LINSCOTT LAW & GREENSPAN engineers

TRANSPORTATION IMPACT ANALYSIS
SAFARI HIGHLANDS RANCH

Escondido, California
October 4, 2017

LLG Ref. 3-14-2334

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EXECUTIVE SUMMARY

The Safari Highlands Ranch Project proposes the development of 550 luxury residential dwelling units, public trails, and a fire station on an approximately 1,100-acre site. The project site is located north of San Pasqual Valley Road (SR-78) and the San Diego Safari Park and east of Cloverdale Road. The property is proposed to be annexed from the County of San Diego into the City of Escondido.

The project study area includes 18 intersections and 18 street segments. The traffic report for the project was prepared in accordance with the *City of Escondido's Traffic Impact Study Guidelines*. The following scenarios are evaluated in this report:

- Existing
- Existing + Project
- Existing + Cumulative Projects
- Existing + Cumulative Projects + Project
- General Plan Year 2035 (with Project)

The project traffic generation calculations were conducted using the trip generation rates published in the SANDAG's *"Not so Brief Guide of Vehicular Traffic Generation Rates for San Diego Region" (April 2002).* Based on the lot size of the project, SANDAG specifies a trip rate of 12 trips/ unit for the Estate Homes (defined as 1-2 dwelling units per acre) and 10 trips/ unit for the Single Family homes (defined as 3-6 dwelling units per acre). The trip generation rate for the proposed Fire Station is based off a study in the City of San Diego with a similar land use. Based on the proposed site plan, 105 of the lots are considered "estate" lots since they are effectively half acre and full acre lots (1-2 dwelling units/acre). The balance are considered single-family units, per the SANDAG definition. Therefore, the traffic study utilizes the estate rate (12 ADT/unit) for 116 of the lots and the single family detached rate (10 ADT/unit) for 434 of the lots. The project is calculated to generate 5,895 daily trips with 498 trips (158 inbound/340 outbound) in AM peak hour and 588 trips (408 inbound/180 outbound) during PM peak hour.

The project traffic distributions were based on a Select Zone Assignment (SZA) obtained from SANDAG, the existing traffic counts, existing roadway network, proximity to major roads, local schools and places of business, and existing traffic patterns.

Cumulative projects were accounted for based on research conducted by LLG within the City of Escondido, City of San Diego and County of San Diego. Based on the research conducted, 24 cumulative projects were identified for inclusion in the analysis.

The proposed project is consistent with the City's General Plan and Valley View Specific Plan. Therefore, a General Plan (Year 2035) assessment was conducted showing the forecasted levels of service per the City's General Plan.

The traffic study concludes that the project would result in six (6) direct and cumulative impacts. Mitigation measures are recommended at each location.

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1.0 INTRODUCTION

Linscott, Law and Greenspan, Engineers (LLG) has prepared the following traffic impact analysis to assess the impacts to the street system as a result of the Safari Highlands Ranch project ("project"), which proposes the development of 550 luxury residential dwelling units, public trails , and a fire station on a 1,100 acre site. The project site is located north of San Pasqual Valley Road (SR-78) and the San Diego Safari Park and east of Cloverdale Road. As part of the project, the site will be annexed from the County of San Diego into the City of Escondido.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Project Trip Generation/Distribution/Assignment
- Cumulative Projects Discussion
- Analysis of Near-Term Scenarios
- General Plan (Year 2035) Assessment
- Site Access and Other Issues
- Pedestrian Assessment & Wildlife Crossing
- Summary of Significant Impacts and Mitigation Measures

2.0 PROJECT DESCRIPTION

2.1 Project Location

The proposed Safari Highlands Ranch project is located within the unincorporated area immediately east of the City of Escondido in northern San Diego County, California. The project site is within the City's Sphere of Influence as part of the Valley View Specific Plan Area and the proposed discretionary actions would include annexation to the City as part of the proposed project. It is located east of the Rancho Vistamonte and Rancho San Pasqual residential neighborhoods, north of the San Diego Safari Park, and southwest of the area of estate residences. The project site is approximately 3.5 miles from downtown Escondido. Primary circulation in this area is provided by San Pasqual Valley Road/State Route 78 (SR-78).

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

2.2 Project Description

The proposed project would construct 550 luxury residential units on the approximately 1,100-acre project site. The residential lots would range from 7,700 square feet to over an acre. Additional facilities will consist of a fire station, public trail system, wet utility connections to the City of Escondido sewer, water and recycled water systems, and multiple water detention and retention basins. Onsite roadways will vary between 36 and 40 feet in paved width and may include up to five (5) wildlife transit tunnels.

2.3 Project Access

Day-to-day access to the proposed project is via Rockwood Road, along the southwestern portion of the project. As shown on the concept plan, the project driveway, "Safari Highlands Ranch Road" (Site Access), is located 450 feet from the Old Ranch Road intersection (centerline to centerline) and approximately 300 feet from the Vistamonte Avenue intersection (centerline to centerline) on Rockwood Road.

Residents will have emergency access at both the northern and southern sections of the project site. It should be noted the emergency roads will not be accessible to project residents for day-to-day use.

Figure 2–3 shows the project's conceptual site plan.

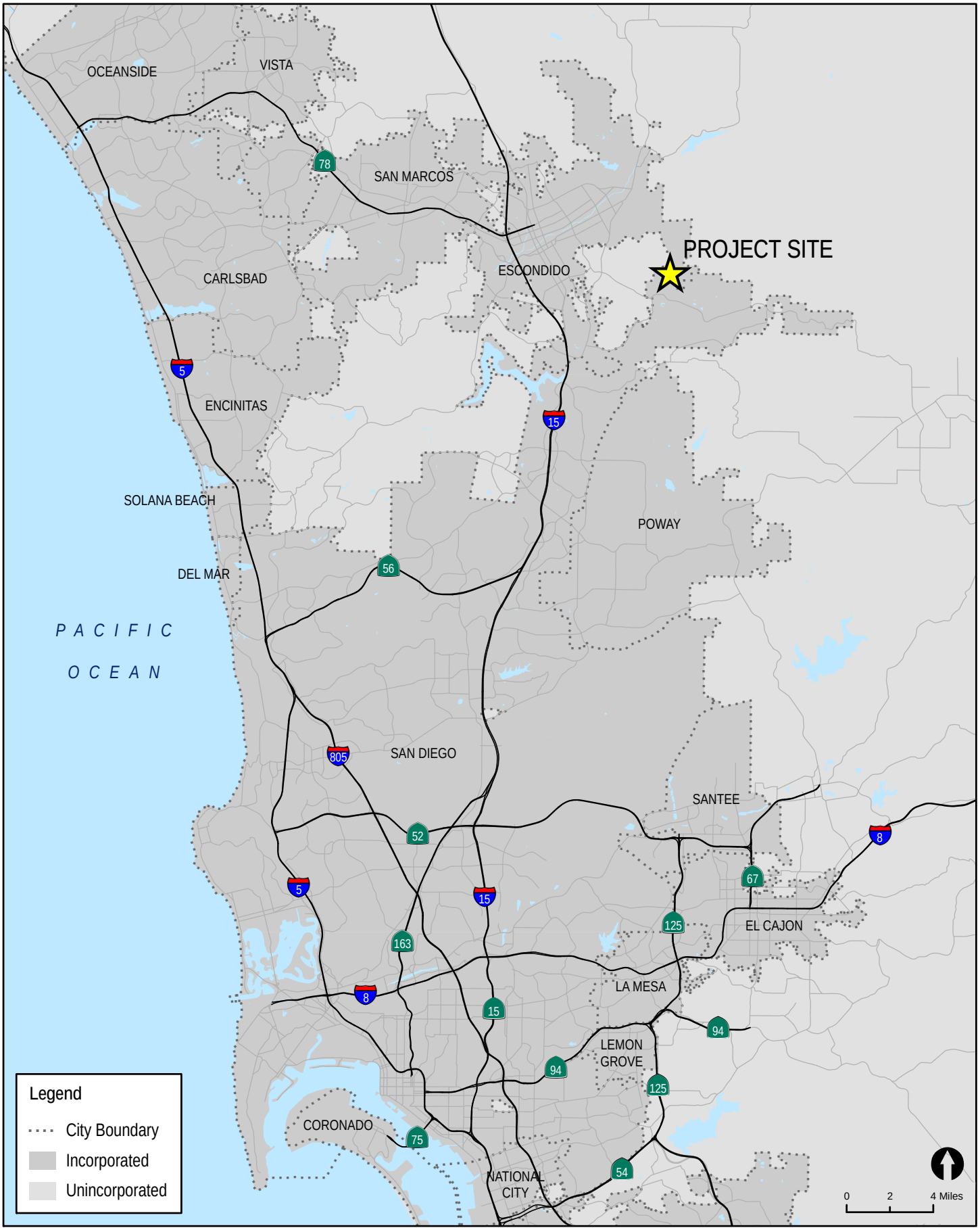

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Figure 2-1

Vicinity Map

SAFARI HIGHLANDS RANCH

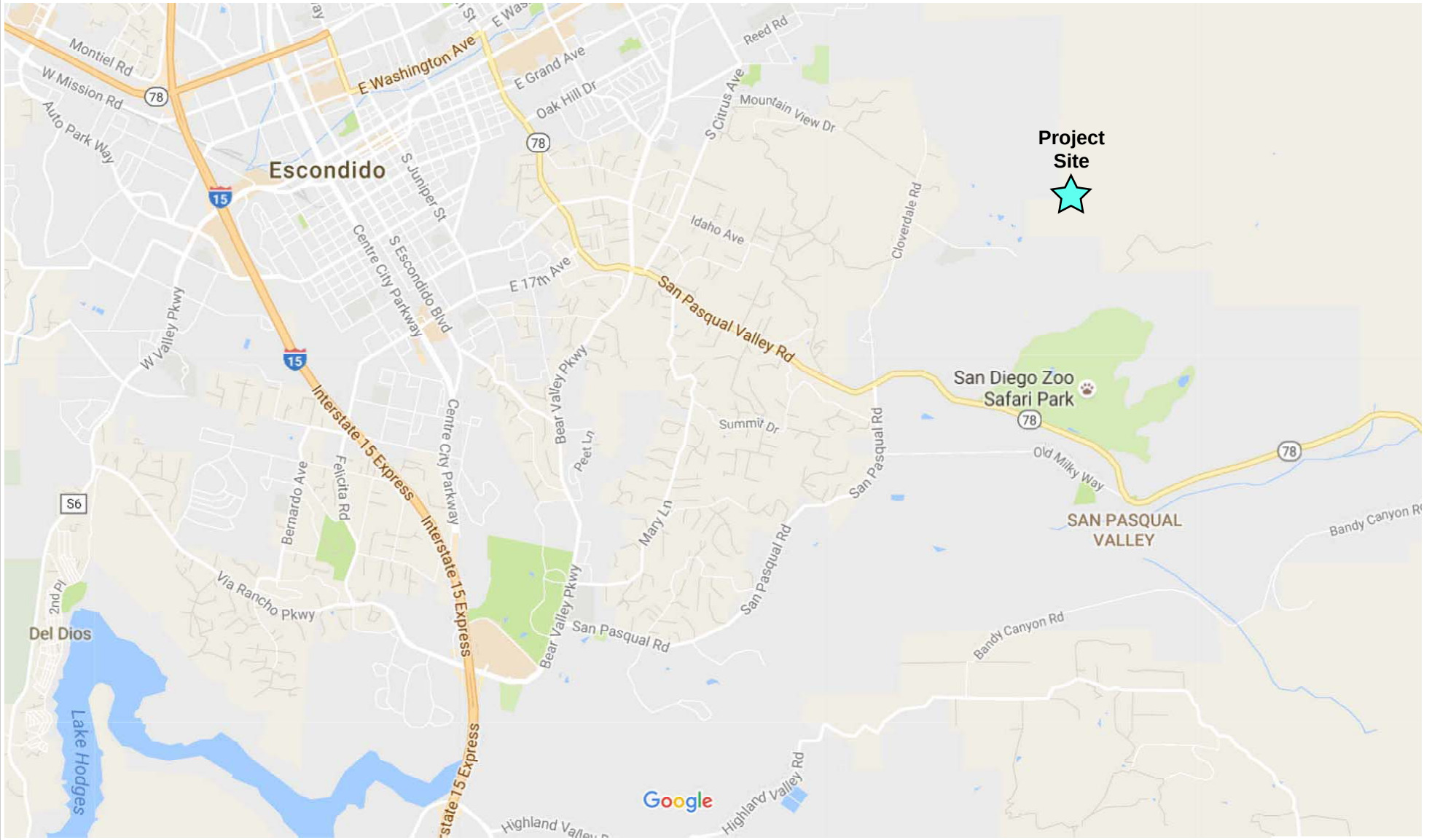

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Figure 2-2

Project Area Map

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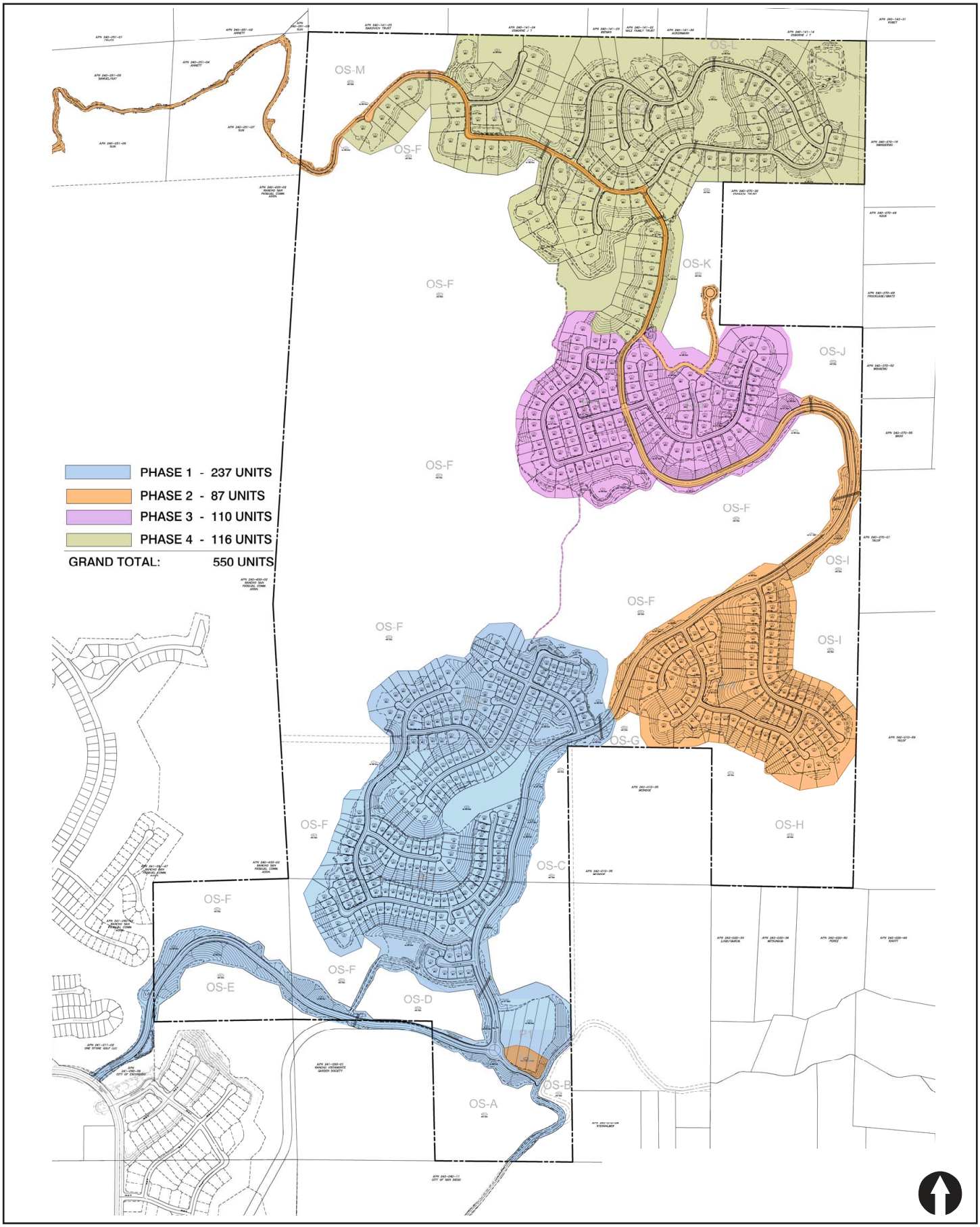

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Figure 2-3

Project Phasing

SAFARI HIGHLANDS RANCH

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed project requires an understanding of the existing transportation system within the project area. ***Figure 3–1*** shows an existing conditions diagram, including signalized/un-signalized intersections and lane configurations.

The study area was determined in accordance with the City of Escondido's published *Traffic Impact Analysis Requirement Guidelines (2014)*. Further details on the City's guidelines for developing the study area can be found in *Section 4.0* of this report. The study area includes the following eighteen (18) intersections and eighteen (18) street segments.

Intersections

ID	Location	Jurisdiction	Traffic Control
1.	Rockwood Road / Cloverdale Road	County of San Diego	Unsignalized
2.	Rockwood Road / Old Ranch Road	City of Escondido	Unsignalized
3.	Rockwood Road / Safari Highlands Ranch Road (Proposed Site Access)	City of Escondido	Unsignalized
4.	Centre City Parkway / Felicita Avenue	City of Escondido	Signalized
5.	Escondido Boulevard / Felicita Avenue	City of Escondido	Signalized
6.	Juniper Street / Felicita Avenue	City of Escondido	Signalized
7.	San Pasqual Valley Road (SR-78) / 17th Avenue	Caltrans / County	Signalized
8.	San Pasqual Valley Road (SR-78) / Bear Valley Road	Caltrans / County	Signalized
9.	San Pasqual Valley Road (SR-78) / Citrus Avenue	Caltrans / County	Unsignalized
10.	San Pasqual Valley Road (SR-78) / Summit Drive	Caltrans / County	Unsignalized
11.	San Pasqual Valley Road (SR-78) / San Pasqual Road/ Cloverdale Road	Caltrans / City of San Diego	Signalized
12.	San Pasqual Valley Road (SR-78) / Safari Park Driveway	Caltrans / City of San Diego	Unsignalized
13.	San Pasqual Road / Bear Valley Parkway	City of Escondido	Signalized
14.	Via Rancho Parkway / Beethoven Drive	City of Escondido	Signalized
15.	Via Rancho Parkway / I-15 NB Ramps	Caltrans / City of Escondido	Signalized
16.	Via Rancho Parkway / I-15 SB Ramps	Caltrans / City of Escondido	Signalized
17.	San Pasqual Road / Sierra Linda Drive / Ryan Drive	City of Escondido	Unsignalized
18.	San Pasqual Road / Old Milky Way	City of San Diego	Unsignalized

Street Segments

ID	Roadway	Segment	Jurisdiction
1.	Rockwood Road	Cloverdale Road to San Pasqual Union Elementary	County of San Diego / City of San Diego [a]
2.	Rockwood Road	Fronting San Pasqual Union Elementary	City of San Diego
3.	Rockwood Road	East of San Pasqual Union Elementary	City of Escondido
4.	Cloverdale Road	Rockwood Road to San Pasqual Valley Road (SR-78)	County of San Diego / City of San Diego [b]

Street Segments (Cont'd…)

ID	Roadway	Segment	Jurisdiction
5.	San Pasqual Road	San Pasqual Valley Road (SR-78) to Ryan Drive	City of San Diego / County of San Diego [c]
6.	San Pasqual Road	Ryan Drive to Bear Valley Parkway	City of Escondido
7.	Citrus Avenue	North of San Pasqual Valley Road (SR-78)	County of San Diego
8.	San Pasqual Valley Road (SR-78)	17th Avenue to Bear Valley Parkway	Caltrans / County of San Diego
9.	San Pasqual Valley Road (SR-78)	Bear Valley Parkway to Cloverdale Road / San Pasqual Road	Caltrans / County of San Diego
10.	San Pasqual Valley Road (SR-78)	Cloverdale Road / San Pasqual Road to Safari Park Driveway	Caltrans / City of San Diego
11.	Felicita Avenue	Centre City Parkway to Escondido Boulevard	City of Escondido
12.	Felicita Avenue	Escondido Boulevard to Juniper Street	City of Escondido
13.	17th Avenue	Juniper Street to San Pasqual Valley Road (SR-78)	City of Escondido
14.	Bear Valley Parkway	San Pasqual Valley Road (SR-78) to Sunset Drive	City of Escondido / County of San Diego [d]
15.	Bear Valley Parkway	Sunset Drive to San Pasqual Road	City of Escondido
16.	Via Rancho Parkway	San Pasqual Road to Beethoven Drive	City of Escondido
17.	Via Rancho Parkway	Beethoven Drive to I-15 NB Ramps	City of Escondido
18.	Via Rancho Parkway	I-15 SB Ramps to Lomas Serenas Drive	City of Escondido

Footnotes:

a. The majority of this roadway segment is located within the County of San Diego jurisdiction.
b. The majority of this roadway segment is located within the City of San Diego jurisdiction.
c. The majority of this roadway segment is located within the County of San Diego jurisdiction.
d. The majority of this roadway segment is located within the City of Escondido jurisdiction.

3.1 Existing Transportation Conditions

The facilities analyzed in this report fall under the jurisdiction of the City of Escondido, County of San Diego, Caltrans, and the City of San Diego depending on their location. The following is a brief description of the streets in the project area:

San Pasqual Valley Road (SR-78) is classified as a 4-lane *4.1B Major Road (w/ Intermittent Turn Lanes)* northwest of Bear Valley Parkway and as a 4-lane *4.1A Major Road* east of Bear Valley Parkway to the City of San Diego jurisdictional boundary just west of Cloverdale Road on the County of San Diego General Plan North County Metro Mobility Element Network. In the City of San Diego San Pasqual Valley Community Plan, it is classified as a 4-lane *Conventional Highway*. Within the project study area, San Pasqual Valley Road (SR-78) is currently not built to classification standards and is instead constructed as a two-lane undivided roadway northwest of Bear Valley Parkway, as a two to three-lane undivided roadway between Bear Valley Parkway and Cloverdale Road and as a three-lane undivided roadway (with two northwest bound lanes and one eastbound lane) east of Cloverdale Road. Sidewalks, curbs, gutters, on-street parking and bike lanes are not provided and the posted speed limit ranges between 35-55 mph. Bus stops are provided.

