LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

661 BEAR VALLEY

Escondido, California
September 1, 2015

LLG Ref. 3-13-2299

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

EXECUTIVE SUMMARY

The "661 Bear Valley" Project (Project) proposes the development of 55 residential dwelling units on 40.88 acres. The project site is located east of Bear Valley Parkway, north of Encino Drive in the City of Escondido.

The project study area includes five intersections and eight roadway street segments. The traffic analyses for the project were conducted 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 + Project + Cumulative Projects
- Buildout (Year 2035) without Project (Street Segments only)
- Buildout (Year 2035) with Project (Street Segments only)

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 10.0 trips/ unit. The project is calculated to generate 550 daily trips with 44 trips (13 inbound/31 outbound) in AM peak hour and 55 trips (39 inbound/16 outbound) during PM peak hour.

The project traffic distribution was based on a SANDAG Series 11 Select Zone Assignment to determine the gross regional distribution of traffic. Additional engineering judgment was applied based on existing traffic flows, intersection controls, and roadway characteristics to refine the local distribution.

Cumulative projects were accounted for based on research conducted by LLG within the City of Escondido and County of San Diego. Under direction of City staff, cumulative project information was interpolated based on growth between Year 2035 volumes and existing traffic counts.

A Horizon Year (2035) analysis was conducted comparing street segment operations both with and without the project. The analysis showed that no changes to future roadway impacts would occur due to development of the Proposed Project.

Based on the City of Escondido and Caltrans significance criteria, ***significant impacts are identified*** at one (1) intersection and two (2) street segment locations. Proposed mitigation measures are described in *Section 12.0* of this report.

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661 BEAR VALLEY

Escondido, California
September 1, 2015

1.0 INTRODUCTION

Linscott, Law and Greenspan, Engineers (LLG) have prepared the following traffic impact analysis to assess the impacts to the street system as a result of the 661 Bear Valley residential project (Project), which proposes the development of 55 single-family dwelling units. The Project site is located east of Bear Valley Parkway across from Encino Drive in the City of Escondido.

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

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
- Analysis of Near-term Scenarios
- Analysis of Buildout Scenarios
- Site Access Discussion
- Significance of Impacts and Mitigation Measures

