign [R13A (CA)]
  - **Northbound**: One left-turn lane, one through lane and one shared through/right lane
  - **Eastbound** – A shared left/through/right lane

- **Gas Station Northern Driveway**

  The northern driveway to the existing gas station located south of the Project site should be restricted to right-in / right-out movements only, with the installation of a raised median on Los Coches Road as shown on *Figure 11-1*.

14.2 Post-Improvement Operations

The post mitigation delay and level of service at this intersection are LOS B with 11.1 seconds of delay during the AM peak hour and LOS B with 13.0 seconds of delay during the PM peak hour in the Existing + Project scenario. With mitigation, this intersection is calculated to operate at LOS B with 10.8 seconds of delay during the AM peak hour and LOS B with 13.5 seconds of delay during the PM peak hour in the Existing + Cumulative Projects + Project condition.

Table 14-1 summarizes the post-improvements operations at the Los Coches Road / Ora Belle Lane (Project Driveway) intersection. ***Appendix F*** contains the mitigation analysis worksheets.

The project shall provide the following improvement:

- A sidewalk along the Project frontage connecting to the existing sidewalk on either end.

TABLE 14-1
POST-IMPROVEMENT OPERATIONS

Intersection	Peak Hour	Pre-Mitigation			Post-Mitigation		
		Control Type	Delay [a]	LOS [b]	Control Type	Delay	LOS
Existing + Project + Cumulative Projects							
3. Los Coches Rd / Ora Belle Lane	AM	TWSC [c]	40.1	E	Signal	10.8	B
	PM		157.7	F		13.5	B

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.

SIGNALIZED		UNSIGNALIZED	
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