San Pasqual Road is classified as a 4-lane *4.1B Major Road (w/ Intermittent Turn Lanes)* between San Pasqual Valley Road (SR-78) and Ryan Drive on the County of San Diego General Plan North County Metro Mobility Element Network. In the City of San Diego, this segment is classified as a 4-lane *Collector Street* on the San Pasqual Community Plan. Between Ryan Drive and Bear Valley Parkway, San Pasqual Road is classified as a 4-lane *Major Road* on the City of Escondido General Plan Circulation Element. San Pasqual Road is currently not built to classification standards and is instead constructed as a two-lane undivided roadway between San Pasqual Valley Road (SR-78) and Ryan Drive. Sidewalks, curbs, gutters, on-street parking and bike lanes are not provided along this stretch of roadway. Between Ryan Drive and Bear Valley Parkway, San Pasqual Road is currently constructed to classification standards as a four to five-lane divided roadway. Sidewalks, curbs, gutters, intermittent on-street parking and bike lanes are provided along this stretch of roadway. The posted speed limit on San Pasqual Road is 45-50 mph and bus stops are not provided.

Cloverdale Road is classified as a 2-lane *2.2E Light Collector (No Median)* on the County of San Diego General Plan North County Metro Mobility Element Network. In the City of San Diego, Cloverdale Road is classified as a 2-lane *Collector Street* on the San Pasqual Community Plan. Within the project study area, Cloverdale Road is currently constructed as 2-lane undivided roadway with a two-way left-turn lane along the majority of the roadway. Sidewalks, curbs, and gutters are not provided along the majority of the roadway. The posted speed limit on Cloverdale Road is 45 mph and bike lanes, on-street parking and bus stops are not provided.

Rockwood Road is classified as a 2-lane *Local Road* on the City of Escondido General Plan Mobility Element Circulation Diagram east of San Pasqual Union Elementary and classified as a *Light Collector* with a two-way-left-turn-lane fronting the school and a *Light Collector with No Median* from Cloverdale to the school boundary under the County of San Diego General Plan North County Metro Mobility Element Network. In the City of San Diego, Rockwood Road from Cloverdale to just east of San Pasqual Union Elementary, it is an unclassified on the San Pasqual Community Plan. It is currently constructed as a 2-lane undivided roadway from Cloverdale Road to the project access other than the portion fronting San Pasqual Union Elementary School where a two-way left-turn lane is provided. Sidewalks, curbs, and gutters are provided fronting and east of the school. The posted speed limit on Rockwood Road is 40 mph and bike lanes, on-street parking and bus stops are not provided.

Citrus Avenue is classified as a 2-lane *2.2E Light Collector (No Median)* on the County of San Diego General Plan North County Metro Mobility Element Network. It is currently constructed to classification standards in the study area. Bike lanes are not provided and parking is not permitted along both sides of the roadway. Sidewalks, curbs and gutters are not provided and the posted speed limit is 45 mph.

Felicita Avenue/ 17th Avenue is classified on the City of Escondido General Plan Mobility Element Circulation Diagram as a 4-lane *Major Road* from Centre City Parkway to Escondido Boulevard and a 4-lane *Collector* from Escondido Boulevard to the Escondido city limits, located just west of Lendee Drive. East of the Escondido city limits, it is located in the County of San Diego and is

classified as a *2.2D Light Collector with Unspecified Improvement Options* on the County of San Diego General Plan North County Metro Mobility Element Network. It is currently built as a 4-lane *Major Road* from Centre City Parkway to Escondido Boulevard then transitions to a 2-lane *Local Collector* from Escondido Boulevard to Lendee Drive in the study area. From Lendee Drive to San Pasqual Valley Road (SR-78) it is a substandard 2-lane light collector with a paved width varying from 30 to 34 feet. Bike lanes are not provided and parking is restricted along both sides of the roadway. Sidewalks, curbs and gutters are not provided and the posted speed limit is 35 mph. For purposes of this analysis, Felicita Avenue/ 17th Avenue from Escondido Boulevard to San Pasqual Valley Road (SR-78) was analyzed using City of Escondido criteria.

Bear Valley Parkway is a north/south facility within the City of Escondido. In the project study area, Bear Valley Parkway is classified as a 4-lane *Major Road* from San Pasqual Valley Road (SR-78) to Sunset Drive and as a 6-lane *Major Road* from Sunset Drive to San Pasqual Road on the City of Escondido General Plan Mobility Element Circulation Diagram. It is currently constructed as a two-lane undivided roadway with a posted speed limit of 50 MPH. Curbside parking is prohibited. Bear Valley Parkway provides Class II bicycle lanes from its southern end to San Pasqual Valley Road (SR-78).

Via Rancho Parkway is classified as a 6-lane *Super Major Road* from San Pasqual Road to Beethoven Drive, a 6-lane *Prime Arterial* from Beethoven Drive to Del Lago Boulevard, and a 4-lane *Major Road* west of Del Lago Boulevard to the study area limits on the City of Escondido General Plan Mobility Element Circulation Diagram. It is currently constructed as a 4-lane *Major Road* from San Pasqual to Beethoven Drive, where it then widens to a 7-lane *Prime Arterial* to the freeway, and finally to a 6-lane *Major Road* just west of I-15. The posted speed limit is 45 mph.

Figure 3–1 shows the Existing Conditions Diagram.

3.2 Existing Traffic Volumes

Table 3–1 is a summary of the most recent available average daily traffic volumes (ADTs) from LLG counts commissioned in years 2014, 2015 and 2016.

Figure 3–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the manual count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT[a]
Rockwood Road	
Cloverdale Road to San Pasqual Union Elementary	3,440
Fronting San Pasqual Union Elementary	3,440
East of San Pasqual Union Elementary	2,850
Cloverdale Road	
Rockwood Road to San Pasqual Valley Road (SR-78)	5,280
San Pasqual Road	
San Pasqual Valley Road (SR-78) to Ryan Drive	4,850
Ryan Drive to Bear Valley Parkway	11,530
Citrus Avenue	
North of San Pasqual Valley Road	5,480
San Pasqual Valley Road (SR-78)	
17th Avenue to Bear Valley Parkway	14,730
Bear Valley Parkway to Cloverdale Road / San Pasqual Road	10,490
Cloverdale Road / San Pasqual Road to Safari Park Driveway	9,220
Felicita Avenue/ 17th Avenue	
Centre City Parkway to Escondido Boulevard	23,970
Escondido Boulevard to Juniper Street	19,370
Juniper Street to San Pasqual Valley Road (SR-78)	12,110
Bear Valley Parkway	
San Pasqual Valley Road (SR-78) to Sunset Drive	19,930
Sunset Drive to San Pasqual Road	29,820
Via Rancho Parkway	
San Pasqual Road to Beethoven Drive	38,490
Beethoven Drive to I-15 NB Ramps	33,400
I-15 SB Ramps to Lomas Serenas Drive	12,810

Footnotes:

a. Average Daily Traffic Volume counts conducted in years 2014, 2015, and 2016 by LLG Engineers.

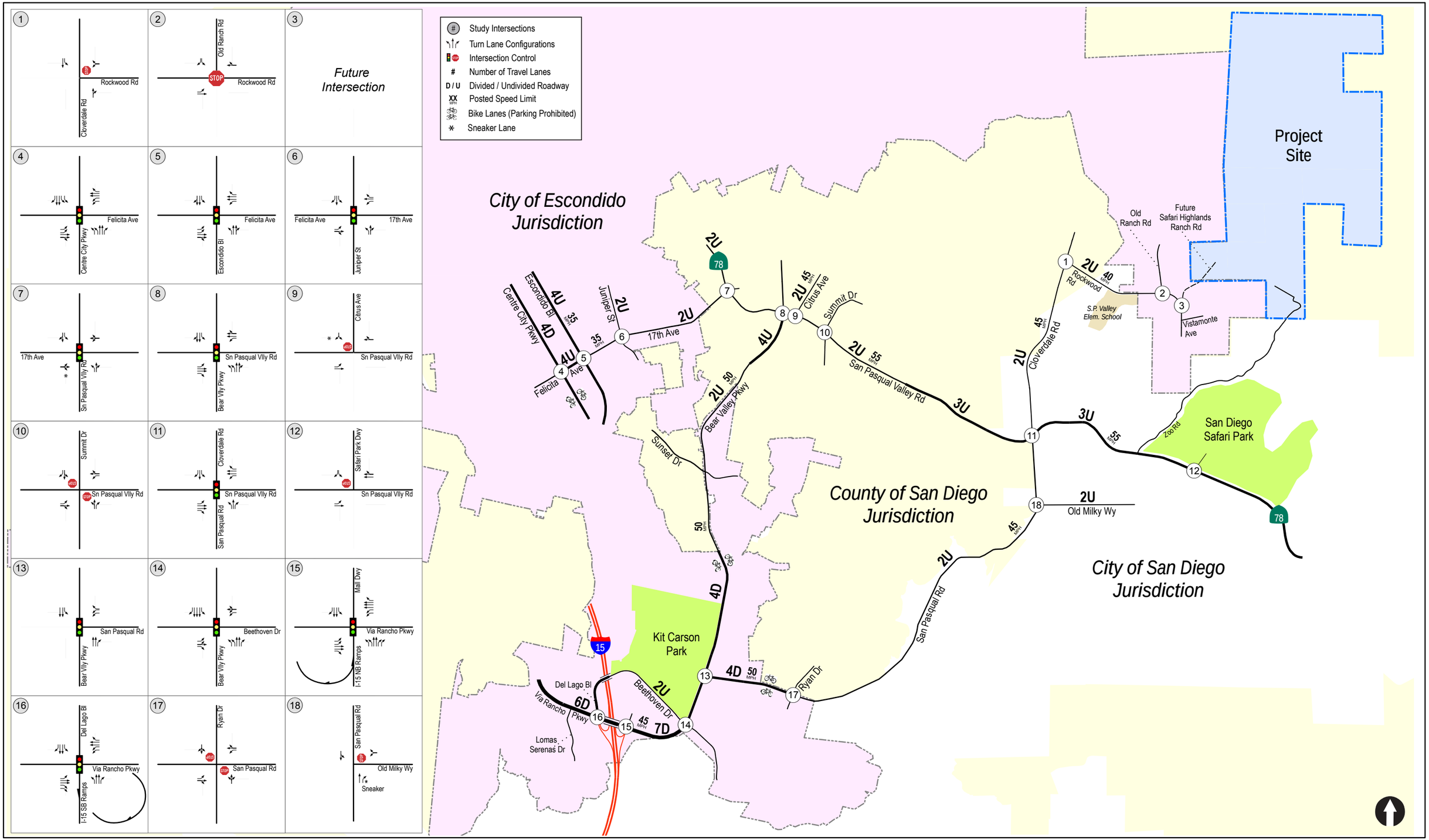

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Figure 3-1

Existing Conditions Diagram

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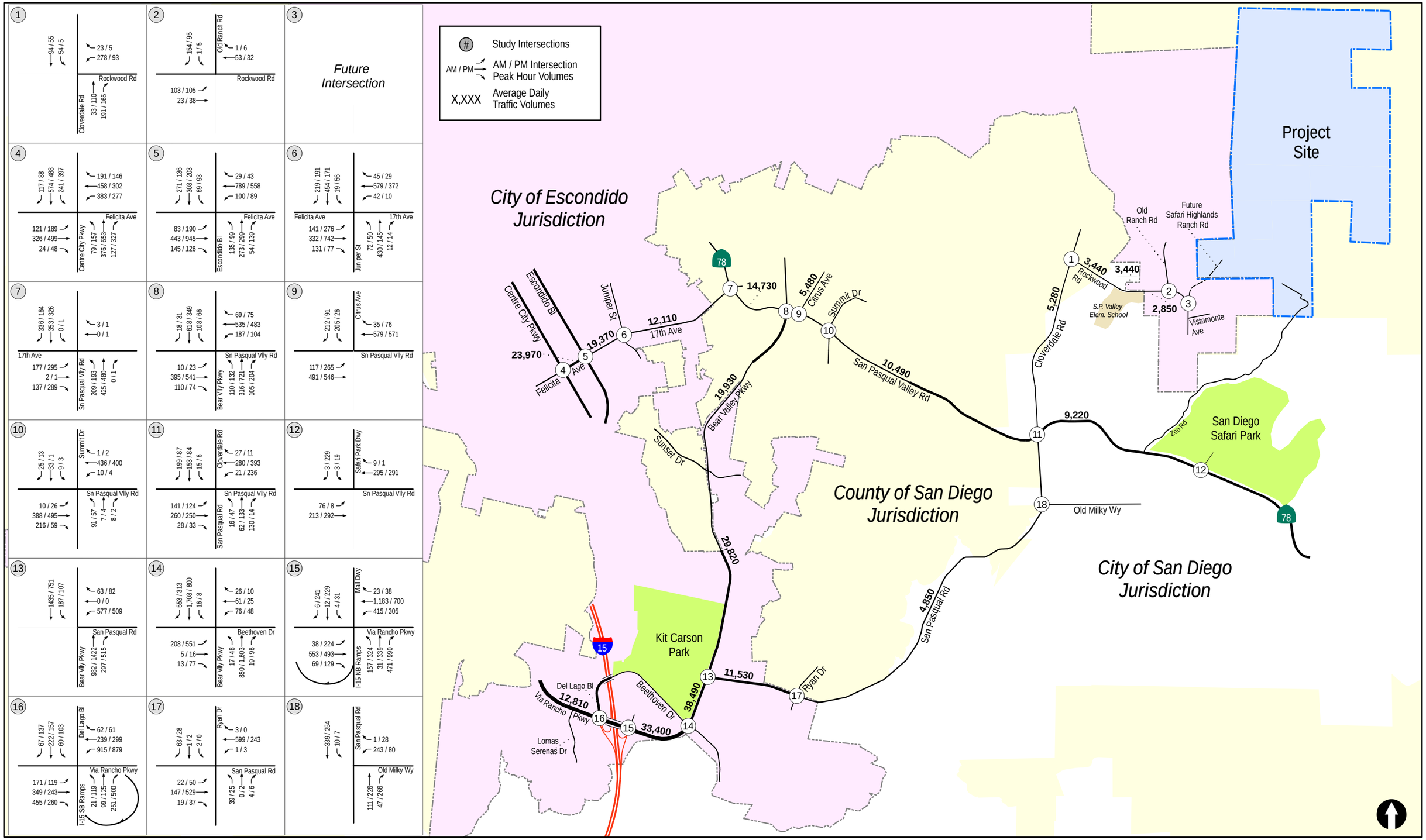

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Figure 3-2

Existing Traffic Volumes

SAFARI HIGHLANDS RANCH

4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 Analysis Approach

Since the project is proposed to be annexed into the City of Escondido, the traffic study was conducted using City of Escondido guidelines. The City of Escondido's recently published *Traffic Impact Analysis Guidelines* provide the following direction on report approach and methodology:

1. The traffic study should include a SANDAG prepared Select Zone Assignment for the project to determine the project traffic distribution.
2. The traffic study should utilize the *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (April 2002) published by SANDAG, to determine the project traffic volume.
3. The traffic study should utilize the following scenarios to determine project traffic impacts at intersections and along roadway segments.
    a. Existing Condition (based on new traffic counts)
    b. Existing + Project Traffic Condition
    c. Existing + Cumulative Projects Traffic Condition
    d. Existing + Cumulative Projects + Project Traffic Condition
    e. Year 2035 General Plan Traffic Condition
4. Highway Capacity Manual (Year 2010) should be utilized to determine level of service for intersections.
5. The study area should include at least all site access points and major intersections (signalized and un-signalized) adjacent to the site. The tables below contain the trigger-points to identify if a roadway segment or intersection should be included in the Traffic Impact Analysis. ***Table 4–1*** below contains the trigger-points for roadway segments within the City of Escondido for different street classifications based on ADT added to the segment. ***Table 4–2*** below contains the trigger-points for intersections based on peak hour volumes.

TABLE 4–1
TRAFFIC IMPACT ANALYSIS ADT THRESHOLDS FOR ROADWAY SEGMENTS

Street Classification	Lanes	Cross Sections (ft.)	TIA Trigger-Points (ADT generation)
Prime Arterial	(8 lanes)	116/136 (NP)	900
	(6 lanes)	106/126 (NP)	800
Major Road	(6 lanes)	90/110 (NP)	700
	(4 lanes)	82/102 (NP)	500
Collector	(4 lanes)	64/84 (NP)	500
	(4 lanes)	(WP)	250
Local Collector and all other	(2 lanes)	42/66 (NP)	200
		(WP)	

General Notes:

1. NP = No parking on street
2. WP = With parking on street

TABLE 4–2
TRAFFIC IMPACT ANALYSIS ADT THRESHOLDS FOR INTERSECTIONS

Intersection Classification (Minor leg of the intersection)	TIA Trigger-Points (AM or PM peak hour trips added to any leg)
Prime Arterial	50
Major Road	40
Collector	30
Local Collector	20

4.2 Methodology

The City of Escondido, City of San Diego, Caltrans, and County of San Diego utilize the following methodology for evaluating traffic operations.

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 intersections, un-signalized intersections and roadway segments.

This traffic analysis includes intersections and street segments in the City of Escondido, County of San Diego, and within Caltrans' jurisdiction. These jurisdictions utilize the published Highway Capacity Manual (HCM) methodology for evaluating signalized and unsignalized intersections. They also utilize LOS criteria for circulation element roadways based on published capacity tables. The following is a discussion of the various methodologies for these jurisdictions:

Signalized Intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *2010 Highway Capacity Manual (HCM),* with the assistance of the *Synchro* (version 9) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS). Signalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in ***Appendix B***.

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 Chapters 19 and 20 of the *2010 HCM,* with the assistance of the *Synchro* (version 9) computer software. Un-signalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in *Appendix B.*

Street Segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Escondido, City of San Diego and County of San Diego *Roadway Classification, Level of Service, and ADT Tables*. These tables provide segment capacities for different street classifications, based on traffic volumes and roadway characteristics. These tables are provided in ***Appendix C***.

Freeway Ramp Meters – The measure of effectiveness (MOE) for the metered freeway ramp analysis is delay in minutes. Ramp meter flows characteristically vary throughout the peak hour based on the performance of the freeway mainline. As the mainline becomes more congested, the ramp meter rates decline, allowing fewer vehicles onto the freeway in the same time period.

The ramp meters were analyzed using the Fixed Rate method. With the Fixed Rate method, using the most restrictive flow rate during the peak hour, the total discharge and delay (in minutes) are calculated and the corresponding queue lengths are calculated. It should be noted that the fixed rate approach does not take into account driver behavior and trip diversion due to high ramp meter delays, should they be calculated.

The metering information was obtained from Caltrans for the ramp within the project study area (Via Rancho Parkway to I-15 Southbound) and is included in *Appendix A*.

Freeway Mainline Segments – Level of Service analysis is based on the procedure developed by Caltrans District 11 based on methods described in the *2010 HCM*. The procedure involves

comparing the peak hour volume of the mainline segment to the theoretical capacity of the roadway (V/C). V/C ratios are then compared to V/C thresholds to determine the LOS of each segment.

Peak Hour Arterials – Peak hour arterial segment analysis is based upon comparison of the pre-and-post project arterial running speed (by direction) through a series of signalized intersections. The speed of vehicles on urban streets is influenced by three main factors: street environment, interaction among vehicles, and traffic control. As a result, these factors affect quality of service. There is a distinct set of urban street LOS for each urban street class. LOS based on prevailing speeds and class of arterials determine the operations of arterials. The Arterial Class is calculated automatically by Synchro (Version 10) based on the distances between intersections and the link speeds.

Table 4–3 is based on information in the *HCM 2010* that shows longer running times on networks with short segments. This would cause longer travel times and lower LOS than using the free flow speeds.

- Travel Time = Running Time + Signal Delay (intersection delay)
- Arterial Speed = Total Distance / Total Travel Time
- Segment Distance = Total Distance / Number of Segments
- Flow Speed = Free Flow Speed (FFS) / Link

TABLE 4–3
ARTERIAL ANALYSIS DEFINITIONS

Speed (mph)	Segment Distance	Class
1 to 29	any	IV
30 to 35	< 2000 ft	IV
30 to 35	>/= 2000 ft	III
36 to 45	any	II
above 45	any	I

Source: HCM 2010

The Arterial Class is calculated automatically based on the distances between intersections and the link speeds. The speed is the total distance divided by the total travel time. The segment distance is the total distance divided by the number of segments. The Flow Speed is the free flow speed or link speed input for each link.

5.0 SIGNIFICANCE CRITERIA

The project study area includes locations that lie both within the City of Escondido, City of San Diego, County of San Diego and State of California (Caltrans) jurisdictions. In brief, the City of Escondido uses a minimum threshold of LOS "D" for identifying significant impacts while the City of San Diego, County of San Diego and Caltrans utilize LOS "E". The following is a summary of the significance criteria from each jurisdiction that was utilized in this study.

5.1 City of Escondido

The City of Escondido Engineering Staff utilizes the following Significance Criteria:

In accordance with SANTEC/ITE *Guidelines for Traffic Impact Studies in the San Diego Region*, March 2000, the following thresholds shall be used to identify if a project is of significant traffic impact under any scenario. Based on SANTEC/ITE guidelines, if now or in the future, the project's traffic impact causes the values in ***Table 5–1*** below to be exceeded in a roadway segment or an intersection that is operating at LOS D or worse, it is determined to be a significant impact and the project shall identify mitigation measures.

TABLE 5–1
CITY OF ESCONDIDO TRAFFIC IMPACT SIGNIFICANCE THRESHOLDS

Level of Service With Project	Allowable Change due to Project Impact		
	Roadway Segments		Intersections
	V/C	Speed Reduction (mph)	Delay (sec.)
D, E, or F	0.02	1	2

5.2 City of San Diego

According to the City of San Diego's *Significance Determination Thresholds* report dated January 2007, a project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a City defined threshold. For projects deemed complete on or after January 1, 2011, the City defined threshold by roadway type or intersection is shown in ***Table 5–2***.

The impact is designated either a "direct" or "cumulative" impact. According to the City's *Significance Determination Thresholds* report,

> "*Direct* traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term)."
>
> "*Cumulative* traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when affected community plan area reaches full planned Year 2035 (long-term cumulative)."

"It is possible that a project's near term (direct) impacts may be reduced in the long term, as future projects develop and provide additional roadway improvements (for instance, through implementation of traffic phasing plans). In such a case, the project may have direct impacts but not contribute considerably to a cumulative impact."

"For intersections and roadway segments affected by a project, LOS D or better is considered acceptable under both direct and cumulative conditions."

If the project exceeds the thresholds in *Table 5–2*, then the project may be considered to have a significant "direct" or "cumulative" project impact. A significant impact can also occur if a project causes the LOS to degrade from D to E, even if the allowable increases in *Table 5–1* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the City thresholds, or the impact will be considered significant and unmitigated.

TABLE 5–2
CITY OF SAN DIEGO
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project [b]	**Allowable Increase Due to Project Impacts** [a]					
	Freeways		**Roadway Segments**		**Intersections**	**Ramp Metering**
	V/C	**Speed (mph)**	**V/C**	**Speed (mph)**	**Delay (sec.)**	**Delay (min.)**
E	0.010	1.0	0.02	1.0	2.0	2.0 [c]
F	0.005	0.5	0.01	0.5	1.0	1.0 [c]

Footnotes:

a. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note b), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

b. All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations).