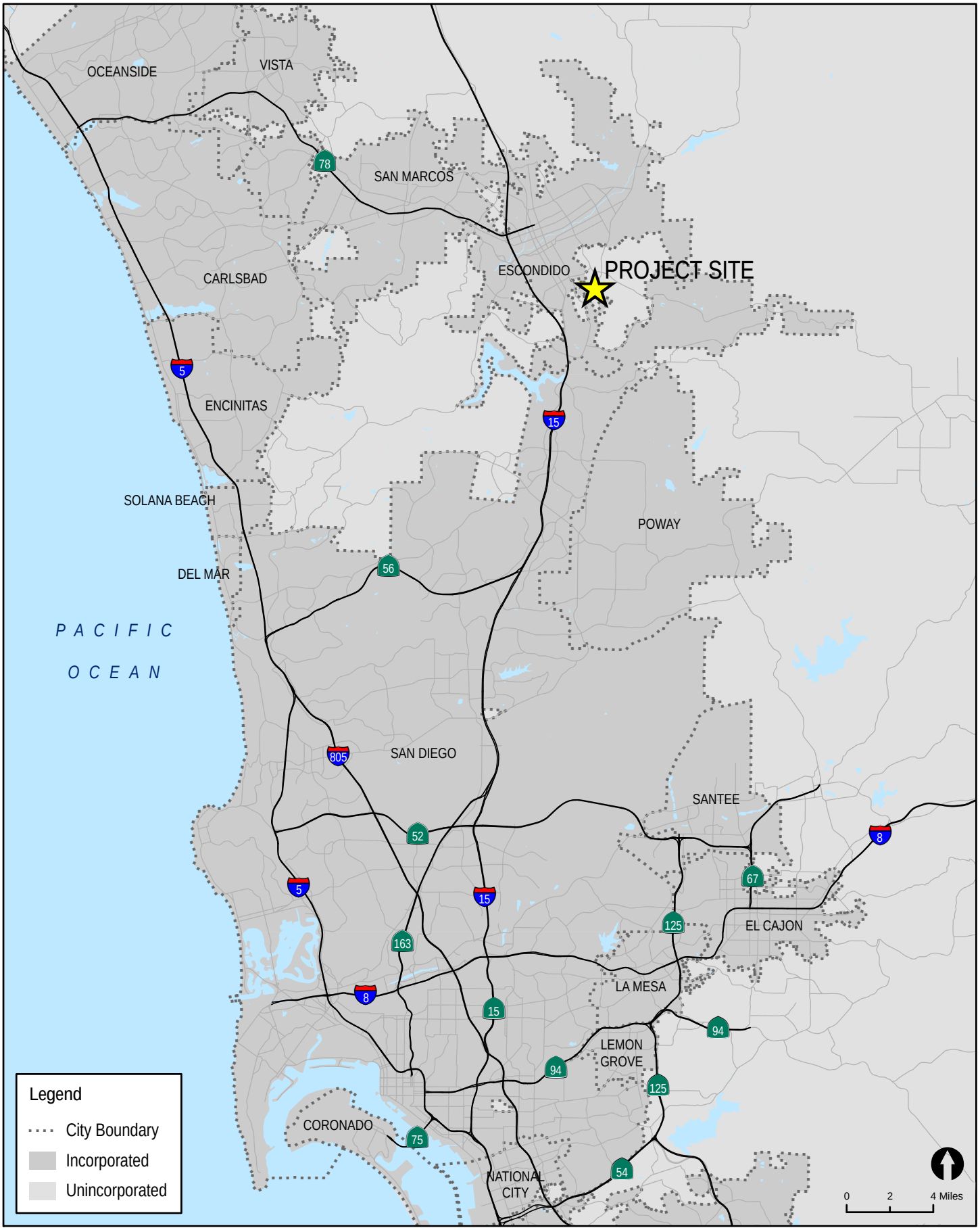

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Figure 1-1

Vicinity Map

661 Bear Valley

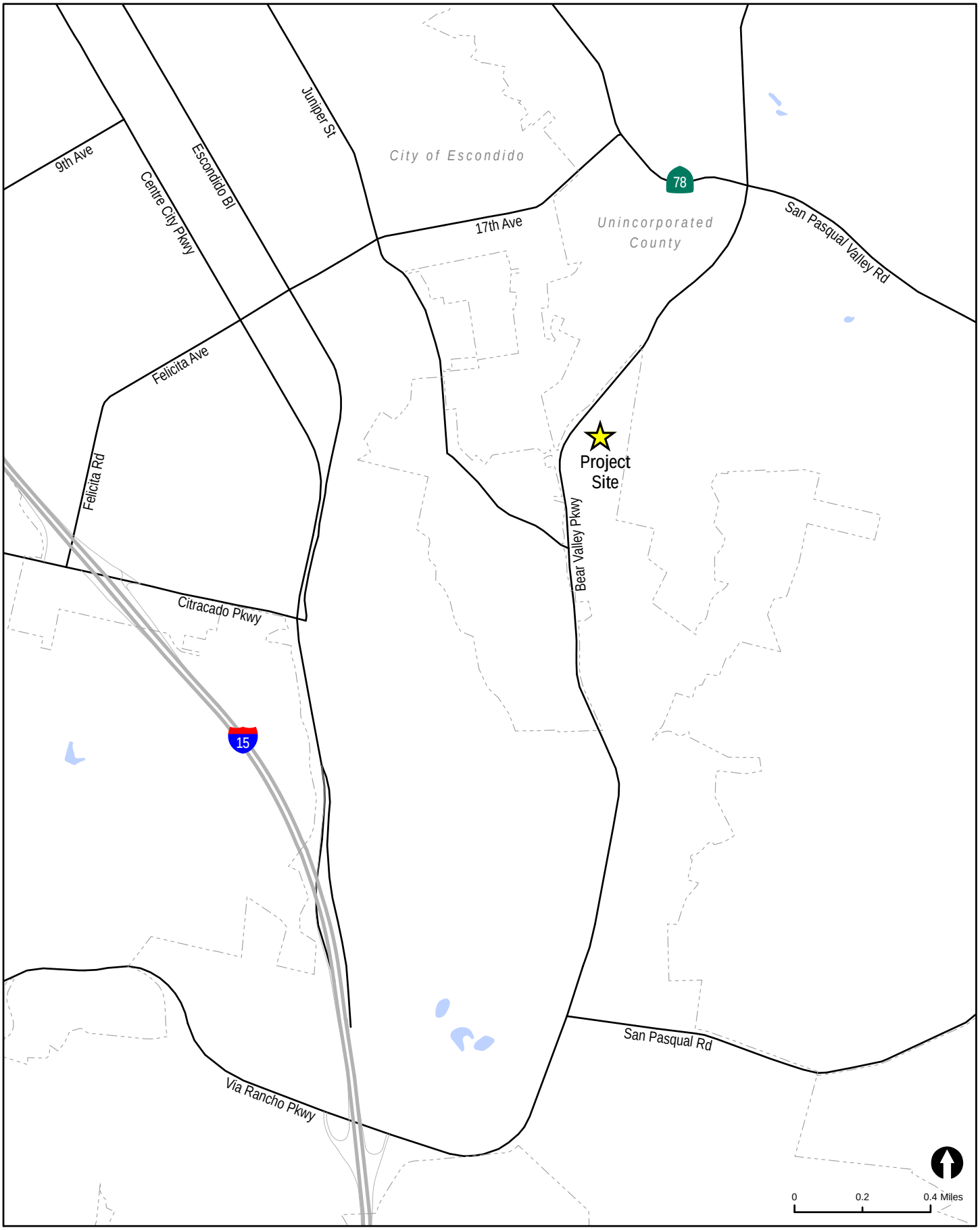

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Figure 1-2

Project Area Map

661 Bear Valley

2.0 PROJECT DESCRIPTION

2.1 Project Location

The Project is located east of Bear Valley Road, across from Encino Drive in the City of Escondido.

2.2 Project Description

The proposed Project would construct 55 new single-family detached residences on a 40.88 acre parcel. The residential lots would have an average lot size of approximately 10,000 square feet, with approximately 20.7 acres of the parcel devoted to open space and recreation. The site is designated for Estate II residential land uses in the City of Escondido General Plan (2012), which allows for up to two dwelling units per acre (du/ac). The gross density of the Project site would be 1.35 du/ac.

2.3 Project Access

Access to the site would be provided from a signalized, full-access driveway located across from the existing Zlatibor Ranch Road at the northern portion of the Project. A secondary, emergency-only access would be provided at the south end of the site.

2.4 Frontage Improvements

In addition to the signalized access at the main driveway, the Project will also dedicate provide full half-width improvements (51 feet from centerline to property line) along the site's frontage on Bear Valley Parkway. The improvements will provide a third northbound lane along the Project extents. The current capacity of Bear Valley Parkway is 15,000 average daily trips (ADT) per lane. The additional 3rd lane would offer 7,500 ADT more capacity to the roadway. These improvements do not include realignment or signalization of Encino Drive at Bear Valley Parkway.

Figure 2–1 shows the Project's Site Plan.