General Notes:

1. Delay = Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
2. LOS = Level of Service
3. V/C = Volume to Capacity Ratio (capacity at LOS E should be used)
4. Speed = Arterial speed measured in miles per hour for Congestion Management Program (CMP) analyses. *CMP analyses are no longer required.

5.3 Caltrans District 11 Facilities

Caltrans' Guide for the Preparation of Traffic Impact Studies, December 2002, outlines recommended procedures for traffic study contents but does not identify specific traffic impact thresholds. Caltrans staff has indicated that there is a desire to maintain facility operations between LOS C and D levels, however, Caltrans acknowledges that this may not always be feasible. Specific traffic impact thresholds are typically identified by local Caltrans staff. For the San Diego region, LOS D or better is considered acceptable and the SANTEC/ITE *Guidelines for Traffic Impact*

Studies in the San Diego Region, March 2000, document was used for the determination of the significance of impacts for Caltrans maintained facilities where LOS E and F operations are calculated. The Via Rancho Parkway/I-15 interchange, also located within the City of Escondido, was evaluated using Caltrans criteria. The locations along San Pasqual Valley Road (SR-78), while also maintained by Caltrans, are located in the County's jurisdiction which has criteria that is consistent with the SANTEC/ITE LOS D target threshold.

Caltrans currently does not have significance criteria for ramp meter analyses. Therefore, analyses performed at these locations are technically informational at best. However, SANTEC/ITE has indicated that an impact to a ramp meter is a factor of the mainline operations. When Project traffic results in an increase in the delay at a ramp meter experiencing 15.0 minutes of delay or more is greater than 2.0 minutes for LOS E or F operating freeway mainline segments, a significant ramp meter impact is identified.

The defined thresholds are shown in ***Table 5–3*** below.

TABLE 5–3
SANTEC/ITE TRAFFIC IMPACT SIGNIFICANCE THRESHOLDS

Level of Service with Project	Allowable Increase Due to Project Impacts [b]		
	Freeway Mainlines	Intersections	Ramp Metering
	V/C	Delay (sec.)	Delay (min.)
E & F [a]	0.01	2.0	2.0 [c]

Footnotes:

a. The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions).
b. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant.
c. For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E or F (upstream) is 2 minutes.

General Notes:

1. Delay = Average stopped delay per vehicle measured in seconds for intersections and minutes for ramp meters.
2. V/C = Volume to capacity ratio.

5.4 County of San Diego

The following criteria was utilized to evaluate potential significant impacts, based on the *County of San Diego Guidelines for Determining Significance—Transportation and Traffic*, dated June 30, 2009 with a second modification effective August 24, 2011. The County of San Diego's *General Plan Mobility Element* discusses the County's Level of Service criteria under Goal M-2. It requires that development projects provide associated road improvements necessary to achieve a level of service of "D" or higher on all *Mobility Element* roads except for those where a failing level of service has been accepted by the County.

5.4.1 *Circulation Element Road Segments*

This section provides guidance for evaluating adverse environmental effects a project may have on Circulation Element street segments. The allowable ADT increases on LOS E/F operation roadways were obtained from County guidelines and are summarized in ***Table 5–4***. The thresholds in *Table 5–4* are based upon average operating conditions on County roadways. Exceeding the thresholds in *Table 5–4* would result in a significant impact. It should be noted that these thresholds only establish general guidelines, and that the specific project location must be taken into account in conducting an analysis of traffic impact from new development.

TABLE 5–4
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON
CIRCULATION ELEMENT ROAD SEGMENTS
ALLOWABLE INCREASES ON CONGESTED ROAD SEGMENTS

Level of Service	Two-Lane Road	Four-Lane Road	Six-Lane Road
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

General Notes:

1. By adding proposed project trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes additional trips must mitigate a share of the cumulative impacts.
2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

5.4.2 *Non-Circulation Element Residential Streets*

Per the *County of San Diego Guidelines for Determining Significance—Transportation and Traffic*, "Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots and not to carry through traffic, however, for projects that will substantially increase traffic volumes on residential streets, a comparison of the traffic volumes on the residential streets with the recommended design capacity must be provided. Recommended design capacities for non-Circulation Element streets are provided in the San Diego County Public and Private Road Standards. Traffic volume that exceeds the design capacity on residential streets may impact residences and should be analyzed on a case-by-case basis".

5.4.3 *Intersections*

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and un-signalized intersections. ***Table 5–5*** was obtained from County guidelines and summarizes the allowable increases in delay or traffic volumes at signalized and un-signalized intersections. Exceeding the thresholds in *Table 5–5* would result in a significant impact.

TABLE 5–5
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON INTERSECTIONS
ALLOWABLE INCREASES ON CONGESTED INTERSECTIONS

Level of service	Signalized	Un-signalized
LOS E	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement
LOS F	Either a Delay of 1 second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement

General Notes:

1. A critical movement is an intersection movement (right-turn, left-turn, through-movement) that experiences excessive queues, which typically operate at LOS F.
2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.
4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay ***and*** the number of trips on a critical movement, exceedance of either criteria result in a significant impact.

Signalized Intersections—Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a signalized intersection:

- The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F, or will cause a signalized intersection to operate at a LOS E or LOS F as identified in *Table 5–5*.
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

Un-signalized Intersections—The operating parameters and conditions for un-signalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an un-signalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for un-signalized intersections are based upon a minimum number of trips added to a critical movement at an un-signalized intersection.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic impact on an un-signalized intersection as listed in *Table 5–5* and described as text below:

- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an un-signalized intersection, and cause an un-signalized intersection to operate below LOS D, or

- The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an un-signalized intersection currently operating at LOS E, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an un-signalized intersection, and cause the un-signalized intersection to operate at LOS F, or
- The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an un-signalized intersection currently operating at LOS F, or
- Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

5.4.4 *Two-Lane Highways*

The County of San Diego provides LOS impact guidelines for State highways and County arterials operating as two-lane highways in its published *Guidelines for Determining Significance* (Section 4.3).

Several designated County Mobility Element Roads are State highways that are managed and maintained by Caltrans. These highways include State Route 67, State Route 76, State Route 78, State Route 79 and State Route 94 and within the unincorporated area of the County most of these routes operate as two-lane highways. These highways are further classified in the County's guidelines as those with signalized intersections spacing over one mile, and those with signalized intersection spacing under one mile.

Similar to the experience of drivers in urban areas with closely spaced intersections, the functionality of two-lane highway conditions with signalized intersections spacing under one mile becomes constrained not due to the segment capacity but the intersection operations. Therefore the assessment of operations of intersections on two-lane highways shall be guided by a LOS standard based upon the overall intersection operations. ***The LOS will be determined to be that of the intersections along the highway.*** Per County guidelines, ***"Impacts to the highway will be determined by evaluating the signalized intersection impact criteria identified in [Table 5–5]"*** shown earlier in this section.

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Operations

Table 6–1 summarizes the existing peak hour intersection operations. As shown, all the study area intersections are calculated to currently operate at acceptable service levels of service, except for the following:

City of Escondido

- Intersection #4: Centre City Parkway/ Felicita Avenue (signalized) – LOS D during the PM peak hour
- Intersection #17: San Pasqual Road / Sierra Linda Drive / Ryan Drive (unsignalized) – LOS D during the AM and PM peak hours

County of San Diego / Caltrans

- Intersection #9: San Pasqual Valley Road (SR-78)/ Citrus Avenue (unsignalized) – LOS F/E during the AM/PM peak hours
- Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive (unsignalized) – LOS F during the PM peak hour

Caltrans

- Intersection #16: Via Rancho Parkway/ I-15 SB Ramps (signalized) – LOS E during the AM peak hour

Appendix D contains the Existing + Project intersection analysis worksheets.

6.2 Daily Street Segment Operations

Table 6–2 summarizes the existing segment operations along the key study area roadways. As shown, all roadway segments are calculated to currently operate at acceptable levels of service, except for the following:

County of San Diego

- Street Segment #8: San Pasqual Valley Road (SR-78): 17th Avenue to Bear Valley Parkway – LOS E

It should be noted that the intersections of San Pasqual Valley Road (SR-78) at 17th Avenue and Bear Valley Parkway operate at acceptable LOS D or better, therefore more accurately representing actual conditions along this two-lane highway.

City of Escondido

- Street Segment #12: Felicita Avenue/17th Avenue: Escondido Boulevard to Juniper Street – LOS F
- Street Segment #13: Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78) – LOS D

- Street Segment #14: Bear Valley Parkway: San Pasqual Valley Road (SR-78) to Sunset Drive – LOS F
- Street Segment #15: Bear Valley Parkway: Sunset Drive to San Pasqual Road – LOS D
- Street Segment #16: Via Rancho Parkway: San Pasqual Road to Beethoven Drive – LOS F

6.3 Peak Hour Freeway Ramp Meter Operations

Table 6–3 summarizes the existing operations of the on-ramp meter using the fixed rate analysis methodology. As shown in *Table 6–3*, no delay is calculated during the AM peak hour using this methodology. This is due to the fact that the ramp meter discharge rate exceeds the peak hour demand. It is widely accepted among the industry that this methodology lacks accuracy in depicting "real world" conditions and often grossly overstates the calculated queues and delays. For this analysis where low queues and delays were calculated, field observations corroborate that vehicles experience delays of less than 1.0 minute given the high processing time for both SOV lanes and the HOV lane during the AM peak hour at this location.

6.4 Peak Hour Freeway Mainline Operations

Table 6–4 summarizes the Existing freeway mainline segment operations. As seen in *Table 6–4*, the study area freeway mainline segment of I-15 is calculated to currently operate at LOS D or better under Existing conditions except for the following:

- Mainline #1. I-15 between Via Rancho Parkway and West Bernardo Drive
  - Northbound – LOS F(0) (PM peak hour)

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Jurisdiction	Control Type	Peak Hour	Existing	
				Delay [a]	LOS [b]
1. Rockwood Road / Cloverdale Road	County of San Diego	MSSC [d]	AM	15.5	C
			PM	10.8	B
2. Rockwood Road / Old Ranch Road	City of Escondido	AWSC [e]	AM	8.5	A
			PM	8.3	A
3. Rockwood Road / Safari Highlands Ranch Road (Proposed Site Access)	City of Escondido	*Does Not Exist*	AM	–	–
			PM	–	–
4. Centre City Parkway / Felicita Avenue	City of Escondido	Signal	AM	31.9	C
			PM	35.8	D
5. Escondido Boulevard / Felicita Avenue	City of Escondido	Signal	AM	20.3	C
			PM	23.4	C
6. Juniper Street / Felicita Avenue	City of Escondido	Signal	AM	28.6	C
			PM	16.7	B
7. San Pasqual Valley Road (SR-78) / 17th Avenue	County of San Diego/ Caltrans	Signal	AM	43.4	D
			PM	43.5	D
8. San Pasqual Valley Road (SR-78) / Bear Valley Parkway	County of San Diego/ Caltrans	Signal	AM	42.9	D
			PM	45.8	D
9. San Pasqual Valley Road (SR-78) / Citrus Avenue	County of San Diego/ Caltrans	MSSC	AM	>100.0	F
			PM	38.0	E
10. San Pasqual Valley Road (SR-78) / Summit Drive	County of San Diego/ Caltrans	MSSC	AM	59.7	F
			PM	33.1	D
11. San Pasqual Valley Road (SR-78) / San Pasqual Road/Cloverdale Road	City of San Diego/ Caltrans	Signal	AM	32.9	C
			PM	42.7	D
12. San Pasqual Valley Road (SR-78) / Safari Park Driveway	County of San Diego/ Caltrans	MSSC	AM	15.4	C
			PM	14.1	B
13. San Pasqual Road / Bear Valley Parkway	City of Escondido	Signal	AM	17.8	B
			PM	16.8	B

(Continued on Next Page)

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Jurisdiction	Control Type	Peak Hour	Existing	
				Delay [a]	LOS [b]
(Continued from Previous Page)					
14. Via Rancho Parkway / Beethoven Drive	City of Escondido	Signal	AM PM	17.7 27.1	B C
15. Via Rancho Parkway / I-15 NB Ramps	Caltrans [e]	Signal	AM PM	35.1 41.4	D D
16. Via Rancho Parkway / I-15 SB Ramps	Caltrans [e]	Signal	AM PM	55.7 49.4	E D
17. San Pasqual Road / Sierra Linda Drive / Ryan Drive	City of Escondido	MSSC	AM PM	26.7 25.5	D D
18. San Pasqual Road / Old Milky Way	City of San Diego	MSSC	AM PM	19.0 13.2	C B

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Minor Street Stop Controlled intersection. Minor street left-turn delay reported.
d. All-Way Stop Controlled intersection. Average delay reported.
e. The Via Rancho Parkway interchange is maintained by Caltrans. Therefore, LOS D operations are acceptable.

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

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
Rockwood Rd						
1. Cloverdale Rd to San Pasqual Union Elementary	County of San Diego	2-Lane Light Collector *No Median (2.2E)*	16,200	3,440	B	–
2. Fronting San Pasqual Union Elementary	City of San Diego	2-Lane Collector *w/ TWLTL*	15,000	3,440	A	0.2293
3. East of San Pasqual Union Elementary	City of Escondido	2-Lane Local Collector (NP)	15,000	2,850	A	0.1900
Cloverdale Rd						
4. Rockwood Rd to San Pasqual Valley Rd (SR-78)	City of San Diego	2-Lane Collector *w/ TWLTL*	15,000	5,280	B	0.3520
San Pasqual Rd						
5. San Pasqual Valley Rd (SR-78) to Ryan Dr [e]	County of San Diego	Community Collector *No Median (2.1E)*	14,580	4,850	C	–
6. Ryan Dr to Bear Valley Pkwy	City of Escondido	4-Lane Major Road	37,000	11,530	A	0.3116
Citrus Avenue						
7. North of San Pasqual Valley Road	County of San Diego	2-Lane Light Collector *No Median (2.2E)*	16,200	5,480	C	–
San Pasqual Valley Rd (SR-78)						
8. 17th Ave to Bear Valley Pkwy	County of San Diego/ Caltrans	2-Lane Community Collector *No Median (2.1E)*	16,200	14,730	E	–
9. Bear Valley Pkwy to Cloverdale Rd / San Pasqual Rd [f]	County of San Diego/ Caltrans	2-3-Lane Major Road *w/ Intermittent Turn Lanes (4.1B)*	17,100	10,490	B	–
10. Cloverdale Rd / San Pasqual Rd to Safari Park Dwy [g]	City of San Diego/ Caltrans	3-Lane Collector	15,000	9,220	C	–
Felicita Ave / 17th Ave						
11. Centre City Pkwy to Escondido Blvd	City of Escondido	4-Lane Major Road	37,000	23,970	C	0.6478
12. Escondido Blvd to Juniper St	City of Escondido	2-Lane Local Collector (NP)	15,000	19,370	F	1.2913
13. Juniper St to San Pasqual Valley Rd (SR-78)	City of Escondido	2-Lane Local Collector (NP)	15,000	12,110	D	0.8073
Bear Valley Pkwy						
14. San Pasqual Valley Rd (SR-78) to Sunset Dr	City of Escondido	2-Lane Local Collector (NP)	15,000	19,930	F	1.3287
15. Sunset Dr to San Pasqual Rd	City of Escondido	4-Lane Major Road	37,000	29,820	D	0.8059

(Continued on Next Page)

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Functional Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
(Continued from Previous Page)						
Via Rancho Pkwy						
16. San Pasqual Rd to Beethoven Dr	City of Escondido	4-Lane Major Road	37,000	38,490	F	1.0403
17. Beethoven Dr to I-15 NB Ramps	City of Escondido	7-Lane Prime Arterial	65,000	33,400	B	0.5138
18. I-15 SB Ramps to Lomas Serenas Dr	City of Escondido	6-Lane Major Road	50,000	12,810	A	0.2562

Footnotes:

a. Study roadways fall under the jurisdiction of the City of Escondido, San Diego County, and the City of San Diego as noted. Capacities based on the applicable Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. A 10% reduction in capacity was assumed to account for the winding road and lack of adequate shoulder width along portions of San Pasqual Road.
f. Within the County, San Pasqual Valley Road (SR-78) is classified as a 4-lane Major Road but is constructed as a 2-3 Lane road within the study area. Roadway capacities derived based on County of San Diego 4-lane Major Road capacities.
g. Within the City of San Diego, San Pasqual Valley Road (SR-78) is classified as a 4-lane Conventional Highway but is constructed as a 2-3 Lane road within the study area. Roadway capacities derived based on City of San Diego 3-lane Collector capacities.

General Notes:

1. NP = no on-street parking permitted

TABLE 6–3
EXISTING RAMP METER OPERATIONS – FIXED RATE

Location	Peak Hour [a]	Peak Hour Demand (D)[b]	Meter Rate (R) [c]	Excess Demand (E) (veh)	Delay (min.)	Queue (ft.) [d]
I-15 / Via Rancho Parkway Interchange						
1. I-15 SB On-Ramp at Via Rancho Parkway (2 SOV + 1 HOV)	AM	677	858	0	0.0	0

Footnotes:

a. Peak hours shown during ramp meter operations.
b. Peak hour demand in vehicles/hour/lane per SOV lanes only. Volumes taken from May 2014 LLG intersection counts.
c. Meter rate "R" is the most restrictive rate at which the ramp meter (signal) discharges traffic onto the freeway (obtained from Caltrans). The discharge rate ranges from 858 to 1400 vehicles per hour depending on the mainline volumes.
d. Queue calculated assuming vehicle length of 25 feet.

General Notes:

1. SOV = Single-Occupancy Vehicle, HOV = High Occupancy Vehicle

TABLE 6–4
EXISTING FREEWAY MAINLINE OPERATIONS

Freeway Segment	Dir	# of Lanes [a]	Hourly Capacity [b]	Volume [c]	Peak Hour Volume [d]		V/C [e]		LOS [f]	
					AM	PM	AM	PM	AM	PM
Interstate 15										
1. Via Rancho Parkway to West Bernardo Drive	NB SB	4M+1A 5M	10,800 11,750	217,000	6,791 10,635	10,837 7,149	0.629 0.905	1.003 0.608	C D	F(0) B

Footnotes:

a. Lane geometry taken from PeMS lane configurations at corresponding postmile.
b. Capacity calculated at 2350 vehicles per hour (vph) per lane (pcphpl) for mainline lanes and 1400 vph for auxiliary lanes.
c. Existing ADT volumes from most recently available Caltrans Traffic Census Program (2015).
d. Peak hour volumes calculated from Caltrans Traffic Census Program *Peak Hour Volume Data* (2015).
e. V/C = (Peak Hour Volume/Hourly Capacity)
f. LOS = Level of Service

General Note:

1. M = Mainline
2. A = Auxiliary

7.0 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 network.

7.1 Trip Generation

The project proposes to develop 550 luxury residential dwelling units on a 1,100-acre site. Additional facilities include a 7.34 acres of public trails and a fire station.

The project traffic generation calculations were conducted using the trip generation rates published in SANDAG's *Not so Brief Guide of Vehicular Traffic Generation Rates for San Diego Region (April 2002).* Based on the type and density of homes proposed by the project, SANDAG specifies trip rates of 12 ADT/unit and 10 ADT/unit for estate units (defined as 1-2 dwelling unit per acre) and for single family detached rates (3-6 dwelling unit per acre), respectively. Based on the proposed site plan, 116 of the lots are considered "estate" lots since they are effectively half acre and full acre lots (1-2 dwelling units/acre). The balance are considered single-family units, per the SANDAG definition. Therefore, the traffic study utilizes the estate rate (12 ADT/unit) for 116 of the lots and the single family detached rate (10 ADT/unit) for 434 of the lots.

The trip rates used for the fire station are based off a study done in the City of San Diego that used a similar land use type.

Table 7–1 shows a summary of the project traffic generation. As tabulated the proposed project is calculated to generate 5,907 daily trips with 500 trips (159 inbound/341 outbound) in AM peak hour and 589 trips (409 inbound/180 outbound) during PM peak hour.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Size		Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
			Rate [a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total
Estate Home	116	DU	12 /DU	1,392	8%	30:70	33	78	111	10%	70:30	97	42	139
Single Family	434	DU	10 /DU	4,340	8%	30:70	104	243	347	10%	70:30	304	130	434
Public Trails [b]	7.34	acres	5 /acre	37	13%	50:50	3	2	5	9%	50:50	2	1	3
Fire Station [c]	1	Site	– –	138	–	–	19	18	37	–	–	6	7	13
Total Project				**5,907**	–	–	**159**	**341**	**500**	**–**	**–**	**409**	**180**	**589**

Footnotes:

a. Rates based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002
b. Park rate sourced to SANDAG. Trip rate doubled to provide for conservative trip generation calculations.
c. Trip generation rates obtained from a site-specific fire station traffic study prepared by LLG in 2009 located in downtown San Diego. Trip Generation is attached for reference in ***Appendix E.***

It should be noted that it is believed that the 12 trips/ unit overstates the amount of traffic generated by estate homes in this area of San Diego County. Therefore, a "community specific" trip generation

study was conducted which determined a trip rate of 7.7 trips/ unit (See *Appendix E*). However, the 12 trips/ unit rate was used in the analysis for the 116 estate homes to determine impacts and mitigation.

7.2 Trip Distribution/Assignment

The project traffic distributions were based on a SANDAG Select Zone Assignment obtained from SANDAG, the existing traffic counts, roadway network, proximity of major roads, local schools and traffic circulation.

Based on the site location, access to SR-78 and proximity of the Interstate 15, the majority of the commuter trips were assigned towards the west.

Figure 7–1 shows the project trip distribution percentages. ***Figure 7–2*** shows the project traffic volumes.

Appendix E also contains a copy of the SANDAG Select Zone Assignment.

7.3 Zoo Road Residents Rerouted Trips

As part of the project, access to the project site will be granted to the existing homes on Zoo Road via the proposed Safari Highlands Ranch Road (future site access) gated entrance on the southeastern portion of the project site. This will allow the Zoo Road residents to use the project's driveway to access Rockwood Road. Access will no longer be allowed for these residents to Zoo Road. There are currently approximately 35 homes on Zoo Road which generate 420 trips with 34 trips (10 inbound/ 24 outbound) in the AM peak hour and 42 trips (29 inbound/ 13 outbound) in the PM peak hour as shown in ***Table 7–2***. All 100% were assumed to be rerouted to Safari Highlands Ranch Road.

It should be noted that access to Zoo Road for residents of the Safari Highlands Ranch project will not be granted for day to day use. Zoo Road will only be used as an emergency access road for the residents of the Safari Highlands Ranch project.