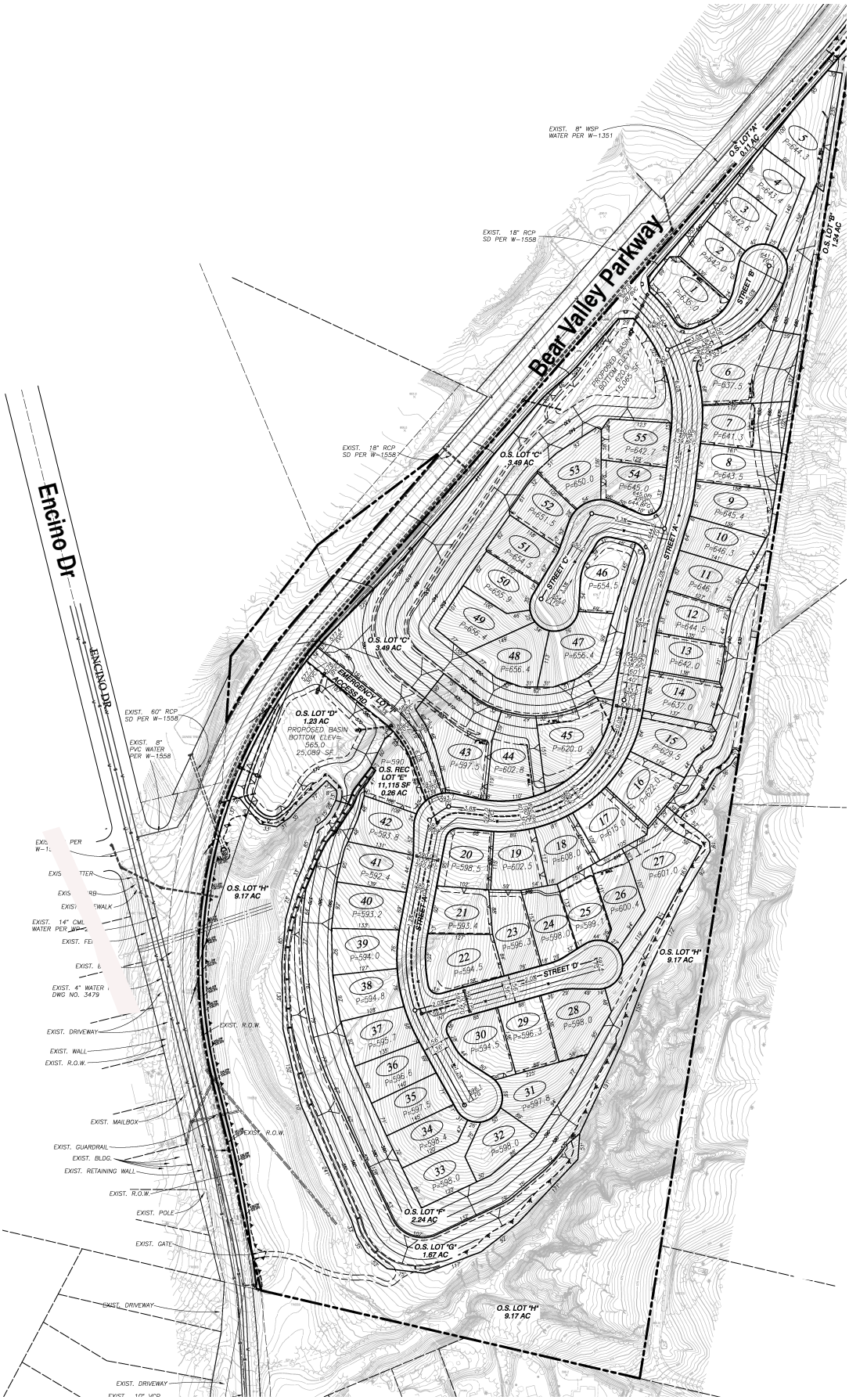

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Figure 2-1

Site Plan

661 Bear Valley

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 study area. ***Figure 3–1*** shows an existing conditions diagram, including signalized/unsignalized 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*. The study area includes the following five (5) existing public intersections and eight (8) street segments.

Intersections:

1. Bear Valley Parkway / San Pasqual Valley Road (SR 78)
2. Bear Valley Parkway / Zlatibor Ranch Road (future Project Driveway)
3. Bear Valley Parkway / Encino Drive
4. Bear Valley Parkway / Sunset Drive
5. Bear Valley Parkway / Las Palmas Avenue

Segments:

1. Bear Valley Parkway: Eldorado Drive to Zlatibor Ranch Rd
2. Bear Valley Parkway: Zlatibor Ranch Rd to Encino Drive
3. Bear Valley Parkway: Encino Drive to Sunset Drive
4. Bear Valley Parkway: Sunset Drive to Las Palmas Avenue
5. Bear Valley Parkway: Las Palmas Avenue to Mary Lane
6. Bear Valley Parkway: Mary Lane to San Pasqual Road
7. Encino Drive: West of Bear Valley Parkway
8. Sunset Drive: West of Bear Valley Parkway

3.1 Existing Transportation Conditions

The following is a brief description of the streets in the Project area. All study area roadways are located within the City of Escondido General Plan area and thus roadway classifications are taken from the City of Escondido's *General Plan Mobility Element (2011)*.

Bear Valley Parkway is a north/south facility with varying Mobility Element classifications. In the Project study area, from north of San Pasqual Valley Road to Las Palmas Avenue, it is currently constructed as a two-lane undivided roadway and classified as Major Road. From Las Palmas Avenue to Beethoven Drive, it is constructed as a four-lane divided roadway and classified as a Super Major Road.

The posted speed limit is 50 mph on all segments of Bear Valley Parkway described, with the exception of a 25 mph school zone in the vicinity of Las Palmas Avenue. Curbside parking is prohibited. Bear Valley Parkway provides Class II bicycle lanes from its southern end to San Pasqual Valley Road.

It should be noted that there is a Specific Alignment Plan for the two-lane portion of Bear Valley Parkway along the Project's frontage, through Bear Valley Parkway's intersection with Encino Drive. This plan will allow Bear Valley Parkway to be improved to four-lanes, but with requisite design exceptions needed to preserve sensitive riparian habitat located between the site and the roadways.

San Pasqual Valley Road (SR 78) is classified as a Major Road. It is constructed as a two-lane undivided roadway with a posted speed limit of 45 mph. No bicycle facilities are provided, though Class II bicycle lanes are proposed. SR 78 intersects Bear Valley Parkway at a signalized intersection.

Encino Drive is classified as a Local Collector. It is currently constructed as a two-lane undivided roadway with a two-way left-turn lane on a short segment immediately adjacent to the southern end of the roadway. The posted speed limit is 35 mph and curbside parking is not allowed. No bicycle facilities currently exist, though Class II bicycle lanes are proposed. Encino Drive intersects Bear Valley Parkway with an unorthodox unsignalized intersection configuration.