TABLE 7–2
REROUTED ZOO ROAD RESIDENTS TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)			AM Peak Hour					PM Peak Hour				
		Rate [a]		Volume	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total	% of ADT	In:Out Split	Volume In	Volume Out	Volume Total
Estate Homes	35 DU	12	/DU	420	8%	30:70	10	24	34	10%	70:30	29	13	42

Footnotes:

a. Rates based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.
b. 100% of Zoo Road residents will reroute to the project's Site Access roadway.

Figure 7–3 shows the Zoo Road Residents Rerouted Traffic Volumes. ***Figure 7–4*** shows the Total Project (Project + Zoo Road Rerouted) Traffic Volumes. ***Figure 7–5*** shows Existing + Total Project Traffic Volumes.

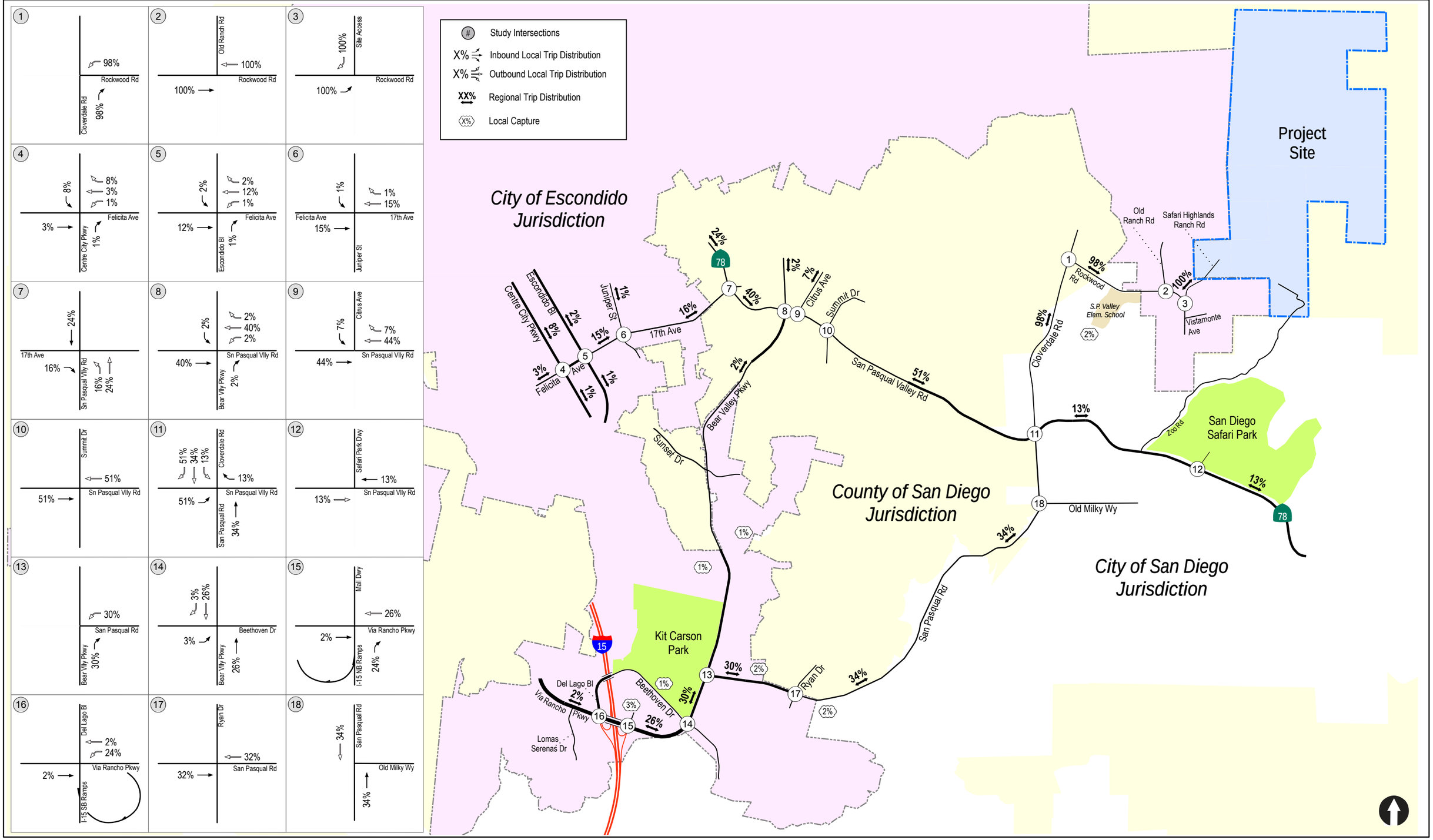

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Figure 7-1

Project Traffic Distribution

SAFARI HIGHLANDS RANCH

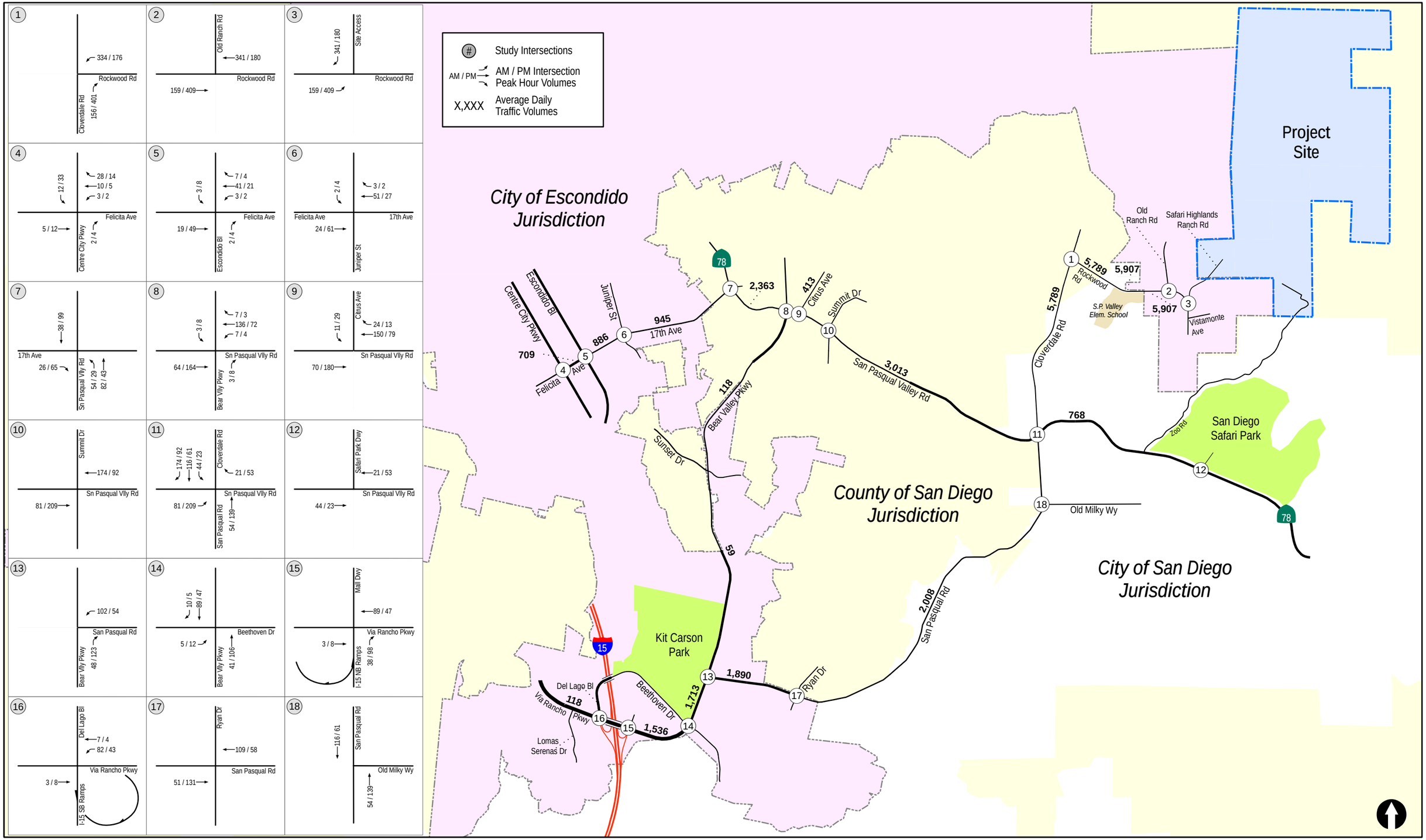

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Figure 7-2

Project Traffic Volumes

SAFARI HIGHLANDS RANCH

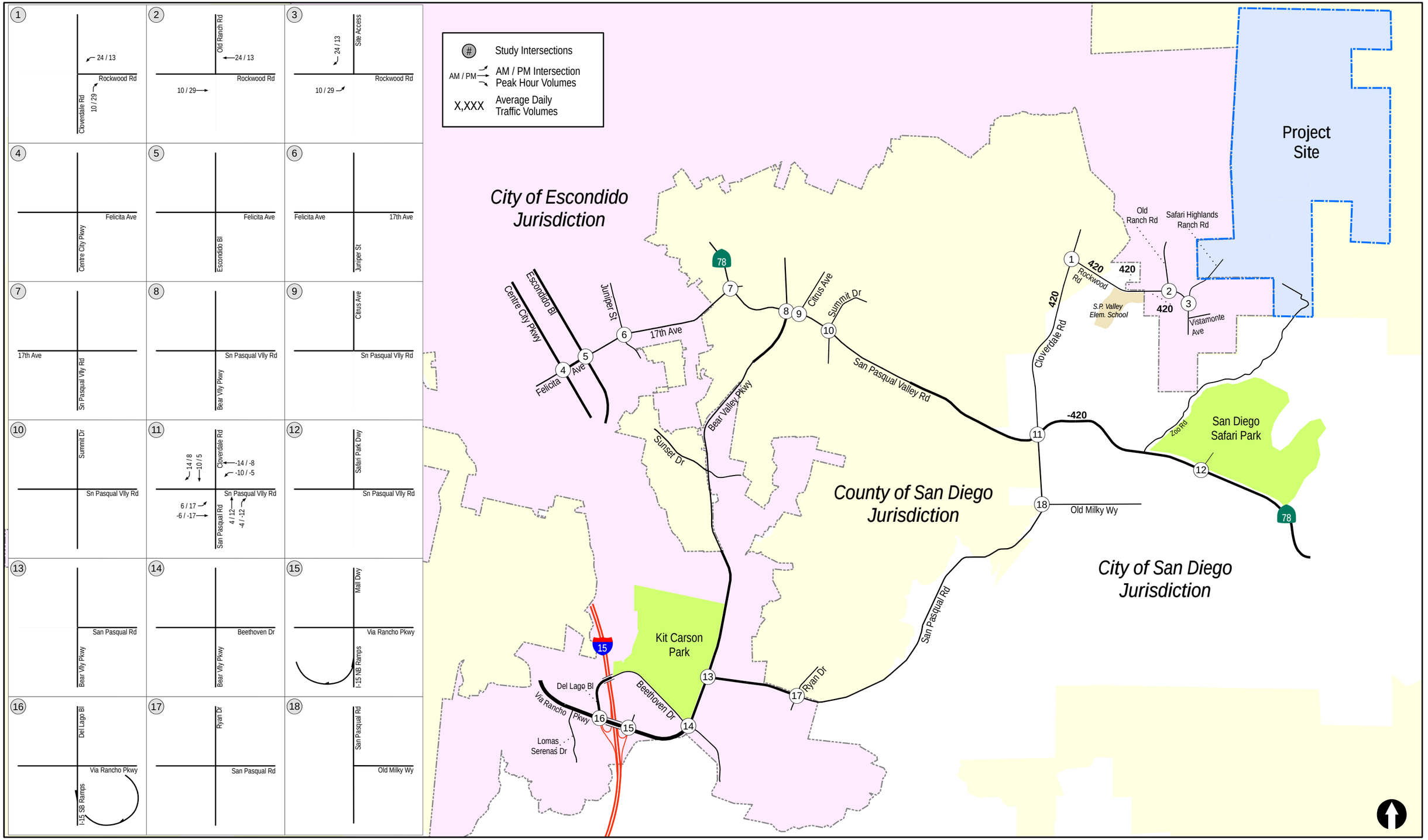

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Figure 7-3

Zoo Road Residents Rerouted Traffic Volumes

SAFARI HIGHLANDS RANCH

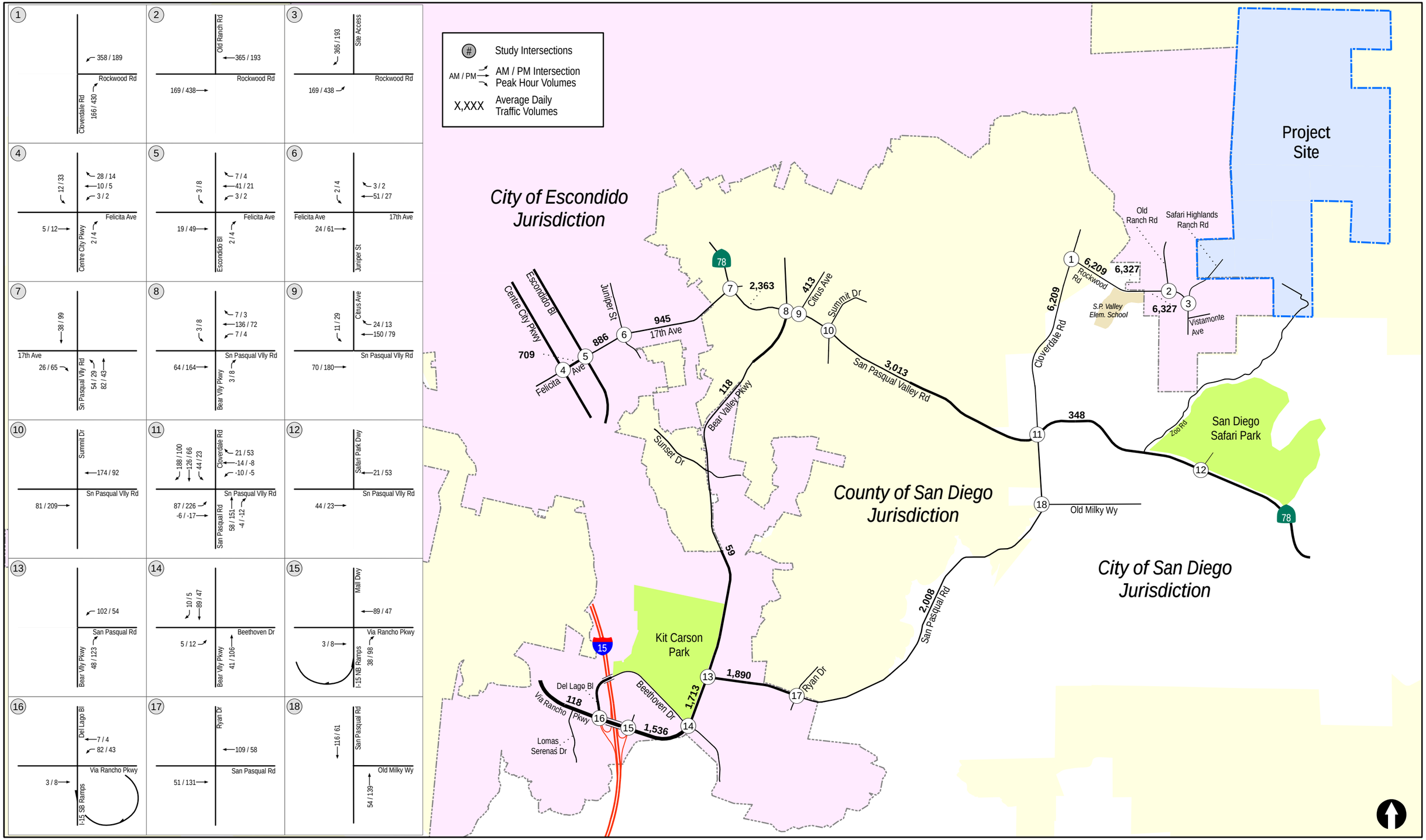

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Figure 7-4

Total Project (Project + Zoo Road Rerouting) Traffic Volumes

SAFARI HIGHLANDS RANCH

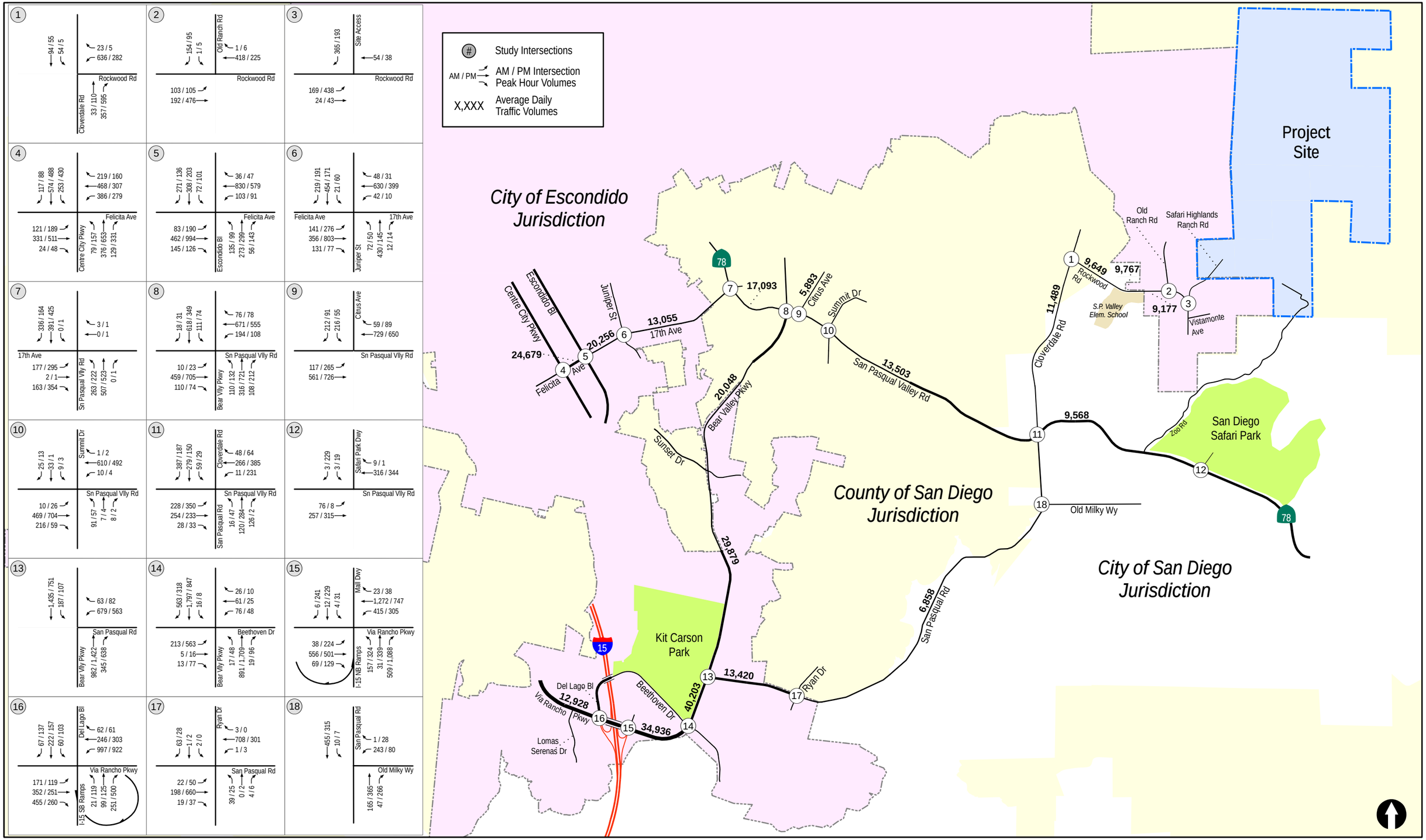

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Figure 7-5

Existing + Total Project Traffic Volumes

SAFARI HIGHLANDS RANCH

8.0 CUMULATIVE PROJECTS DISCUSSION

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG researched potential cumulative projects within the City of Escondido, City of San Diego and County of San Diego to identify if any potential discretionary projects could be included for analysis. Based on the research conducted, 24 cumulative projects were included in this study. ***Table 8–1*** provides a summary of each cumulative project.

TABLE 8–1
CUMULATIVE DEVELOPMENT PROJECTS SUMMARY

No.	Project Name	Description	ADT [a]	Location
City of Escondido				
1.	Black Angus Restaurant	7,500 SF Restaurant	750	Westfield North County Mall
2.	Amanda Lane Estates	21 Single-Family Estate Homes	250	Amanda Lane, north of Gamble Land an east of the I-15 in the City of Escondido
3.	Oak Creek	65 Single-Family Estate Homes	780	West of I-15 and east of Felicita Road in the City of Escondido.
4.	Emmanuel Faith Church Expansion	Church expansion and renovation: 400 additional seats, 200-student preschool	1,056	639 E. 17th Avenue in the City of Escondido
5.	1560 South Escondido Blvd Multi-family Residential	2 Commercial Structures, 2 Shopkeeper Flats, 22 townhomes	245	East side of Escondido Boulevard between 15th Avenue and Felicita Avenue
6.	2516 South Escondido Blvd Multi-family Residential	70 Residential Units	420	East side of the I-15 and south of Citracado Parkway in the City of Escondido
7.	2412 South Escondido Blvd Multi-family Residential	70 Residential Units	456	East of the I-15 and north of Citracado Parkway in the City of Escondido
8.	City Plaza Mixed Use	Mixed-use redevelopment with 55 apartments, 5,198 SF commercial space	538	East side of Escondido Boulevard south

Continued on Next Page

TABLE 8–1
CUMULATIVE DEVELOPMENT PROJECTS SUMMARY

No.	Project Name	Description	ADT [a]	Location
Continued from Previous Page				
9.	Talk of the Town	Automatic car wash facility, oil change facility, 4,156 SF restaurant	1,579	Northwest corner of the Centre City Parkway/ Brotherton Road intersection in the City of Escondido
10.	Monticello Congregate Care	101 congregate care facility units, 30 memory care units, 71 assisted living units	253	The project is located adjacent to the existing Westminster Seminary site located on Boyle Avenue, east of Bear Valley Parkway in the City of Escondido.
11.	Westminster Seminary	70 condominiums	420	The project site is located east of Bear Valley Parkway, north of Encino Drive in the City of Escondido.
12.	661 Bear Valley	62 Residential Units	550	The project is located adjacent to the existing Westminster Seminary site located on Boyle Avenue, east of Bear Valley Parkway in the City of Escondido.
	County of San Diego			
13.	Morrison Homes	12 lot subdivision	120	14395 San Pasqual Way, Escondido, CA 92025
14.	Franks Subdivision TM4555	12 lots	120	14350 San Pasqual Way, Escondido, CA 92025
15.	Escondido Haley Ranch TM4935	5 lots	50	17331 San Pasqual Valley RD, Escondido, CA 92027
16.	Wohlford PRD TM4567	16 lots	160	3201 Lemora Lane, Escondido, CA 92027
17.	Royal View Subdivision TM5178	9 lots	90	2505 Royal View RD, Escondido, CA 92027
18.	Wohlford Partners PRD TM4924	Information unavailable [b]	—	23904 Crown Hill Lane, Escondido, CA 92027
19.	Equipment Storage 3300-78-1999	Major Use Permit 6500 SF storage yard, 2400 SF shop building on 20 acres	600 [c]	23945 Old Wagon RD, Escondido, CA 92027
Continued on Next Page				

TABLE 8–1
CUMULATIVE DEVELOPMENT PROJECTS SUMMARY

No.	Project Name	Description	ADT [a]	Location
Continued from Previous Page				
20.	Oak Mountain School-Phoenix House	MUP for group care facility, 15 clients, 4 care takers	45 [d]	15397 Oakvale RD, Escondido, CA 92027
21.	San Pasqual/Madrigal PRD STP	STP for 16 lot subdivision (existing)	160	Vista Norte at Old San Pasqual Road
22.	Oro Verde 10 Lot Subdivision	Information unavailable [b]	—	NO ADDRESS
23.	Rockwood Canyon Farm Road	Information unavailable [b]	—	"Initial Consultation" – IN REVIEW
24.	Sringeri Vidya Bharati Foundation Temple	17,500 SF building w/ public worship, 5 dwelling units	198	Along Old San Pasqual Road between San Pasqual Road and SR-78
City of San Diego				
	No projects to include	—	—	—
Total Cumulative Projects			**8,840**	—

Footnotes:

a. Average daily traffic.
b. Information unavailable based on research on the County KIVA website and communication with County staff.
c. SANDAG rate for Industrial "storage" applied to the 20-acre site.
d. SANDAG rate for "convalescent care" applied to group care number of clients.

Appendix F contains the individually assigned cumulative project trips.

Figure 8–1 shows the Total Cumulative Project Traffic Volumes. ***Figure 8–2*** shows the Existing + Cumulative Projects Traffic Volumes. ***Figure 8–3*** shows the Existing + Cumulative Projects + Project Traffic Volumes.

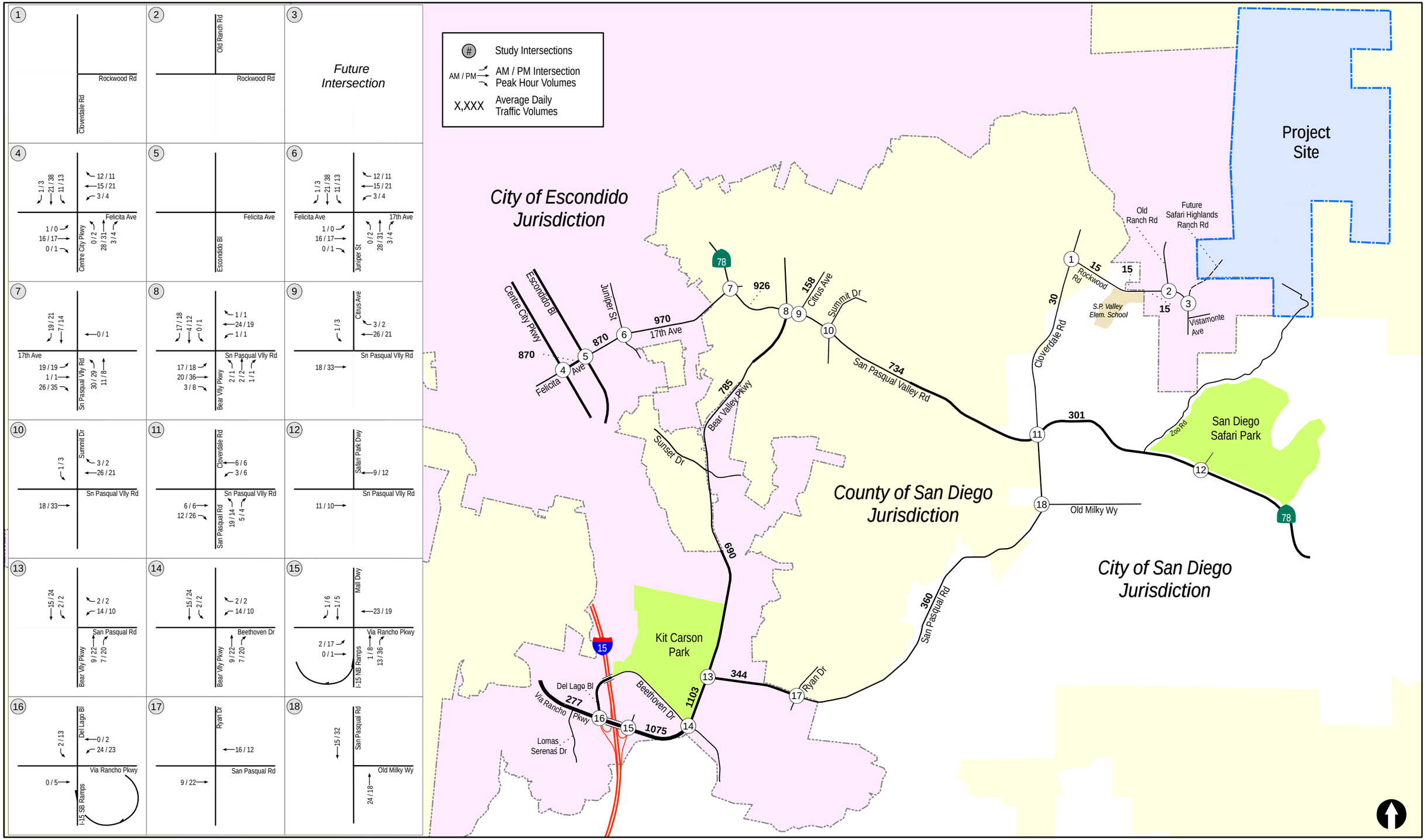

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Figure 8-1

Cumulative Projects Traffic Volumes

SAFARI HIGHLANDS RANCH

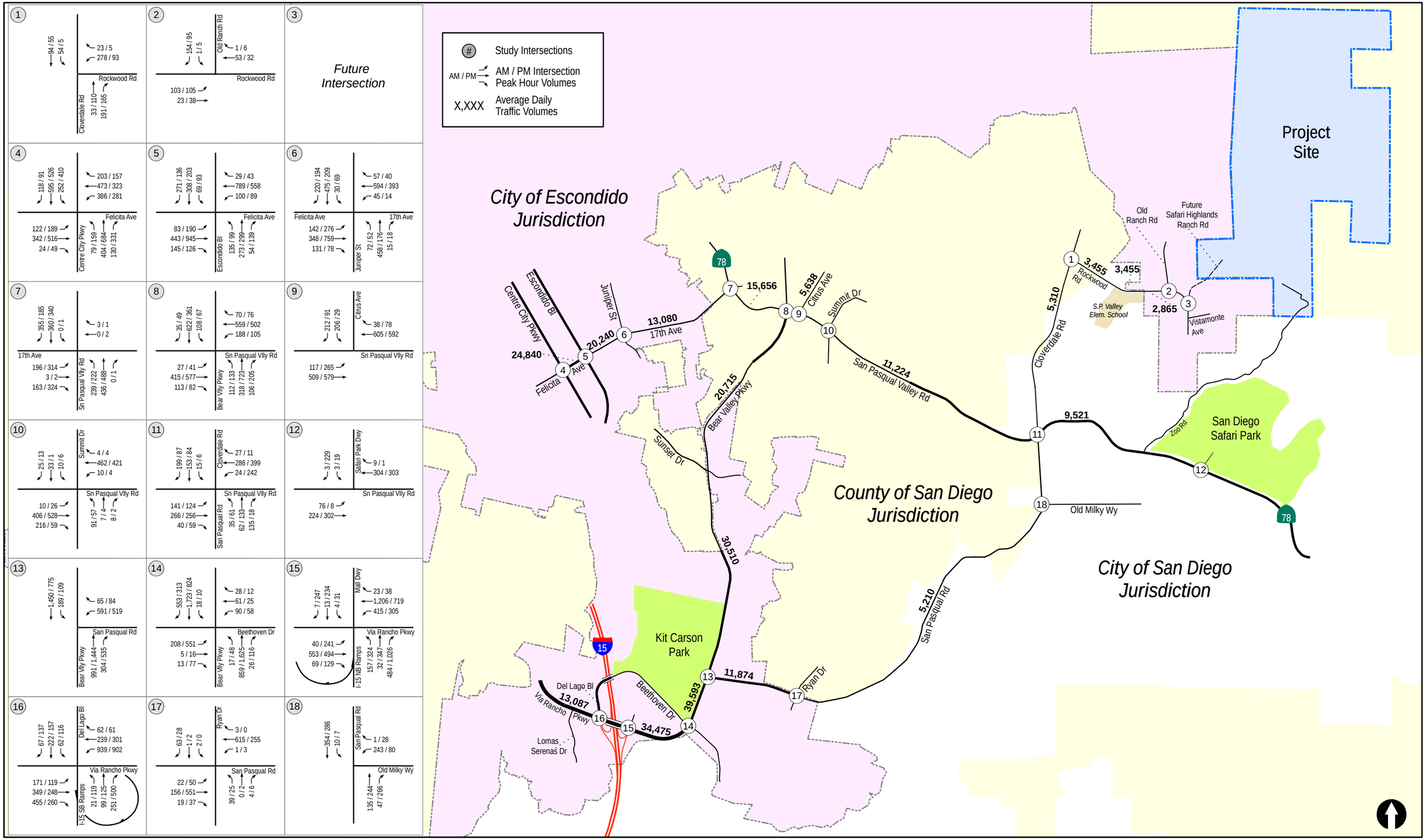

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Figure 8-2

Existing + Cumulative Projects Traffic Volumes

Safari Highlands Ranch

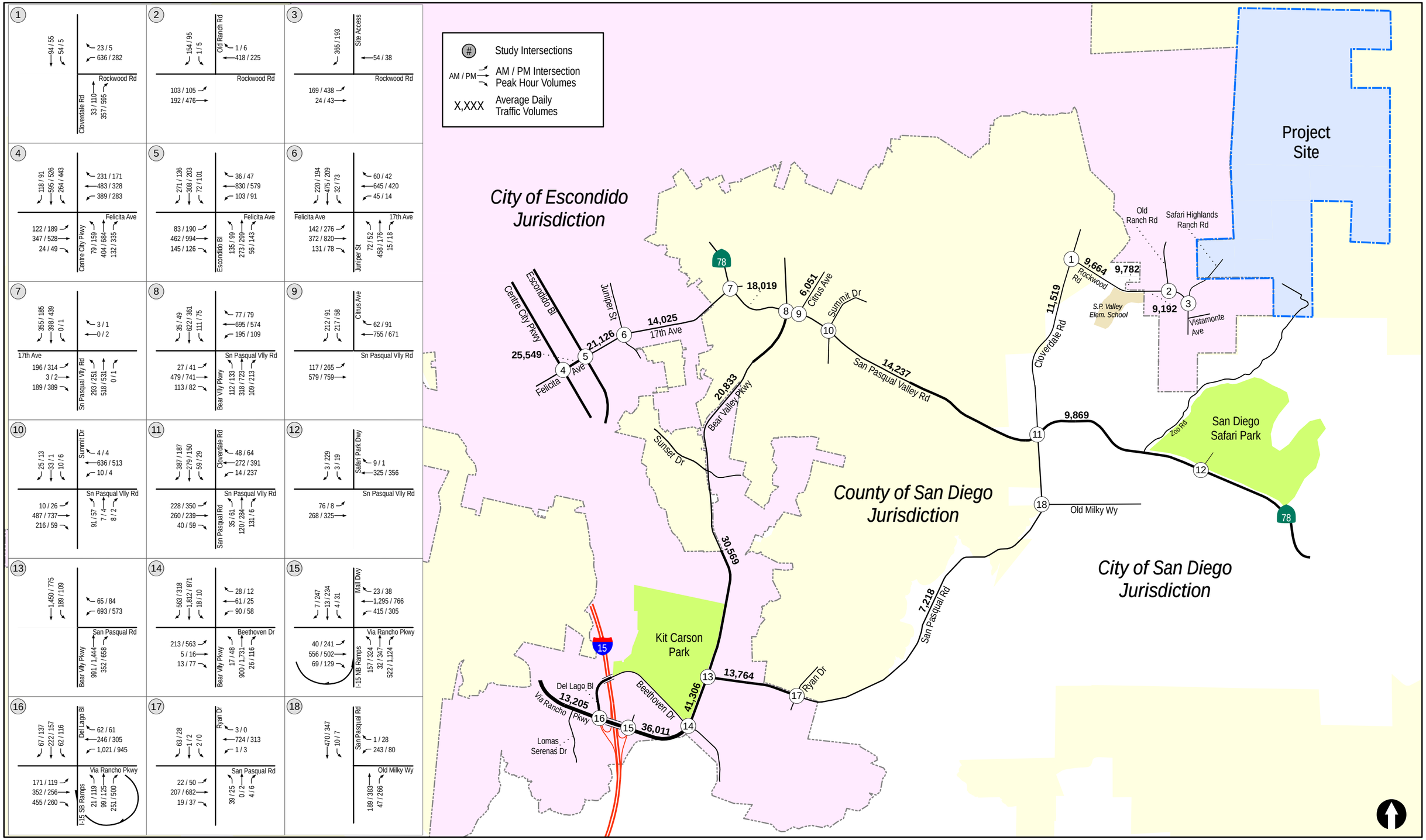

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Figure 8-3

Existing + Cumulative Projects + Project Traffic Volumes

SAFARI HIGHLANDS RANCH

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following is a summary of the operational analyses for the various street-system components for the near-term traffic scenarios.

9.1 Existing + Project Conditions

9.1.1 *Peak Hour Intersection Operations*

Table 9–1 summarizes the peak hour intersection operations with the addition of project traffic. *Table 9–1* shows that all the study area intersections are calculated to continue to operate at acceptable levels of service, except for the following:

County of San Diego

- **Intersection #1. Rockwood Road / Cloverdale Road (unsignalized)**: LOS F during the AM peak hour

County of San Diego / Caltrans

- **Intersection #9. San Pasqual Valley Road (SR-78)/ Citrus Avenue (unsignalized)**: LOS F/F during the AM/PM peak hours
- **Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive (unsignalized):** LOS F/F during the AM/PM peak hours

City of San Diego / Caltrans

- **Intersection #11. San Pasqual Valley Road (SR-78)/ San Pasqual Road/Cloverdale Road (signalized)**: LOS F during the PM peak hour

Based on the applied significance criteria, **four (4) significant direct impacts** were calculated with the addition of project traffic at the locations **bolded** and underlined above since the project adds greater than 5 peak hour trips to the LOS F critical movement at unsignalized intersections and the project-induced increase in delay at the LOS F signalized intersection is greater than 1.0 seconds. Since the Project degrades the LOS from D to F during the PM peak hour for unsignalized Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive, a significant direct impact occurs.

City of Escondido

- Intersection #4. Centre City Parkway/ Felicita Avenue (signalized) – LOS D during the PM peak hour
- **Intersection #17. San Pasqual Road / Sierra Linda Drive / Ryan Drive** – LOS D during the AM and PM peak hours

Based on the City of Escondido's significance criteria, **one (1) significant direct impact** was calculated at this intersection with the addition of project traffic.

Caltrans

- Intersection #16. Via Rancho Parkway/ I-15 SB Ramps (signalized) – LOS E during the AM peak hour

Based on Caltrans' significance criteria, **no significant direct impacts** were calculated at this intersection with the addition of project traffic since the project-induced increase in delay is less than 2.0 seconds for LOS E operating intersections within Caltrans jurisdiction.

Appendix G contains the Existing + Project intersection analysis worksheets.

9.1.2 *Daily Street Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of project traffic. *Table 9–2* shows that all the study area street segments are calculated to continue to operate at acceptable levels of service, except for the following:

County of San Diego / Caltrans

- Street Segment #8: San Pasqual Valley Road (SR-78): 17th Avenue to Bear Valley Parkway – LOS F

Based on the applied significance criteria, **no significant direct impacts** were calculated with the addition of project traffic. The segment along San Pasqual Valley Road (SR-78) between 17th Avenue and Bear Valley Parkway is not considered a significant impact per the County's two-lane highway significance criteria, which defers to the intersection operations along the two-lane highway segment. *Table 9–1* shows that the San Pasqual Valley Road (SR-78) signalized intersections at 17th Avenue and Bear Valley Parkway are calculated to continue to operate at acceptable LOS D operations with project traffic.

City of Escondido

- **Street Segment #12: Felicita Avenue/17th Avenue: Escondido Boulevard to Juniper Street** – LOS F
- **Street Segment #13: Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78)** – LOS D
- Street Segment #14: Bear Valley Parkway: San Pasqual Valley Road (SR-78) to Sunset Drive – LOS F
- Street Segment #15: Bear Valley Parkway: Sunset Drive to San Pasqual Road– LOS D
- **Street Segment #16: Via Rancho Parkway: San Pasqual Road to Beethoven Drive** – LOS F

Based on the City of Escondido's significance criteria, **three (3) significant direct impacts** were calculated with the addition of project traffic at the location **bolded** and underlined above since the project-induced increase in V/C is greater than 0.02 for LOS D or worse operating street segments.

9.1.3 *Peak Hour Freeway Ramp Meter Operations*

Table 9–3 summarizes the operations of the on-ramp meter with the addition of project traffic. The results of the ramp meter analysis are shown below.

- **I-15 SB On-Ramp at Via Rancho Parkway:** Under the Existing + Project condition, this ramp is calculated to continue to operate with no delay during the AM peak hour.

9.1.4 *Peak Hour Freeway Segment Operations*

Table 9–4 shows the volume/capacity freeway segment analyses for the Existing + Project freeway operations. As seen in *Table 9–4*, with the addition of Project traffic, the study area freeway mainline segment of I-15 is calculated to continue to operate at LOS D or better conditions except for the following:

- **Mainline** #1. I-15 between Via Rancho Parkway and West Bernardo Drive
  - Northbound – LOS F(0) (PM peak hour)

Based on the established significance criteria, **no significant direct impacts** were calculated with the addition of Project traffic on the freeway segments since the Project-induced change in V/C is less than 0.01 for LOS F operating freeway segments

9.2 Existing + Cumulative Projects Conditions

9.2.1 *Peak Hour Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations with the addition of cumulative projects traffic to the existing condition. *Table 9–1* shows that all the study area intersections are calculated to continue to operate at acceptable levels of service, except for the following:

City of Escondido

- Intersection #4: Centre City Parkway/ Felicita Avenue (signalized) – LOS D during the PM peak hour
- Intersection #17: San Pasqual Road / Sierra Linda Drive / Ryan Drive – LOS D during the AM and PM peak hours

County of San Diego / Caltrans

- Intersection #9: San Pasqual Valley Road (SR-78)/ Citrus Avenue (unsignalized) – LOS F/E during the AM/PM peak hours
- Intersection #10: San Pasqual Valley Road (SR-78)/ Summit Drive (unsignalized) – LOS F during the PM peak hour

Caltrans

- Intersection #16: Via Rancho Parkway/ I-15 SB Ramps (signalized) – LOS E during the AM peak hour

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

9.2.2 *Daily Street Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of cumulative project traffic. *Table 9–2* shows that all the study area intersections are calculated to continue to operate at acceptable levels of service, except for the following:

County of San Diego / Caltrans

- Street Segment #8: San Pasqual Valley Road (SR-78): 17th Avenue to Bear Valley Parkway – LOS E

City of Escondido

- Street Segment #12: Felicita Avenue/17th Avenue: Escondido Boulevard Juniper Street – LOS F
- Street Segment #13: Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78) – LOS D
- Street Segment #14: Bear Valley Parkway: San Pasqual Valley Road (SR-78) to Sunset Drive – LOS F
- Street Segment #15: Bear Valley Parkway: Sunset Drive to San Pasqual Road– LOS D
- Street Segment #16: Via Rancho Parkway: San Pasqual Road to Beethoven Drive – LOS F

9.2.3 *Peak Hour Freeway Ramp Meter Operations*

Table 9–3 summarizes the operations of the on-ramp meter with the addition of cumulative project traffic. The results of the ramp meter analysis are shown below.

- **I-15 SB On-Ramp at Via Rancho Parkway:** Under the Existing + Cumulative Projects condition, this ramp is calculated to continue to operate with no delay during the AM peak hour.

9.2.4 *Peak Hour Freeway Segment Operations*

Table 9–4 shows the volume/capacity freeway segment analyses for the Existing + Cumulative Projects freeway operations. As seen in *Table 9–4*, with the addition of cumulative projects traffic, the study area freeway mainline segment of I-15 is calculated to continue to operate at LOS D or better conditions except for the following:

- Mainline #1. I-15 between Via Rancho Parkway and West Bernardo Drive
  - Northbound – LOS F(0) (PM peak hour)

9.3 Existing + Project + Cumulative Projects Conditions

9.3.1 *Peak Hour Intersection Operations*

Table 9–1 summarizes the peak hour intersection operations for Existing + Cumulative Projects + Project conditions. *Table 9–1* shows that all the study area intersections are calculated to continue to operate at acceptable levels of service except for the following the following:

County of San Diego

- **Intersection #1. Rockwood Road / Cloverdale Road (unsignalized)**: LOS F during the AM peak hour

County of San Diego / Caltrans

- **Intersection #9. San Pasqual Valley Road (SR-78)/ Citrus Avenue (unsignalized)**: LOS F/F during the AM/PM peak hours
- **Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive (unsignalized):** LOS F/F during the AM/PM peak hours

City of San Diego / Caltrans

- **Intersection #11. San Pasqual Valley Road (SR-78)/ San Pasqual Road/Cloverdale Road (signalized)**: LOS F during the PM peak hour

Based on the applied significance criteria, **four (4) significant cumulative impacts** were calculated with the addition of project traffic at the locations **bolded** and underlined above since the project adds greater than 5 peak hour trips to the LOS F critical movement at unsignalized intersections and the project-induced increase in delay at the LOS F signalized intersection is greater than 1.0 seconds. Since the Project degrades the LOS from E to F during the PM peak hour for unsignalized Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive, a significant cumulative impact occurs.

City of Escondido

- Intersection #4. Centre City Parkway/ Felicita Avenue (signalized) – LOS D during the PM peak hour
- **Intersection #17. San Pasqual Road / Sierra Linda Drive / Ryan Drive** – LOS D during the AM/PM peak hours

Based on the City of Escondido's significance criteria, **one (1) significant cumulative impact** was calculated with the addition of project traffic.

Caltrans

- Intersection #16. Via Rancho Parkway/ I-15 SB Ramps (signalized) – LOS E during the AM peak hour

Based on Caltrans' significance criteria, **no significant cumulative impacts** were calculated with the addition of project traffic since the project-induced increase in delay is less than 2.0 seconds for LOS E operating intersections within Caltrans jurisdiction.