Sunset Drive is classified as a Local Collector. It is currently constructed as a two-lane undivided roadway with a posted speed limit of 40 mph. Curbside parking is prohibited. Sunset Drive intersects Bear Valley Parkway at a signalized intersection.

Las Palmas Avenue is an unclassified residential road. It is currently constructed as a two-lane undivided road, with a two-way left-turn lane in the immediate vicinity of Bear Valley Middle School, just west of Bear Valley Parkway. The posted speed limit is 25 mph and curbside parking is prohibited. Las Palmas Avenue is signalized at its intersection with Bear Valley Parkway. In addition to the Bear Valley Middle School, LR Green Elementary School and the Classical Academy are also located in the vicinity of this intersection.

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 February 2014. Manual hand counts at the study area intersections were also conducted in February 2014 when schools were in session.

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]
Bear Valley Parkway	
Eldorado Drive to Zlatibor Ranch Road	20,600
Zlatibor Ranch Road to Encino Drive	20,110
Encino Drive to Sunset Drive	21,770
Sunset Drive to Las Palmas Avenue	30,600
Las Palmas Avenue to Mary Lane	27,300
Mary Lane to San Pasqual Road	29,430
Encino Drive	
West of Bear Valley Parkway	1,420
Sunset Drive	
West of Bear Valley Parkway	7,450

Footnotes:

a. Average Daily Traffic Volume counts conducted in February 2014 by LLG Engineers.