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

9.3.2 *Daily Street Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of cumulative projects and project traffic. *Table 9–2* shows that all the study area street segments are calculated to continue to operate at acceptable levels of service, except for the following:

County of San Diego / Caltrans

- Street Segment #8: San Pasqual Valley Road (SR-78): 17th Avenue to Bear Valley Parkway – LOS F

Based on the applied significance criteria, **no significant cumulative impacts** were calculated with the addition of project traffic. The segment along San Pasqual Valley Road (SR-78) between 17th Avenue and Bear Valley Parkway is not considered a significant impact per the County's two-lane highway significance criteria, which defers to the intersection operations along the two-lane highway segment. *Table 9–1* shows that the San Pasqual Valley Road (SR-78) signalized intersections at 17th Avenue and Bear Valley Parkway are calculated to continue to operate at acceptable LOS D operations with project traffic.

City of Escondido

- **Street Segment #12: Felicita Avenue/17th Avenue: Escondido Boulevard Juniper Street** – LOS F
- **Street Segment #13: Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78)** – LOS E
- Street Segment #14: Bear Valley Parkway: San Pasqual Valley Road (SR-78) to Sunset Drive – LOS F
- Street Segment #15: Bear Valley Parkway: Sunset Drive to San Pasqual Road– LOS D
- **Street Segment #16: Via Rancho Parkway: San Pasqual Road to Beethoven Drive** – LOS F

Based on the City of Escondido's significance criteria, **three (3) significant cumulative impacts** were calculated with the addition of project traffic at the location **bolded** and underlined above since the project-induced increase in V/C is greater than 0.02 for LOS D or worse operating street segments.

9.3.3 *Freeway Ramp Meter Operations*

Table 9–3 summarizes the operations of the on-ramp meter with the addition of cumulative projects and project traffic. The results of the ramp meter analysis are shown below.

- **I-15 SB On-Ramp at Via Rancho Parkway:** Under the Existing + Cumulative Projects + Project condition, this ramp is calculated to continue to operate with no delay during the AM peak hour.

9.3.4 *Peak Hour Freeway Segment Operations*

Table 9–4 shows the volume/capacity freeway segment analyses for the Existing + Project + Cumulative Projects freeway operations. As seen in *Table 9–4*, with the addition of Project traffic and cumulative projects traffic, the study area freeway mainline segment of I-15 is calculated to continue to operate at LOS D or better conditions except for the following:

- Mainline #1. I-15 between Via Rancho Parkway and West Bernardo Drive
  - Northbound – LOS F(0) (PM peak hour)

Based on the established significance criteria, **no significant cumulative impacts** were calculated with the addition of Project traffic on the freeway segments since the Project-induced change in V/C is less than 0.01 for LOS F operating freeway segments

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Jur.	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Cumulative Projects + Project			Sig?
				Delay [a]	LOS [b]	Delay	LOS	Δ [c]	Delay	LOS	Delay	LOS	Δ [c]	
1. Rockwood Rd / Cloverdale Rd	County of San Diego	MSSC [d] (WBL)	AM	15.5	C	**>100.0**	**F**	**358**	15.5	C	**>100.0**	**F**	**358**	**Direct & Cumulative**
			PM	10.8	B	19.0	C	–	10.8	B	19.0	C	–	
2. Rockwood Rd / Old Ranch Rd	City of Escondido	AWSC [e]	AM	8.5	A	14.1	B	–	8.5	A	14.1	B	–	No
			PM	8.3	A	15.6	C	–	8.3	A	15.6	C	–	
3. Rockwood Rd / Proposed Safari Highlands Ranch Rd (Site Access)	City of Escondido	MSSC	AM	*DNE*	*DNE*	10.9	B	–	*DNE*	*DNE*	10.9	B	–	No
			PM	*DNE*	*DNE*	9.4	A	–	*DNE*	*DNE*	9.4	A	–	
4. Centre City Pkwy / Felicita Ave	City of Escondido	Signal	AM	31.9	C	32.3	C	0.4	32.3	C	33.0	C	0.7	No
			PM	35.8	D	37.2	D	1.4	36.7	D	38.2	D	1.5	
5. Escondido Blvd / Felicita Ave	City of Escondido	Signal	AM	20.3	C	20.7	C	0.4	20.3	C	20.7	C	0.4	No
			PM	23.4	C	24.6	C	1.2	23.3	C	24.6	C	1.3	
6. Juniper St / Felicita Ave	City of Escondido	Signal	AM	28.6	C	32.5	C	3.9	30.6	C	34.2	C	3.6	No
			PM	16.7	B	17.8	B	1.1	19.1	B	21.0	C	1.9	
7. San Pasqual Valley Rd (SR-78) / 17th Ave	County of San Diego/ Caltrans	Signal	AM	43.4	D	46.7	D	3.3	50.4	D	53.3	D	2.9	No
			PM	43.5	D	47.6	D	4.1	47.5	D	51.1	D	3.6	
8. San Pasqual Valley Rd (SR-78) / Bear Valley Pkwy	County of San Diego/ Caltrans	Signal	AM	42.9	D	43.2	D	0.3	44.0	D	44.5	D	0.5	No
			PM	45.8	D	47.4	D	1.6	46.5	D	48.4	D	1.9	

(Continued on Next Page)

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Jur.	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Cumulative Projects + Project			Sig?
				Delay [a]	LOS [b]	Delay	LOS	Δ [c]	Delay	LOS	Delay	LOS	Δ [c]	
(Continued from Previous Page)														
9. San Pasqual Valley Rd (SR-78)/ Citrus Ave	County of San Diego/ Caltrans	MSSC (SBL)	AM	>100.0	F	**>100.0**	**F**	**11**	>100.0	F	**>100.0**	**F**	**11**	**Direct & Cumulative**
			PM	38.0	E	**>100.0**	**F**	**29**	47.6	E	**>100.0**	**F**	**29**	
10. San Pasqual Valley Rd (SR-78)/ Summit Dr	County of San Diego/ Caltrans	MSSC (NBL)	AM	59.7	F	**>100.0**	**F**	**0**	>100.0	F	**>100.0**	**F**	**0**	**Direct & Cumulative [f]**
			PM	33.1	D	**73.8**	**F**	**0**	37.7	E	**87.7**	**F**	**0**	
11. San Pasqual Valley Road (SR-78)/ San Pasqual Rd / Cloverdale Rd	City of San Diego/ Caltrans	Signal	AM	32.9	C	40.5	D	–	33.2	C	40.7	D	–	**Direct & Cumulative**
			PM	42.7	D	**89.7**	**F**	**47.0**	44.7	D	**89.3**	**F**	**44.6**	
12. San Pasqual Valley Rd (SR-78)/ Safari Park Dwy	County of San Diego/ Caltrans	MSSC	AM	15.4	C	16.5	C	–	15.7	C	16.8	C	–	No
			PM	14.1	B	15.2	C	–	14.4	B	15.6	C	–	
13. San Pasqual Rd / Bear Valley Pkwy	City of Escondido	Signal	AM	17.8	B	20.1	C	2.3	18.2	B	20.6	C	2.4	No
			PM	16.8	B	19.0	B	2.2	17.2	B	19.7	B	2.5	
14. Via Rancho Pkwy / Beethoven Dr	City of Escondido	Signal	AM	17.7	B	18.3	B	0.6	18.0	B	18.6	B	0.6	No
			PM	27.1	C	30.4	C	3.3	28.3	C	32.5	C	4.2	
(Continued on Next Page)														

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Jur.	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Cumulative Projects + Project			Sig?
				Delay [a]	LOS [b]	Delay	LOS	Δ [c]	Delay	LOS	Delay	LOS	Δ [c]	
(Continued from Previous Page)														
15. Via Rancho Pkwy / I-15 NB Ramps	Caltrans [g]	Signal	AM	35.1	D	35.1	D	0.0	35.1	D	35.1	D	0.0	No
			PM	41.4	D	44.9	D	3.5	42.4	D	47.7	D	5.3	
16. Via Rancho Pkwy / I-15 SB Ramps	Caltrans [g]	Signal	AM	55.7	E	56.6	E	0.9	57.1	E	57.8	E	0.7	No
			PM	49.4	D	50.5	D	1.1	50.6	D	51.9	D	1.3	
17. San Pasqual Rd / Sierra Linda Dr / Ryan Dr	City of Escondido	MSSC	AM	26.7	D	**33.3**	**D**	**6.6**	28.0	D	**35.0**	**D**	**7.0**	**Direct & Cumulative**
			PM	25.5	D	**30.6**	**D**	**8.2**	27.2	D	**32.4**	**D**	**5.2**	
18. San Pasqual Rd / Old Milky Way	City of San Diego	MSSC	AM	19.0	C	29.2	D	10.2	20.7	C	33.3	D	12.6	No
			PM	13.2	B	16.9	C	3.7	13.9	B	18.0	C	4.1	

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. "Δ" denotes the Project-induced increase in delay for intersections located within Caltrans' jurisdiction and in the City of San Diego and City of Escondido. "Δ" denotes the Project-induced increase in delay for signalized intersections and Project traffic added to the critical movement for unsignalized intersections located in the County of San Diego. Project increases in delay or number of trips only shown for County intersection where LOS E or F operations are reported.
d. MSSC – Minor Street Stop Controlled intersection. Minor street left turn delay reported.
e. AWSC – All-Way Stop Controlled intersection. Average delay reported.
f. Although project adds zero (0) trips to the critical movement at this location, the Project degrades the PM peak hour operations from LOS D to LOS F under Existing + Project conditions and from LOS E to LOS F in the cumulative condition, thus resulting in a significant impact.
g. The Via Rancho Parkway interchange is maintained by Caltrans. Therefore, LOS D operations are accepted.

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

General Notes:

1. DNE = Does not exist.
2. For City of Escondido intersections also located within Caltrans jurisdiction, LOS D operations are accepted.
3. **Bold** typeface and shading represents a significant impact.
4. Jur. = Jurisdiction
5. Sig = Significant Impact? Direct and/or Cumulative.
6. WBL = Westbound left-turn movement; SBL = Southbound left-turn movement; NBL = Northbound left-turn movement.

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Capacity (LOS E) [a]	Existing			Existing + Project				Existing + Cumulative Projects			Existing + Cumulative Projects + Project				Sig?
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	Δ [e]	ADT	LOS	V/C	ADT	LOS	V/C	Δ [e]	
Rockwood Road																	
1. Cloverdale Rd to San Pasqual Union Elementary	County of San Diego	16,200	3,440	B	–	9,649	D	–	–	3,455	B	–	9,664	D	–	–	No
2. Fronting San Pasqual Union Elementary	City of San Diego	15,000	3,440	A	0.2293	9,767	C	–	–	3,455	A	–	9,782	C	–	–	No
3. East of San Pasqual Union Elementary	City of Escondido	15,000	2,850	A	0.1900	9,177	C	0.5970	0.4070	2,865	A	0.1910	9,192	C	0.6128	0.4218	No
Cloverdale Road																	
4. Rockwood Rd to San Pasqual Valley Rd (SR-78)	City of San Diego	15,000	5,280	B	0.3520	11,489	D	–	–	5,310	B	–	11,519	D	–	–	No
San Pasqual Road																	
5. San Pasqual Valley Rd (SR-78) to Ryan Dr [f]	County of San Diego	14,580	4,850	C	–	6,858	D	–	–	5,210	C	–	7,218	D	–	–	No
6. Ryan Drive to Bear Valley Pkwy	City of Escondido	37,000	11,530	A	0.3116	13,420	B	0.3627	0.0511	11,874	A	0.3209	13,764	B	0.3720	0.0511	No
Citrus Avenue																	
7. North of San Pasqual Valley Road	County of San Diego	16,200	5,480	C	–	5,893	C	–	–	5,638	C	–	6,051	C	–	–	
San Pasqual Valley Road (SR-78)																	
8. 17th Ave to Bear Valley Pkwy	County of San Diego/ Caltrans	16,200	14,730	E	–	17,093	F	–	–	15,656	E	–	18,019	F	1.1120	–	No [i]
9. Bear Valley Pkwy to Cloverdale Rd / San Pasqual Rd [g]	County of San Diego/ Caltrans	17,100	10,490	B	–	13,503	C	–	–	11,224	B	–	14,237	D	–	–	No
10. Cloverdale Rd / San Pasqual Rd to Safari Park Dwy [h]	City of San Diego/ Caltrans	15,000	9,220	C	0.6147	9,568	C	0.6379	0.0232	9,521	C	0.6347	9,869	C	0.6579	0.0232	No
Felicita Avenue / 17th Avenue																	
11. Centre City Pkwy to Escondido Blvd	City of Escondido	37,000	23,970	C	0.6478	24,679	C	0.6670	0.0192	24,840	C	0.6714	25,549	C	0.6905	0.0191	No
12. Escondido Blvd to Juniper St	City of Escondido	15,000	19,370	F	1.2913	**20,256**	**F**	**1.3504**	**0.0591**	20.240	F	1.3493	**21,126**	**F**	**1.4084**	**0.0591**	**Direct & Cumulative**
13. Juniper St to San Pasqual Valley Rd	City of Escondido	15,000	12,110	D	0.8073	**13,055**	**D**	**0.8703**	**0.0630**	13,080	D	0.8720	**14,025**	**E**	**0.9350**	**0.0630**	**Direct & Cumulative**
Bear Valley Parkway																	
14. San Pasqual Valley Rd (SR-78) to Sunset Dr	City of Escondido	15,000	19,930	F	1.3287	20,048	F	1.3365	0.0080	20,715	F	1.3810	20,833	F	1.3889	0.0079	No
15. Sunset Drive to San Pasqual Rd	City of Escondido	37,000	29,820	D	0.8059	29,879	D	0.8075	0.0016	30,510	D	0.8246	30,569	D	0.8262	0.0016	No

(Continued on Next Page)

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Jurisdiction	Capacity (LOS E) [a]	Existing			Existing + Project				Existing + Cumulative Projects			Existing + Cumulative Projects + Project				Sig?
			ADT [b]	LOS [c]	V/C [d]	ADT	LOS	V/C	Δ [e]	ADT	LOS	V/C	ADT	LOS	V/C	Δ [e]	
(Continued from Previous Page)																	
Via Rancho Pkwy																	
16. San Pasqual Rd to Beethoven Dr	City of Escondido	37,000	38,490	F	1.0403	**40,203**	**F**	**1.0866**	**0.0463**	39,593	F	1.0701	**41,306**	**F**	**1.1164**	**0.0463**	**Direct & Cumulative**
17. Beethoven Dr to I-15 NB Ramps	City of Escondido	65,000	33,400	B	0.5138	34,936	B	0.5375	0.0237	34,475	B	0.5304	36,011	C	0.5540	0.0236	No
18. I-15 Ramps to Lomas Serenas Dr	City of Escondido	50,000	12,810	A	0.2562	12,928	A	0.2586	0.0024	13,087	A	0.2617	13,205	A	0.2641	0.0024	No

Footnotes:

a. Study roadways fall under the jurisdiction of the City of Escondido, San Diego County, and the City of San Diego as noted. Capacities based on the applicable Roadway Classification Table.
b. Average Daily Traffic Volumes.
c. Level of Service.
d. Volume to Capacity.
e. "Δ" denotes the Project-induced increase in V/C for City of Escondido, City of San Diego and Caltrans roadway segments. "Δ" denotes the Project-induced increase in ADT for segments operating at LOS E or F located in the County of San Diego.
f. A 10% reduction in capacity was assumed to account for the winding road and lack of adequate shoulder width along portions of San Pasqual Road.
g. Within the County, San Pasqual Valley Road (SR-78) is classified as a 4-lane Major Road but is constructed as a 2-3 Lane road within the study area. Roadway capacities derived based on County of San Diego 4-lane Major Road capacities.
h. Within the City of San Diego, San Pasqual Valley Road (SR-78) is classified as a 4-lane Conventional Highway but is constructed as a 2-3 Lane road within the study area. Roadway capacities derived based on City of San Diego 3-lane Collector capacities.
i. The segment along San Pasqual Valley Road (SR-78) between 17th Avenue and Bear Valley Parkway is not considered a significant impact per the County's two-lane highway significance criteria, which defers to the intersection operations along the two-lane highway segment. *Table 9–1* shows that the San Pasqual Valley Road (SR-78) signalized intersections at 17th Avenue and Bear Valley Parkway are calculated to continue to operate at acceptable LOS D operations with project traffic.

General Notes:

1. Bold typeface and shading represents a significant impact.

TABLE 9–3
NEAR-TERM RAMP METER OPERATIONS – FIXED RATE

Location	Peak Hour [a]	Peak Hour Demand (D) [b]	Meter Rate (R) [c]	Excess Demand (E) (veh)	Delay (min)	Queue (ft) [d]	Sig?
1. I-15 SB On-Ramp at Via Rancho Pkwy (2 SOV + 1 HOV)							
Existing	AM	677	858	0	0.0	0	—
Existing + Project	AM	744	858	0	0.0	0	—
Project Increase	*AM*	*34*	—	*0*	*0.0*	*0*	*No*
Existing + Cumulative Projects	AM	687	858	0	0.0	0	—
Existing + Cumulative Projects + Project	AM	721	858	0	0.0	0	—
Project Increase	*AM*	*34*	—	*0*	*0.0*	*0*	*No*

Footnotes:

a. Peak hours shown during ramp meter operations.
b. Peak hour demand in vehicles/hour/lane per SOV lanes only. Volumes taken from May 2014 LLG intersection counts.
c. Meter rate "R" is the most restrictive rate at which the ramp meter (signal) discharges traffic onto the freeway (obtained from Caltrans). The discharge rate ranges from 858 to 1400 vehicles per hour depending on the mainline volumes.
d. Queue calculated assuming vehicle length of 25 feet.

General Notes:

1. Sig = Significant impact, yes or no. Impact based on Significance Criteria discussed in *Section 5.0*.
2. SOV = Single-Occupancy Vehicle, HOV – High Occupancy Vehicle

TABLE 9–4
NEAR-TERM FREEWAY SEGMENT OPERATIONS

Freeway Segment	Dir.	# of Lanes [a]	Hourly Capacity [b]	Existing						Project Volumes		Existing + Project						Δ V/C [f]		Sig?
				Volume [c]		V/C [d]		LOS [e]				Volume		V/C		LOS				
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
Interstate 15																				
Via Rancho Pkwy to West Bernardo Dr	NB	4M+1A	10,800	6,791	10,837	0.629	1.003	C	F(0)	39	98	6,830	10,935	0.632	1.012	C	F(0)	0.004	0.009	No
	SB	5M	11,750	10,635	7,149	0.905	0.608	D	B	82	43	10,717	7,192	0.912	0.612	D	B	0.007	0.004	No
Freeway Segment	**Dir.**	**# of Lanes [a]**	**Hourly Capacity [b]**	**Existing + Cumulative Projects**						**Project Volumes**		**Existing + Cumulative Projects Project**						**Δ V/C [f]**		**Sig?**
				Volume [c]		**V/C [d]**		**LOS [e]**				**Volume**		**V/C**		**LOS**				
				AM	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	
Via Rancho Pkwy to West Bernardo Dr	NB	4M+1A	10,800	6,833	10,903	0.633	1.010	C	F(0)	39	98	6,872	11,001	0.636	1.019	C	F(0)	0.004	0.009	No
	SB	5M	11,750	10,700	7,194	0.911	0.612	D	B	82	43	10,782	7,237	0.918	0.616	D	B	0.007	0.004	No

Footnotes:

a. Lane geometry taken from PeMS lane configurations at corresponding postmile.
b. Capacity calculated at 2350 vehicles per hour (vph) per mainline lane (pcphpl) and 1600 vph per lane for auxiliary lane.
c. Existing volume calculated from Caltrans Traffic Census Program *Peak Hour Volume Data* (2015).
d. V/C = (Peak Hour Volume/Hourly Capacity)
e. Level of Service
f. "Δ" denotes the Project-induced increase in V/C. Per SANTEC/ITE Guidelines, a significant impact occurs when the V/C is increased by 0.01 for LOS F.

LOS	V/C
A	<0.41
B	0.62
C	0.8
D	0.92
E	1
F(0)	1.25
F(1)	1.35
F(2)	1.45
F(3)	>1.46

General Note:

1. M = Mainline
2. A = Auxiliary
3. Sig? = Significant impact, yes or no.

10.0 GENERAL PLAN (YEAR 2035) ASSESSMENT

10.1 General Plan Land Use and Traffic Volumes

The project is consistent with the City's General Plan Land Use Element and corresponding Valley View Specific Plan, designating this site for residential uses at the density proposed. Therefore, the buildout volumes and analysis presented in this report are representative of the operations forecasted per the adopted General Plan. Buildout traffic volumes were obtained from the City's Mobility Element traffic model for Year 2035. This model was utilized because it includes the approved land uses associated with the City of Escondido's approved General Plan (adopted in 2011). The model also accounts for the Mobility Element network proposed at buildout of the City's General Plan. The following section discusses the specifics of the network assumptions.

Figure 10–1 shows the General Plan (Year 2035) traffic volumes.

10.2 Network Conditions

This section describes the buildout of the street system based on the *General Plan* roadway classifications for City of Escondido, City of San Diego and County of San Diego study area roadways, respectively. The *General Plan Mobility Element* roadway classifications were used in the LOS analysis provided in this report.

Table 10–1 displays the planned City of Escondido, City of San Diego, and County of San Diego roadway classifications for study area street segments, per their respective mobility plans.