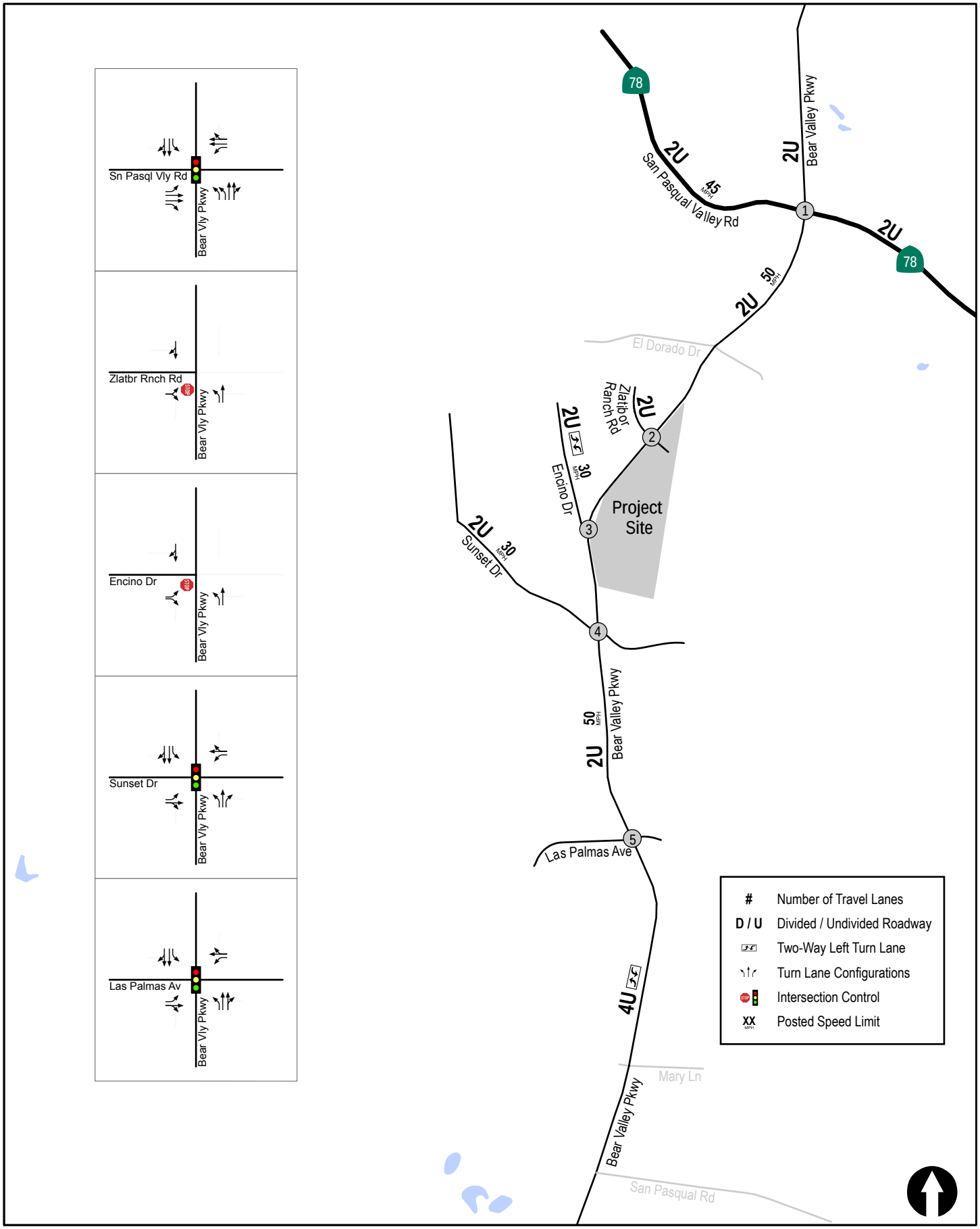

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Figure 3-1

Existing Conditions Diagram

661 BEAR VALLEY

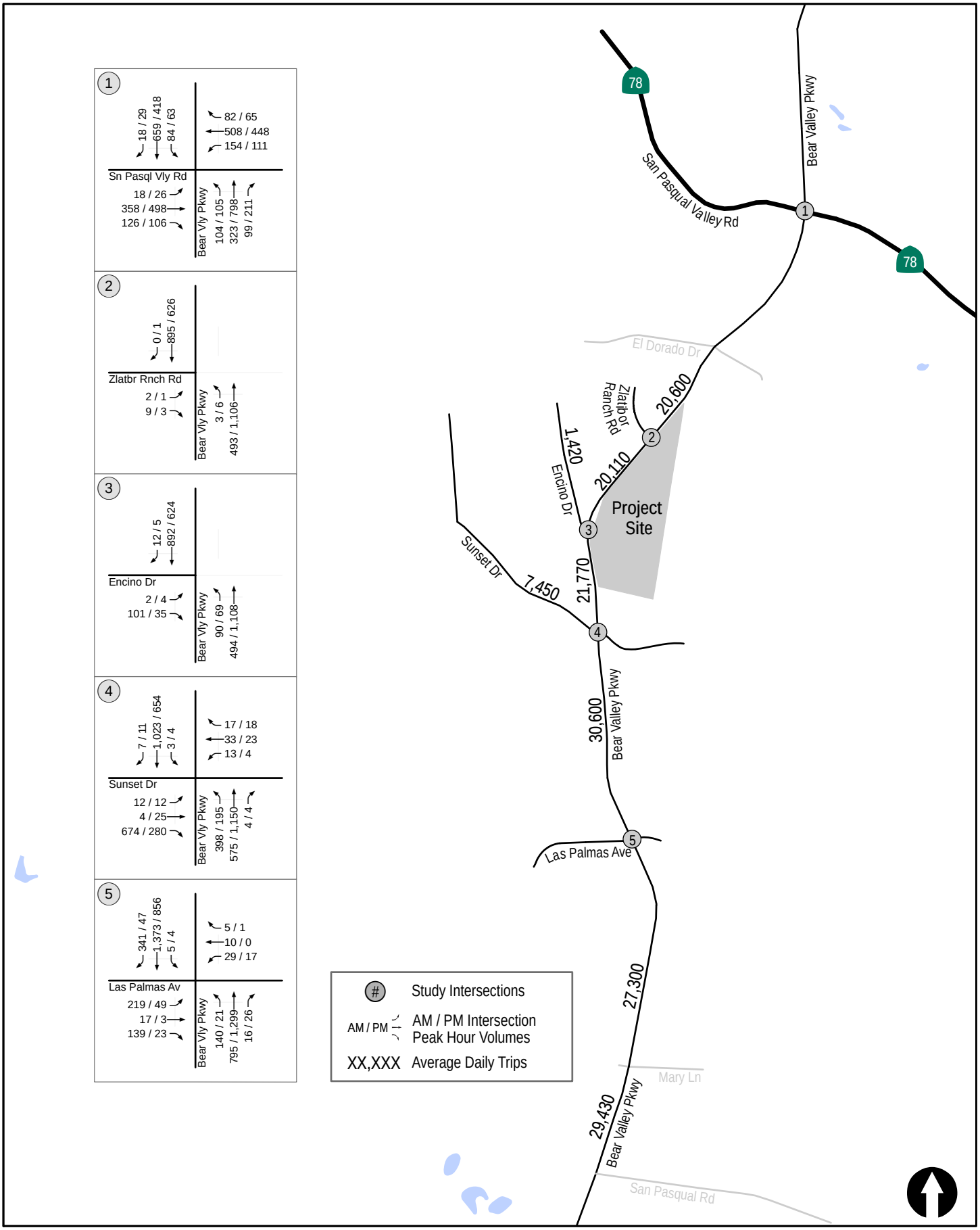

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Figure 3-2

Existing Traffic Volumes

661 BEAR VALLEY

4.0 ANALYSIS APPROACH AND METHODOLOGY

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

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 Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002) published by SANDAG, to determine the project traffic volume.
3. Traffic 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 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 unsignalized) 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) (WP)	200