TABLE 10–1
GENERAL PLAN STREET SEGMENT CLASSIFICATIONS

Street Segments	Jurisdiction [a]	Currently Built As		Adopted *General Plan* Classification	
		Roadway Type	Capacity	Roadway Type	Capacity
Rockwood Road					
1. Cloverdale Rd to San Pasqual Union Elementary	County of San Diego	2-Lane Light Collector *No Median (2.2E)*	16,200	2-Lane Light Collector *No Median (2.2E)*	16,200
2. Fronting San Pasqual Union Elementary	City of San Diego	2-Lane Collector *w/ TWLTL*	15,000	2-Lane Collector *w/ TWLTL*	15,000
3. East of San Pasqual Union Elementary	City of Escondido	2-Lane Local Collector (NP)	15,000	2-Lane Local Collector (NP)	15,000
Cloverdale Road					
4. Rockwood Rd to San Pasqual Valley Rd (SR-78)	City of San Diego	2-Lane Collector *w/ TWLTL*	15,000	2-Lane Collector *w/ TWLTL*	15,000
San Pasqual Road					
5. San Pasqual Valley Rd (SR-78) to Ryan Dr	County of San Diego	Community Collector *No Median (2.1E)*	14,580	4-Lane Major Road *w/ Intermittent Turn Lanes (4.1 B)*	34,200

(Continued on Next Page)

TABLE 10–1
GENERAL PLAN STREET SEGMENT CLASSIFICATIONS

Street Segments	Jurisdiction [a]	Currently Built As		Adopted *General Plan* Classification	
		Roadway Type	Capacity	Roadway Type	Capacity
(Continued from Previous Page)					
San Pasqual Road *(Continued)*					
6. Ryan Drive to Bear Valley Pkwy	City of Escondido	4-Lane Major Road	37,000	4-Lane Major Road	37,000
Citrus Avenue					
7. North of San Pasqual Valley Road (SR-78) to Ryan Drive	County of San Diego	2-Lane Light Collector *No Median (2.2E)*	16,200	2-Lane Light Collector *No Median (2.2E)*	16,200
San Pasqual Valley Road (SR-78) [b]					
8. 17th Ave to Bear Valley Pkwy	County of San Diego/ Caltrans	2-Lane Community Collector *No Median (2.1E)*	16,200	4-Lane Major Road *w/ Intermittent turn lanes (4.1B)*	34,200
9. Bear Valley Pkwy to Cloverdale Rd / San Pasqual Rd	County of San Diego/ Caltrans	2-3-Lane Major Road *w/ Intermittent Turn Lanes (4.1B)*	17,100	4-Lane Major Road *w/ Intermittent Turn Lanes (4.1 A)*	34,200
10. Cloverdale Rd / San Pasqual Rd to Safari Park Dwy	City of San Diego/ Caltrans	3-Lane Collector	15,000	4-Lane Conventional Highway	40,000
Felicita Avenue / 17th Avenue					
11. Centre City Pkwy to Escondido Blvd	City of Escondido	4-Lane Major Road	37,000	4-Lane Major Road	37,000
12. Escondido Blvd to Juniper St	City of Escondido	2-Lane Local Collector (NP)	15,000	4-Lane Major Road	37,000
13. Juniper St to San Pasqual Valley Rd (SR-78)	City of Escondido	2-Lane Local Collector (NP)	15,000	4-Lane Collector (NP)	34,200
Bear Valley Parkway					
14. San Pasqual Valley Rd (SR-78) to Sunset Dr	City of Escondido	2-Lane Local Collector (NP)	15,000	4-Lane Major Road	37,000
15. Sunset Drive to San Pasqual Rd	City of Escondido	4-Lane Major Road	37,000	6-Lane Major Road	50,000
Via Rancho Parkway					
16. San Pasqual Rd to Beethoven Dr	City of Escondido	4-Lane Major Road	37,000	6-Lane Major Road	50,000
17. Beethoven Dr to I-15 NB Ramps	City of Escondido	7-Lane Prime Arterial	65,000	7-Lane Prime Arterial	65,000
18. I-15 Ramps to Lomas Serenas Dr	City of Escondido	6-Lane Major Road	50,000	6-Lane Major Road	50,000

Footnotes:

a. Study roadways fall under the jurisdiction of the City of Escondido, San Diego County, and the City of San Diego as noted. Capacities based on the applicable Roadway Classification Table.

b. San Pasqual Valley Road (SR-78), within the project study area falls under the jurisdiction of the City of Escondido, San Diego County and the City of San Diego and Caltrans. However, the majority of the roadway is located within San Diego County, therefore, the roadway was analyzed under County guidelines.

10.3 Daily Street Segment Operations

As previously mentioned, the project is consistent with the City of Escondido General Plan and Valley View Specific Plan land use designation for the site. Therefore, the operations shown below represent those of the City's General Plan and are provided for informational purposes only. Since there is no increase in traffic over the City's General Plan, there are no long-term cumulative impacts and mitigation is not required.

Table 10–3 summarizes the Year 2035 (General Plan) roadway segment LOS. As seen in *Table 10–3*, all street segments are calculated to operate at acceptable levels of service except for the following:

City of San Diego

- Street Segment #4: Cloverdale Road: Rockwood Road to San Pasqual Valley Road (SR-78) – LOS E

City of Escondido

- Street Segment #11: Felicita Avenue/17th Avenue: Centre City Parkway to Escondido Boulevard – LOS D
- Street Segment #12. Felicita Avenue/17th Avenue: Escondido Boulevard to Juniper Street – LOS D
- Street Segment #14: Bear Valley Parkway: San Pasqual Valley Road (SR-78) to Sunset Drive – LOS F
- Street Segment #15: Bear Valley Parkway: Sunset Drive to San Pasqual Road – LOS F
- Street Segment #16: Via Rancho Parkway: San Pasqual Road to Beethoven Drive – LOS F

TABLE 10–2
GENERAL PLAN YEAR 2035 STREET SEGMENT OPERATIONS

Street Segment	Jur.	General Plan Capacity (LOS E) [a]	General Plan (Year 2035)		
			ADT [b]	LOS [c]	V/C [d]
Rockwood Road [e]					
1. Cloverdale Rd to San Pasqual Union Elementary	County of San Diego	16,200	9,877	D	–
2. Fronting San Pasqual Union Elementary	City of San Diego	15,000	9,986	C	0.6657
3. East of San Pasqual Union Elementary	City of Escondido	15,000	9,986	C	0.6657
Cloverdale Road					
4. Rockwood Rd to San Pasqual Valley Rd (SR-78)	City of San Diego	15,000	13,787	E	0.9191

(Continued on Next Page)

TABLE 10–2
GENERAL PLAN YEAR 2035 STREET SEGMENT OPERATIONS

Street Segment	Jur.	General Plan Capacity (LOS E) [a]	General Plan (Year 2035)		
			ADT [b]	LOS [c]	V/C [d]
(Continued from Previous Page)					
San Pasqual Road					
5. San Pasqual Valley Rd (SR-78) to Ryan Dr	County of San Diego	34,200	17,441	B	–
6. Ryan Drive to Bear Valley Pkwy	City of Escondido	37,000	19,902	B	0.5379
Citrus Avenue					
7. North of San Pasqual Valley Road (SR-78) to Ryan Drive	County of San Diego	16,200	14,123	B	–
San Pasqual Valley Road (SR-78) [f]					
8. 17th Ave to Bear Valley Pkwy	County of San Diego/ Caltrans	34,200	17,981	B	–
9. Bear Valley Pkwy to Cloverdale Rd / San Pasqual Rd	County of San Diego/ Caltrans	34,200	23,393	C	–
10. Cloverdale Rd / San Pasqual Rd to Safari Park Dwy	City of San Diego/ Caltrans	40,000	13,112	A	0.3278
Felicita Avenue / 17th Avenue					
11. Centre City Pkwy to Escondido Blvd	City of Escondido	37,000	32,437	D	0.8767
12. Escondido Blvd to Juniper St	City of Escondido	37,000	32,666	D	0.8829
13. Escondido Blvd to San Pasqual Valley Rd (SR-78)	City of Escondido	34,200	17,076	B	0.4993
Bear Valley Parkway					
14. San Pasqual Valley Rd (SR-78) to Sunset Dr	City of Escondido	37,000	40,909	F	1.1056
15. Sunset Drive to San Pasqual Rd	City of Escondido	50,000	51,515	F	1.0303
Via Rancho Parkway					
16. San Pasqual Rd to Beethoven Dr	City of Escondido	50,000	60,528	F	1.2106
17. Beethoven Dr to I-15 NB Ramps	City of Escondido	65,000	43,964	C	0.6764
18. I-15 Ramps to Lomas Serenas Dr	City of Escondido	50,000	18,359	B	0.3672

Footnotes:

a. Study roadways fall under the jurisdiction of the City of Escondido, San Diego County, and the City of San Diego as noted. Capacities based on the applicable Roadway Classification Table.
b. Average Daily Traffic.
c. Level of Service.
d. Volume to Capacity.

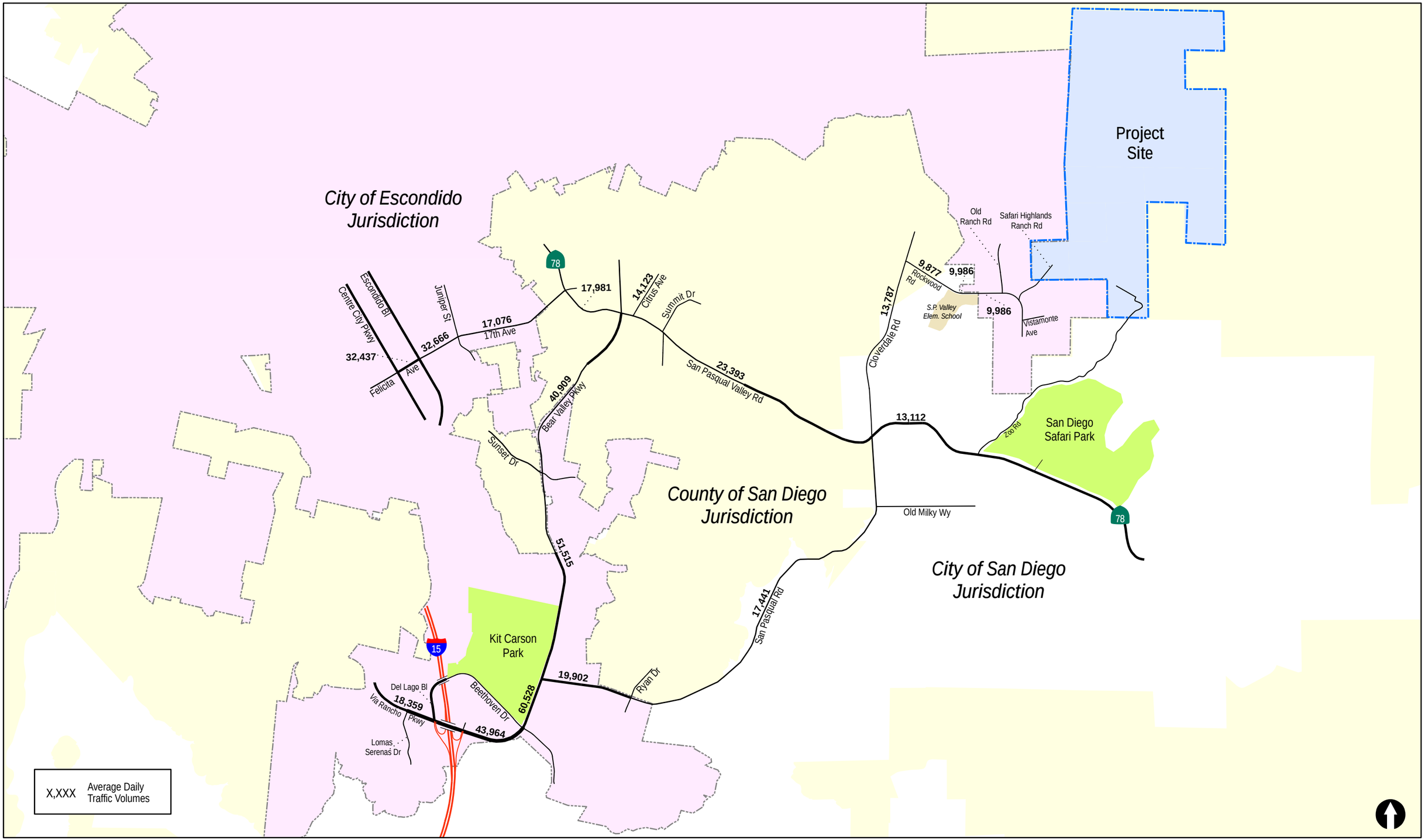

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Figure 10-1

General Plan (Year 2035) Traffic Volumes

SAFARI HIGHLANDS RANCH

11.0 SITE ACCESS AND OTHER ISSUES

Day-to-day access to the proposed project is via Rockwood Road, along the southern portion of the project. As shown on the concept plan (see *Figure 2–1*) the project driveway is located 450 feet from the Old Ranch Road intersection (centerline to centerline) and approximately 300 feet from the Vistamonte Avenue intersection (centerline to centerline) on Rockwood Road.

11.1 Project Driveway Operations

An analysis was completed for the site access point for this project at the proposed Safari Highlands Ranch Road/ Rockwood Road intersection, as shown in *Table 9–1* earlier in this report. The proposed configuration is to provide a shared through/left-turn lane in the eastbound direction, shared through/right-turn lane in the westbound direction, and a shared left-turn/right-turn lane in the southbound direction. One stop sign is proposed on Safari Highlands Ranch Road. With these geometric conditions, the intersection is calculated to operate at LOS B during the AM peak hour and LOS A during the PM peak hour for both the Existing + Project scenario and Existing + Project + Cumulative Projects scenario. The operations are reiterated below in ***Table 11–1***:

TABLE 11–1
ACCESS OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project	
			Delay [a]	**LOS** [b]	**Delay**	**LOS**
3. Rockwood Road/ Safari Highlands Ranch Road	MSSC [c]	AM	DNE	DNE	10.9	B
		PM	DNE	DNE	9.4	A
	Control Type	**Peak Hour**	**Existing + Cumulative Projects**		**Existing + Cumulative Projects + Project**	
			Delay [a]	**LOS** [b]	**Delay**	**LOS**
	MSSC [c]	AM	DNE	DNE	10.9	B
		PM	DNE	DNE	9.4	A

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Stop sign proposed on Safari Highlands Ranch Road approaching Rockwood Road. MSSC = Minor Street Stop Controlled intersection; minor street left-turn delay is reported.

General Notes:

1. DNE = Does not exist.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

11.2 On-Site Roadways

Safari Highlands Ranch Road is proposed as the primary access route to/from the development. The existing topography of the site is constrained by steep grades and environmentally sensitive lands. As a result of these topographic constraints, traffic calming concept plans have been prepared to recommend design features that would calm traffic, reduce speeds and improve the sharing of uses of the roadway (vehicles, bicycles, pedestrians). These plans depict flashing speed signs and directional and speed warning around horizontal and vertical curves, painted speed reduction markings on the roadway indicating an approach to a slower speed zone, as well as the provision of a raised median around the steepest and narrowest portions of the roadway to maintain effective vehicle separation in each direction of traffic flow.

Appendix J contains the traffic calming concept plans.

11.3 Construction Traffic

Safari Highlands Ranch is anticipated to be constructed over a five- to six-year timeframe. Construction traffic will largely enter the project site from Zoo Road. Staging for all equipment and construction personnel will occur on the Safari Highlands Ranch site in contained and well managed areas. Cut from the first phase of development will be placed as fill where required on Safari Highlands Ranch Road. The grading operation will all occur onsite. No outside dirt hauling is necessary because the site, as designed, balances. Once mobilization is complete, heavy machinery traveling off the site will be extremely limited until the completion of the operation.

Prior to beginning construction, work zone traffic control plans and construction transportation management plans should be prepared.

11.4 Transportation Demand Management

Transportation Demand Management (TDM) plans are comprised of features, practices and incentives to encourage potential drivers to use alternate forms of transportation other than single occupancy vehicles. The goal of these plans is to reduce and/or remove vehicle trips out of the peak hours, thereby relieving congestion. The project's TDM program would include the following measures, and would be finalized prior to the approval of the project:

1. Provide facilities, services, and programs that support bicycle use, including but not limited to bicycle parking management, repair and maintenance stations bicycling events, community organizations, maps and educational materials, and other incentives that promote and encourage bicycle use.
2. Management and promotion of the public trails system including maintenance of trail and trail head facilities and signage, maps and educational materials, and potential smart phone applications that connect people and/or provide information about Safari Highlands Ranch Trails.
3. Enhance on-site and off-site pedestrian crossings (see *Table 13–1* showing proposed *Project Design Features)* to provide clearly marked crossing areas for students walking to/from San Pasqual Union Elementary School.

4. Management of car share alternative fuel facilities and services including coordinated drop-off zones, charging stations, services that connect vanpool and carpool users, preferred parking, and more.
5. Install electric vehicle (EV) charging stations within private residences.

12.0 PEDESTRIAN ASSESSMENT & WILDLIFE CROSSING

12.1 Pedestrian Assessment

As previously mentioned, the proposed project is located near the San Pasqual Union Elementary school on Rockwood Road. Historical accident data was researched along Rockwood Road to determine the potential for hazardous conditions on this roadway. According to the data found from the Statewide Integrated Traffic Records System (SWITRS), three (3) collisions have occurred in the past 10 years, zero of them fatal. Of these three (3) accidents, zero involved pedestrians or bicyclists. ***Appendix K*** contains the SWITRS data.

With the project contributing to an increase in vehicular traffic along Rockwood Road near the elementary school, it is recommended that the pedestrian crossing at the all-way stop-controlled intersection at Rockwood Road and Old Ranch Road be enhanced with additional safety features. The project should stripe yellow crosswalks on all three approaches.

At the proposed project access on Rockwood Road, it is also recommended that high-visibility pedestrian crosswalks be installed. The school route should be for children to cross the north leg of the Rockwood Road / Safari Highlands Ranch Road intersection to access the existing sidewalk on the north side of Rockwood Road. Students would continue on the sidewalk on the north side of Rockwood Road, and could then cross at the all-way stop at Old Ranch Road (where high visibility crosswalks are proposed) to reach the school on the south side of the roadway.

12.2 Wildlife Crossing

Up to five (5) wildlife movement tunnels may be provided at key points beneath roadways. The traffic volumes for the roadways in which the tunnels may be located is provided below in ***Table 12–1***. The timeframes for peak wildlife crossing typically occur in the early morning and late evenings, when site traffic would be at its lowest. Vehicular volumes at the site of proposed wildlife crossings are shown against nearby roadways where current wildlife crossings exist to show the low volumes expected within the project site.

Figure 12–1 shows the potential wildlife underpass locations.

TABLE 12–1
WILDLIFE UNDERCROSSING ADT COMPARISON

Segment [a]	Morning [b]		Evening [c]			Night		
	5-6 AM	6-7 AM	5-6 PM	6-7 PM	7-8 PM	11-12 PM	12-1 AM	1-2 AM
On-Site Crossings								
Undercrossing #1	92	266	447	377	232	26	12	8
Undercrossing #2	92	266	447	377	232	26	12	8
Undercrossing #3	55	160	268	226	139	16	7	5
Undercrossing #4	40	114	191	161	99	11	5	3
Undercrossing #5	40	114	191	161	99	11	5	3
Off-Site Crossings								
San Pasqual Valley Road, West of Zoo Road [d]	334	543	714	384	222	64	37	20
San Pasqual Valley Road, East of Zoo Road [d]	334	543	714	384	222	64	37	20
San Pasqual Road, South of San Pasqual Valley Road	106	254	403	228	171	24	6	7
Lake Wohlford Road, West of the dam	117	214	353	311	223	72	49	36
Valley Center Road, Near Lake Wohlford Road	625	1,333	2,148	1,972	946	302	210	114

Footnotes:

a. Under crossings are listed from South to North.
b. Times are specified from: 5:00 AM to an hour after sunrise. Winter: 5-7 AM. Summer: 5-6 AM.
c. Times are specified from: an hour before sunset to 8:00 PM. Winter: 5-8 PM. Summer: 7-8 PM.
d. An ADT count for San Pasqual Valley Road, East of Cloverdale is utilized for this location.

General Notes:

1. ADT = Average daily traffic volume.

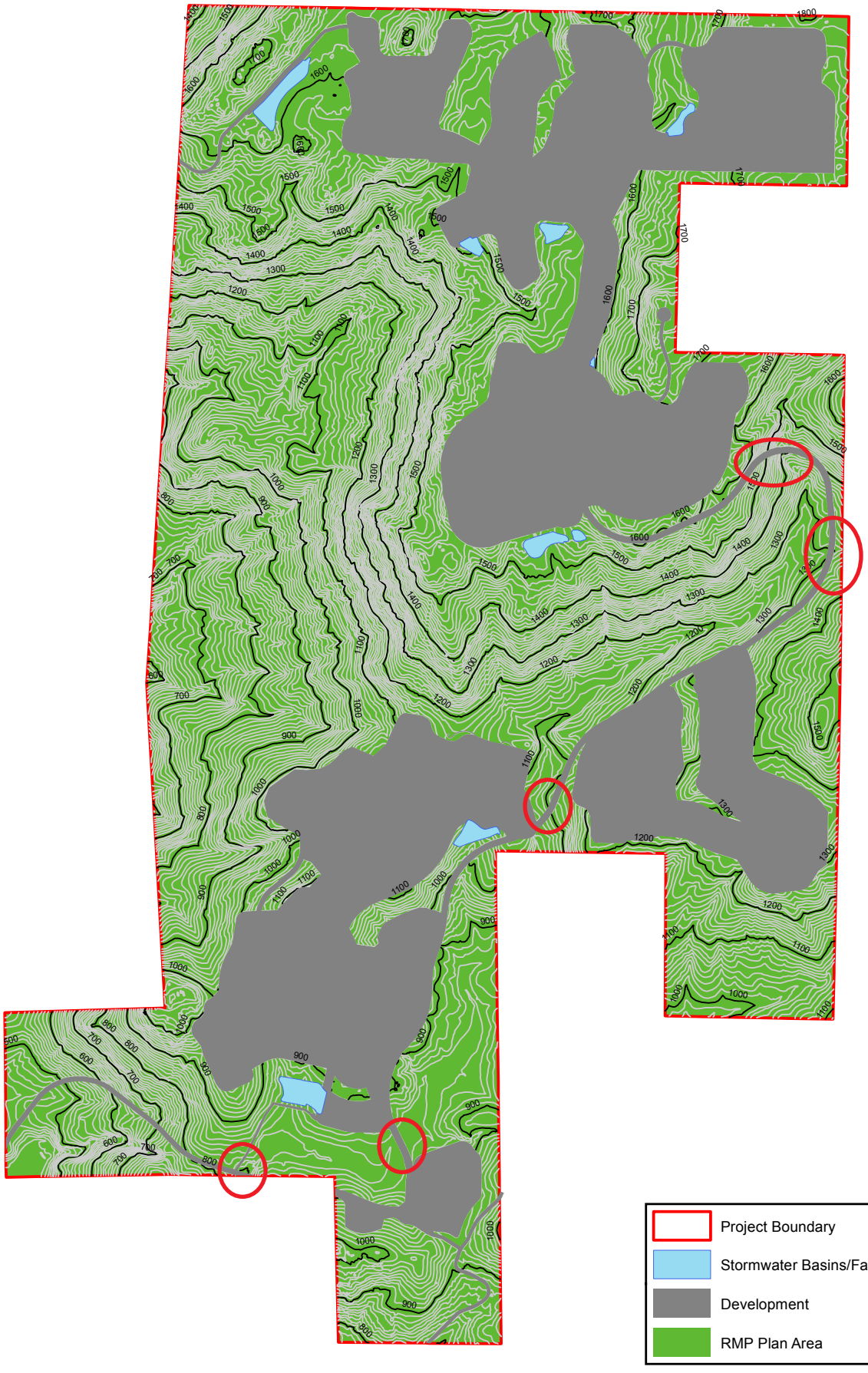

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Figure 12-1

Conceptual Wildlife Underpass Locations

SAFARI HIGHLANDS RANCH

13.0 SUMMARY OF PROJECT DESIGN FEATURES, SIGNIFICANT IMPACTS AND MITIGATION MEASURES

13.1 Project Design Features

Below is a summary of the Project Design Features:

TABLE 13–1
PROJECT DESIGN FEATURES BY THE PROJECT

Location	Proposed Improvements
Roadway Segments	
Safari Highlands Ranch Road (Proposed Site Access)	Provide traffic calming features to reduce speeds along steep grades and horizontal curves. *Appendix J* provides the traffic calming concept plans.
Intersections	
Rockwood Road/ Safari Highland Ranch Road (Proposed Site Access)	Install a stop-sign for southbound trips exiting the Project site. Provide a shared through/left-turn lane in the eastbound direction, shared through/right-turn lane in the westbound direction, and a shared left-turn/right-turn lane in the southbound direction. Stripe parallel bar pedestrian crosswalks at the Rockwood Road / Safari Highlands Ranch Road intersection.
Rockwood Road/ Old Ranch Road	Stripe parallel bar pedestrian crosswalks at the Rockwood Road / Old Ranch Road intersection. Install advanced warning signs, per City standards, to inform drivers of this all-way stop-controlled intersection.