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

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 8) 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 Highway Capacity Manual (HCM),* with the assistance of the *Synchro* (version 8) computer software. Unsignalized 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 *Roadway Classification, Level of Service, and ADT Table.* This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The City of Escondido *Roadway Classification, Level of Service, and ADT Table* is attached in ***Appendix C***.

5.0 SIGNIFICANCE CRITERIA

The project study area includes locations that lie exclusively within the City of Escondido. The following is a summary of the City's published significance criteria.

5.1 City of Escondido

In accordance with "SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region", 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**

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Levels of Service

Table 6–1 summarizes the existing peak hour intersection operations. As shown, all the study area intersections are calculated to currently operate at service levels of LOS D or better during both the AM and PM peak hours, with the exception of Bear Valley Parkway / Sunset Drive, which currently operates at LOS F during the AM peak hour.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Bear Valley Parkway / San Pasqual Valley Road (SR 78)[c]	Signal	AM	38.8	D
		PM	43.1	D
2. Bear Valley Pkwy / Zlatibor Ranch Rd (future Project Driveway)	OWSC[d]	AM	17.7	C
		PM	15.8	C
3. Bear Valley Parkway / Encino Drive	OWSC[d]	AM	30.5	D
		PM	20.4	C
4. Bear Valley Parkway / Sunset Drive	Signal	AM	121.6	F
		PM	41.6	D
5. Bear Valley Parkway / Las Palmas Avenue	Signal	AM	44.5	D
		PM	6.7	A

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Caltrans-controlled intersection location.
d. One-Way Stop Controlled intersection, Minor street left-turn delay is reported.

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

6.2 Daily Street Segment Levels of Service

Table 6–2 summarizes the existing segment operations along the key study area roadways. As shown, Bear Valley Parkway from Eldorado Drive to San Pasqual Road is calculated to currently operate at LOS F. All other roadway segments currently operate at LOS D or better.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Existing Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
Bear Valley Parkway					
Eldorado Drive to Zlatibor Ranch Road	2-Lane Collector	15,000	20,600	F	1.373
Zlatibor Ranch Road to Encino Drive	2-Lane Collector	15,000	20,110	F	1.341
Encino Drive to Sunset Drive	2-Lane Collector	15,000	21,770	F	1.451
Sunset Drive to Las Palmas Avenue	2-Lane Collector	15,000	30,600	F	2.040
Las Palmas Avenue to Mary Lane	4-Lane Major	37,000	27,300	C	0.738
Mary Lane to San Pasqual Road	4-Lane Major	37,000	29,430	D	0.795
Encino Drive					
West of Bear Valley Parkway	2-Lane Collector	15,000	1,420	A	0.095
Sunset Drive					
West of Bear Valley Parkway	2-Lane Collector	15,000	7,450	B	0.497

Footnotes:

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

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

The Project proposes to develop 55 single-family homes on an 40.88-acre property.

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 type and density of homes proposed by the Project, SANDAG specifies a trip rate of 10/ unit.

Table 7–1 shows a summary of the Project traffic generation. As tabulated the proposed Project is calculated to generate 550 daily trips with 44 trips (13 inbound/31 outbound) in AM peak hour and 55 trips (39 inbound/16 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	% of ADT	In:Out Split	Volume In	Volume Out
Residential – Single Family Detached	55 DU	10/DU	550	8%	30:70	13	31	10%	70:30	39	16

Footnotes:

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

7.2 Trip Distribution/Assignment

A Select Zone Assignment (SZA) was conducted to determine the area's regional distribution. LLG utilized the SANDAG Series 11 traffic model, including the subarea model for the City of Escondido including the land uses associated with General Plan Update. The Project traffic was distributed and assigned to the local street system based on the SZA results, which is affected by the Project's proximity to Interstate 15 and State Route 78, and the location of area schools, and office/commercial/retail development, particularly in downtown Escondido.

While the model was used to determine gross regional distribution, LLG applied engineering judgment based on existing traffic flows, intersection controls and roadway characteristics to inform the local distribution among the nearby intersections. In some instances, reciprocal movements occur at two different intersections based on what type of control (signal or stop sign) the intersections provide.