13.2 Significant Impacts

Per the City of Escondido, City of San Diego and County of San Diego's significance thresholds and the analysis methodologies presented in this report, project-related and cumulative traffic are calculated to cause significant impacts within the study area under the direct and cumulative conditions.

The following section lists the significant impacts and provides recommendations for mitigation measures to address operating deficiencies.

13.3 Intersections

13.3.1 *Significant Impacts Prior to Mitigation*

Based on the applied significance criteria, the following impacts were calculated at study area intersections:

County of San Diego

TRA-1. Intersection #1. Rockwood Road/ Cloverdale Road
(Near-Term Direct & Cumulative)

County of San Diego / Caltrans

TRA-2. Intersection #9. San Pasqual Valley Road (SR-78)/ Citrus Avenue
(Near-Term Direct & Cumulative)

TRA-3. Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive
(Near-Term Direct & Cumulative)

TRA-4. Intersection #11. San Pasqual Valley Road (SR-78)/ San Pasqual Road/ Cloverdale Road
(Near-Term Direct & Cumulative)

City of Escondido

TRA-5. Intersection #17. San Pasqual Road / Sierra Linda Drive / Ryan Drive
(Near-Term Direct & Cumulative)

Caltrans Interchange (Including Freeway Ramp Meter)

No Impacts.

13.3.2 *Mitigation Measures and Design Considerations*

County of San Diego

TRA-1. **Intersection #1. Rockwood Road/ Cloverdale Road** – Install a traffic signal and restripe the westbound approach to provide one left-turn lane and one share left-turn/right-turn lane. The south leg of the intersection in the southbound direction shall be restriped to provide an additional receiving lane for the turn left-turning traffic from Rockwood Road. A signal warrant analysis is provided in ***Appendix L***.

As an alternative, a roundabout could be installed. Additional right-of-way would likely need to be acquired. ***Appendix M*** includes a sketch of the roundabout.

In addition, the Project shall construct a raised median or provide a second westbound thru lane along Rockwood Road between Cloverdale Road and San Pasqual Union Elementary. Once completed, either of these improvements would provide for a total daily capacity of 19,000 ADT. As shown in the post-mitigation analysis provided at the end of this report, this improvement would improve operations along this segment from LOS D to LOS B.

Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative intersection impacts to below a level of significance.

County of San Diego / Caltrans

TRA-2. **Intersection #9. San Pasqual Valley Road (SR-78)/ Citrus Avenue –** Prohibit southbound left-turns from Citrus Avenue to eastbound San Pasqual Valley Road (SR 78). The provision of a right-turn out only intersection prohibiting southbound left-turning vehicles would result in the rerouting of vehicle trips currently making this maneuver. The 217 AM and 58 PM peak hour trips would be expected to redistribute equally to the San Pasqual Valley Road (SR 78) intersections with Bear Valley Parkway (additional SBL: 109 AM /29 PM) and Summit Drive Parkway (additional SBL: 109 AM /29 PM), ultimately destined to the east on San Pasqual Valley Road (SR 78). The additional trips to Bear Valley Parkway and Summit Drive would not result in any new impacts to these two intersections. ***Appendix N*** provides the rerouted traffic volumes and post-mitigation intersection analysis worksheets for all three intersections.

Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative intersection impacts to below a level of significance.

TRA-3. **Intersection #10. San Pasqual Valley Road (SR-78)/ Summit Drive –** Mitigation measures for proposed intersection modifications are subject to the Caltrans Intersection Control Evaluation (ICE) policy (Traffic Operation Policy Directive 13-02). Alternative intersection design(s) will need to be considered in accordance with the ICE policy.

Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative intersection impacts to below a level of significance

TRA-4. **Intersection #11. San Pasqual Valley Road (SR-78)/ San Pasqual Road/ Cloverdale Road –** The project should widen the eastbound approach to provide dual left-turn lanes. The north leg of the intersection in the northbound direction should be widened to provide an additional receiving lane for a length of approximately 650 feet plus a 150-foot transition lane. The additional receiving lane would improve traffic flow onto northbound Cloverdale Road.

Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative intersection impacts to below a level of significance.

City of Escondido

TRA-5. **Intersection #17. San Pasqual Road / Sierra Linda Drive / Ryan Drive –** The project should install a traffic signal at this location. The San Pasqual Road/ Sierra Linda Drive/ Ryan Drive intersection operates at unacceptable LOS D without the addition of project traffic. It should be noted that the project contribution to the traffic volumes at this location amounts to 14% of the combined AM and PM peak hour trips.

Implementation of the recommended mitigation measure at this location would mitigate both the near-term direct and cumulative intersection impact to below a level of significance.

13.4 Roadway Segments

13.4.1 *Significant Impacts Prior to Mitigation*

Based on the applied significance criteria, the following impacts were calculated on study area roadway segments:

City of Escondido

TRA-6. Segment #12. Felicita Avenue/17th Avenue: Escondido Boulevard to Juniper Street *(Near-Term Direct & Cumulative)*

TRA-7. Segment #13. Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78) *(Near-Term Direct & Cumulative)*

TRA-8. Segment #16. Via Rancho Parkway: San Pasqual Road to Beethoven Drive *(Near-Term Direct & Cumulative)*

13.4.2 *Mitigation Measures and Design Considerations*

City of Escondido

TRA-6. **Segment #12. Felicita Avenue/17th Avenue: Escondido Boulevard to Juniper Street –** The project should pay a fair share toward the City of Escondido Capital Improvement Project: Felicita and Juniper from Escondido to Chestnut widening project, per the *Fiscal Year 2008/2009 Five Year Capital Improvement Program and Budget*. Based on the fair share calculations, the project's contribution to this improvement should be 2.71 percent. ***Appendix O*** provides a copy of the CIP project sheet and fair share calculations.

Implementation of the recommended mitigation measures at this location would partially mitigate the near-term direct impact and fully mitigate the cumulative impact along this street segment to below a level of significance.

TRA-7. **Segment #13. Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78)** – The project should provide the following enhancements to this roadway segment:

- Provide a white edge-line in both directions between Juniper Street and Encino Drive
- Stripe a dedicated EB right-turn lane to Encino Drive
- Restripe/widen the EB lane to provide an EB right-turn pocket at Lendee Drive
- Extend the two-way left-turn lane eastward to the City/County boundary to allow for WB left-turns into the easternmost driveway accessing the Emmanuel Faith Community Church

The provision of a dedicated right-turn pocket, as well as the extended two-way left-turn pocket allows for turning vehicles onto Lendee Drive and to the church site to decelerate and queue outside of the through lanes on E. 17th Avenue. The removal of turning vehicles from through-traffic lanes have been identified in literature published by the Transportation Research Board (TRB) as one of several principals that improve "the safety and operations of an arterial roadway" (TRB Report S2-C05-RW, 2014).

The amount of vehicles being removed from the through lanes can be quantified using peak hour volumes shown on *Figure 8–3 – Existing + Cumulative Projects + Project* traffic volumes. This figure shows that 602 AM and 513 PM westbound peak hour volumes approach Juniper Street from San Pasqual Valley Road (SR-78) and 388 AM and 705 PM peak hour volumes approach San Pasqual Valley Road (SR-78) from Juniper Street. Approximately 60 homes are located off Lendee Drive (approximately 48 AM/60 PM peak hour trips) and per a recently approved traffic study completed by LLG for the Emmanuel Faith Community Church, the existing weekday trips from church traffic are 60 AM/ 96 PM peak hour trips. The church has been approved to generate an additional 173 AM and 184 PM peak hour weekday trips. Without the proposed right-turn lane improvement and extended TWLTL to allow left-turns into the church site, the Lendee Drive and church volumes are comingled with through vehicles in a single lane. With the provision of these turn lanes, through project traffic would experience lower delays and higher travel times between Centre City Parkway and San Pasqual Valley Road (SR-78).

A portion of this segment between the City of Escondido's boundary, just west of Palomino Lane, to San Pasqual Valley Road (SR-78) lies within the County's jurisdiction. The County of San Diego allows for these same types of "spot improvements" to be used along physically constrained, poorly operating street segments. While not formally incorporated in the published *County of San Diego Guidelines for Determining Significance* (August 2011), County staff consistently support and accept the practice utilizing additional turn lanes, medians, etc. as capacity enhancing measures for roadway segments in lieu of widening. It should also be noted the City of Escondido has also accepted "spot improvements" to offset street segment impacts.[1]

[1] City of Escondido, *Victory Industrial Park Traffic Study*, prepared by LLG in May 2016. Approved by City Staff May 25, 2016.

It is also the case that daily street segment analysis lacks the precision of peak hour arterial analysis, which takes into account more detailed traffic flow patterns, intersection controls, and roadway features. ***Table 13–2*** summarizes near-term peak hour arterial operations on this segment. As shown in *Table 13–2*, the peak hour arterial operations show a better LOS as compared to the daily calculation. The speed reduction due to the Project is less than 1.0 mph for all peak hours/directions on this segment. Per the City of Escondido significance thresholds, up to a 1.0 mph speed reduction due to the Project is allowable on LOS D or worse operating segments. ***Appendix N*** provides the peak hour arterial analysis sheets.

LLG concludes that the proposed mitigation measures would sufficiently mitigate the V/C impacts caused by the project. This conclusion is based on engineering judgment utilizing a quantitative comparison of traffic served by the improvements versus traffic affected by the project, as well as published literature acknowledging the capacity enhancing effects of turn pockets in particular. This conclusion is further supported by the prevailing practice of the County of San Diego. Thus, the proposed mitigation measures are considered sufficient to offset the increase over allowable V/C on these roadway segments caused by development of the project.

Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative street segment impacts to below a level of significance.

TABLE 13–2
PEAK HOUR ARTERIAL SUMMARY

Street Segment	Direction	Existing + Cumulative				Existing + Project + Cumulative					
		AM		PM		AM			PM		
		Speed [a]	LOS [b]	Speed	LOS	Speed	LOS	Δ [c]	Speed	LOS	Δ
Felicita Ave / 17th Ave											
Juniper Street to San Pasqual Valley Road	EB	20.8	D	21.2	D	20.1	D	(0.7)	21.1	D	(0.1)
	WB	23.7	C	27.2	C	23.8	C	0.1	28.1	B	0.9

Footnotes:

a. Speed in miles per hour
b. Level of Service
c. Δ denotes project-induced speed decrease.

SPEED (MPH)/LOS THRESHOLDS

LOS	Class I	Class II	Class III	Class IV
A	>42	>35	>30	>25
B	>34-42	>28-35	>24-30	>19-25
C	>27-34	>22-28	>18-24	>13-19
D	>21-27	>17-22	>14-18	>9-13
E	>16-21	>13-17	>10-14	>7-9
F	≤16	≤13	≤10	≤7

TRA-8. **Segment #16. Via Rancho Parkway: San Pasqual Road to Beethoven Drive –** Lengthen the southbound right-turn pocket to extend it by an additional 50 feet approaching Beethoven Drive. Based on field observations, during the PM peak hour, vehicles destined for Beethoven Drive are blocked by the long queue of southbound through vehicles. The extension of this turn pocket would allow vehicles to enter into the right-turn lane at a faster rate thus resulting in shorter queues in the through lane and decreased wait times. Also lengthen the northbound right-turn pocket by 55 feet at the Via Rancho Parkway/San Pasqual Road intersection. Finally, the owner/permittee shall work with the City to install adaptive signal timing along Via Rancho Parkway between San Pasqual Road and Sunset Drive (just east of the I-15 northbound ramps) to improve traffic flow.

As previously mentioned in the prior mitigation measures, street segment analysis lacks the accuracy of intersection analysis. The intersections on both sides of this roadway segment (Via Rancho Parkway/Beethoven Drive and Bear Valley Parkway/San Pasqual Road) are forecasted to operate at acceptable LOS C or better under Existing + Project + Cumulative Project conditions. The project adds at most 10 AM peak hour trips to the southbound right-turn movement at Beethoven Drive. The additional 50 feet of storage would accommodate at least two (2) vehicles (assuming the industry standard of 22 feet per vehicle) at any given time. In an hour, the 10 peak hour trips amounts to approximately one (1) vehicle every six (6) minutes. The additional 50 feet of storage in the right-turn lane will be able to queue at least two (2) more automobiles per minute which would amount to 120 vehicles processed per hour which would more than accommodate the 10 trips generated by the project in the AM peak hour.

For the northbound right-turn at San Pasqual Road, the project adds at most 123 PM peak hour trips to this movement. The additional 55 feet of storage would accommodate about 2.5 vehicles per minute (assuming the industry standard of 22 feet per vehicle) at any given time. In an hour, that amounts to approximately one (1) vehicle every 30 seconds. The additional 55 feet of storage in the right-turn lane will be able to queue approximately 2.5 more automobiles per minute which would amount to 150 vehicles processed per hour which would more than accommodate the 123 trips generated by the project in the PM peak hour.

Implementation of the above recommended mitigation measures at this location, which includes improving the intersections on either end of the segment, would mitigate this near-term direct, near-term cumulative, and long-term cumulative street segment impact to below a level of significance.

Consideration was given to installing a northbound right-turn overlap phase at the Bear Valley Parkway / San Pasqual Road intersection to provide additional mitigation. The westbound to eastbound U-turn would need to be prohibited. Analysis of the ramifications of providing this phasing was conducted. Based on the amount of drivers that use the U-turn and the fact that it would cause an increase in left-turns from the San Pasqual High School onto eastbound San Pasqual Road, this additional mitigation was rejected.

13.5 Impacts and Mitigation Summary Table

Table 13–3 summarizes the significant impacts, corresponding mitigation measures, and post-mitigation analysis.

Appendix N provides the post-mitigation analysis worksheets.

TABLE 13–3
IMPACT/MITIGATION MEASURE SUMMARY

MM#	Intersection	Jur.	Peak Hour	Pre-Mitigation Operations [a]				Impact Type	Mitigation Measure	Post Mitigation		Mitigated to Below a Level of Significance
				Without Project		With Project						
				Delay	LOS	Delay	LOS			Delay	LOS	
TRA-1	1. Rockwood Road/ Cloverdale Road [b]	County of San Diego	AM PM	15.5 –	C –	>100 –	F –	Near-Term Direct & Cumulative	Install a traffic signal and restripe the westbound approach to provide one left-turn lane and one share left-turn/right-turn lane. The south leg of the intersection in the southbound direction shall be restriped to provide an additional receiving lane for the turn left-turning traffic from Rockwood Road. As an alternative, a roundabout could be installed.	9.3 –	A –	Yes
TRA-2	9. San Pasqual Valley Road (SR-78)/ Citrus Avenue	County of San Diego/ Caltrans	AM PM	>100 47.6	F E	>100 >100	F F	Near-Term Direct & Cumulative	Prohibit southbound left-turns from Citrus Avenue to eastbound San Pasqual Valley Road (SR 78). The provision of a right-turn out only intersection prohibiting southbound left-turning vehicles would result in the rerouting of vehicle trips currently making this maneuver. Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative intersection impacts to below a level of significance.	31.7 17.1	D C	Yes
TRA-3	10. San Pasqual Valley Road (SR-78)/ Summit Drive [c]	County of San Diego/ Caltrans	AM PM	71.4 37.7	F E	>100.0 87.7	F F	Near-Term Direct & Cumulative	Mitigation measures for proposed intersection modifications are subject to the Caltrans Intersection Control Evaluation (ICE) policy (Traffic Operation Policy Directive 13-02). Alternative intersection design(s) will need to be considered in accordance with the ICE policy. Implementation of the recommended mitigation measures at this location would mitigate both the near-term direct and cumulative intersection impacts to below a level of significance.	23.1 17.3	C B	Yes
TRA-4	11. San Pasqual Valley Road (SR-78)/ San Pasqual Road/Cloverdale Road	County of San Diego/ Caltrans	AM PM	– 44.7	– D	– 89.3	– F	Near-Term Direct & Cumulative	The project should widen the eastbound approach to provide dual left-turn lanes. The north leg of the intersection in the northbound direction should be widened to provide an additional receiving lane for a length of approximately 650 feet plus a 150-foot transition lane. The additional receiving lane would improve traffic flow onto northbound Cloverdale Road.	– 27.4	– C	Yes
TRA-55	17. San Pasqual Road / Sierra Linda Drive / Ryan Drive	City of Escondido	AM PM	28.0 27.2	D D	35.0 32.4	D D	Near-Term Direct & Cumulative	The project should signalize the intersection. The San Pasqual Road/ Sierra Linda Drive/ Ryan Drive intersection operates at unacceptable LOS D without the addition of project traffic. It should be noted that the project contribution to the traffic volumes at this location amounts to 14% of the combined AM and PM peak hour trips.	9.6 8.5	A A	Yes

TABLE 13–3 (CONT.)
IMPACT/MITIGATION MEASURE SUMMARY

MM#	Street Segment	Jur.	Pre-Mitigation Operations				Impact Type	Mitigation Measure	Post Mitigation		Mitigated to Below a Level of Significance
			Without Project		With Project						
			LOS	V/C	LOS	V/C			LOS	V/C	
TRA-1 [d]	Rockwood Road: Cloverdale Road to San Pasqual Union Elementary	County of San Diego	B	–	D	–	–	Construct a raised median or provide a second westbound thru lane along Rockwood Road between Cloverdale Road and San Pasqual Union Elementary. Once completed, either of these improvements would provide for a total daily capacity of 19,000 ADT. No widening would be necessary. This recommendation is provided as part of TRA-1 mitigation for the Rockwood Road/Cloverdale Road intersection.	B [d]	–	Yes
TRA-6	12. Felicita Avenue/17th Avenue: Escondido Boulevard to Juniper Street	City of Escondido	F	1.3493	F	1.4084	Near-Term Direct & Cumulative	The project should pay a fair share toward the City of Escondido Capital Improvement Project: Felicita and Juniper from Escondido to Chestnut widening project, per the Fiscal Year 2008/2009 Five Year Capital Improvement Program and Budget. Based on the fair share calculations, the project's contribution to this improvement should be 2.71 percent.	C	0.571	Partially [e]
TRA-7	13. Felicita Avenue/17th Avenue: Juniper Street to San Pasqual Valley Road (SR-78)	City of Escondido	D	0.8720	E	0.9350	Near-Term Direct & Cumulative	The project should provide the following enhancements to this roadway segment: • Provide a white edge-line in both directions between Juniper Street and Encino Drive • Stripe a dedicated EB right-turn lane to Encino Drive • Restripe/widen the EB lane to provide an EB right-turn pocket at Lendee Drive • Extend the two-way left-turn lane eastward to the City/County boundary to allow for WB left-turns into the easternmost driveway accessing the Emmanuel Faith Community Church The provision of a dedicated right-turn pocket, as well as the extended two-way left-turn pocket allows for turning vehicles onto Lendee Drive and to the church site to decelerate and queue outside of the through lanes on E. 17th Avenue. The removal of turning vehicles from through-traffic lanes have been identified in literature published by the Transportation Research Board (TRB) as one of several principals that improve "the safety and operations of an arterial roadway" (TRB Report S2-C05-RW, 2014). See *Section 13.4.2* of this report for further details on this mitigation measure.	N/A	N/A	Yes

TABLE 13–3 (CONT.)
IMPACT/MITIGATION MEASURE SUMMARY

MM#	Street Segment	Jur.	Pre-Mitigation Operations				Impact Type	Mitigation Measure	Post Mitigation		Mitigated to Below a Level of Significance
			Without Project		With Project						
			LOS	V/C	LOS	V/C			LOS	V/C	
TRA-8	16. Via Rancho Parkway: San Pasqual Road to Beethoven Drive	City of Escondido	F	1.0701	F	1.1164	Near-Term Direct & Cumulative	Lengthen the southbound right-turn pocket to extend it by an additional 50 feet approaching Beethoven Drive. Based on field observations, during the PM peak hour, vehicles destined for Beethoven Drive are blocked by the long queue of southbound through vehicles. The extension of this turn pocket would allow vehicles to enter into the right-turn lane at a faster rate thus resulting in shorter queues in the through lane and decreased wait times. Also lengthen the northbound right-turn pocket by 55 feet at the Via Rancho Parkway/San Pasqual Road intersection. Finally, the owner/permittee shall work with the City to install adaptive signal timing along Via Rancho Parkway between San Pasqual Road and Sunset Drive (just east of the I-15 northbound ramps) to improve traffic flow. See *Section 13.4.2* of this report for further details on this mitigation measure.	N/A	N/A	Yes

Footnotes:

a. The Existing + Cumulative Projects conditions are used with and without the project for the pre-mitigation and post-mitigation calculations.
b. The alternative mitigation measure of installing a roundabout would operate at LOS A (See *Appendix M*).
c. The post-mitigation delay at this intersection shows operations with the installation of a traffic signal. However, mitigation measures for proposed intersection modifications are subject to the Caltrans Intersection Control Evaluation (ICE) policy (Traffic Operation Policy Directive 13-02). Alternative intersection design(s) will need to be considered in accordance with the ICE policy.
d. As part of the mitigation for the Rockwood Road/Cloverdale Road intersection (TRA-1), the provision of a raised median or restriping of Cloverdale Road to provide a third westbound lane is proposed. This improvement will improve the LOS D conditions forecasted with the project to LOS C by increasing the daily capacity to 19,000 ADT.
e. Payment of a fair share toward the City CIP Project partially mitigates the direct impact along this street segment and fully mitigates the cumulative impact.

General Notes:

1. MM# = Mitigation measure number.
2. Jur. = Jurisdiction
3. Sig = Significant impact post-mitigation.
4. Mitigation provided for locations currently operating at LOS E or F are required to improve operations to better than or equal to pre-project conditions.

End of Report