Figure 7–1 shows the Project trip distribution percentages. ***Figure 7–2*** shows the AM/PM peak hour Project traffic volumes. ***Figure 7–3*** shows Existing + Project traffic volumes.

As seen in *Figure 7–1*, 2% of inbound and outbound Project traffic is expected to use Eldorado Drive. To be conservative in the intersection analysis, this traffic was assigned to use the Bear Valley Parkway / San Pasqual Valley Road (SR 78) intersection. This is reflected in the volumes shown in *Figure 7–2* and *Figure 7–3*.

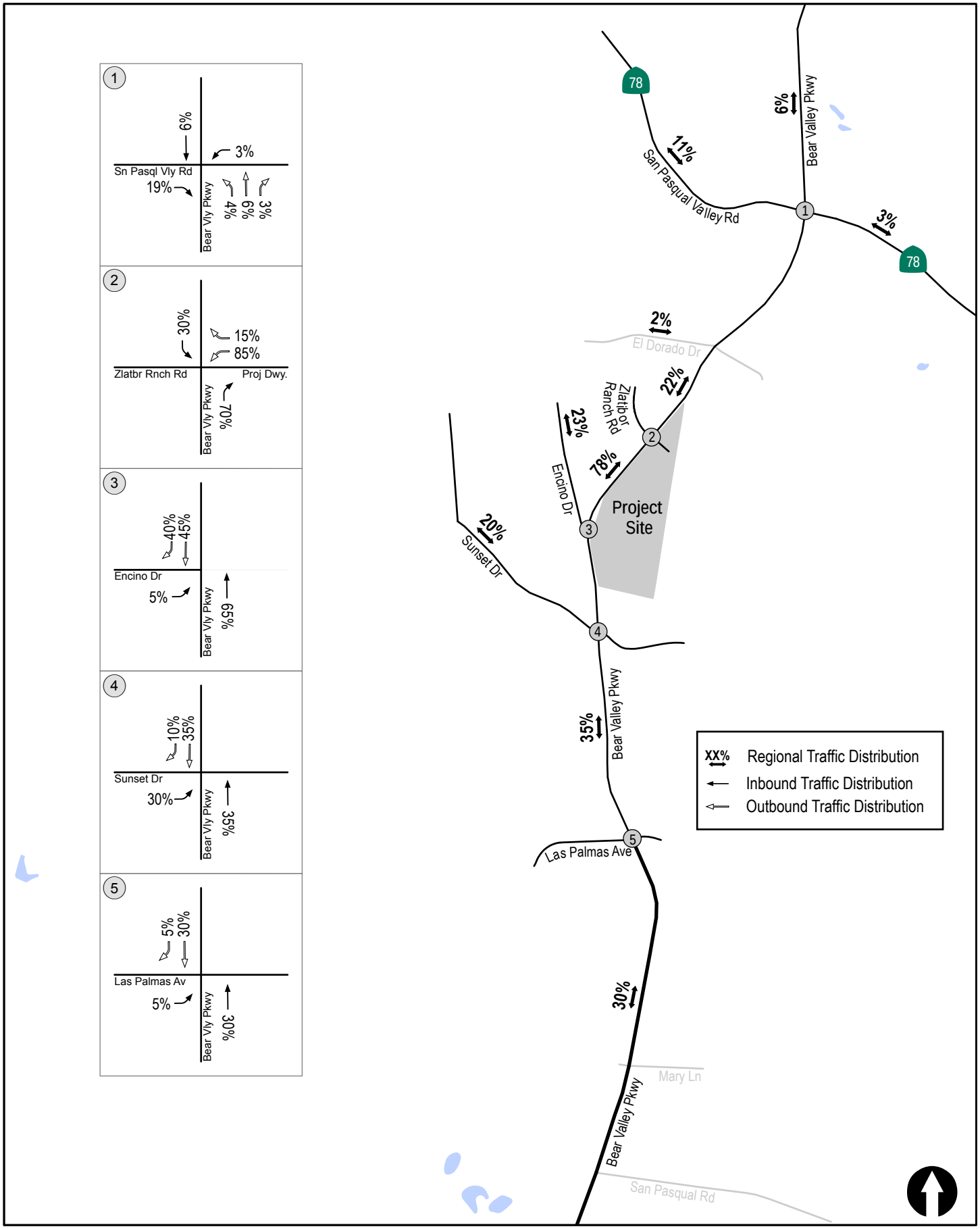

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Figure 7-1

Project Traffic Distribution

661 BEAR VALLEY

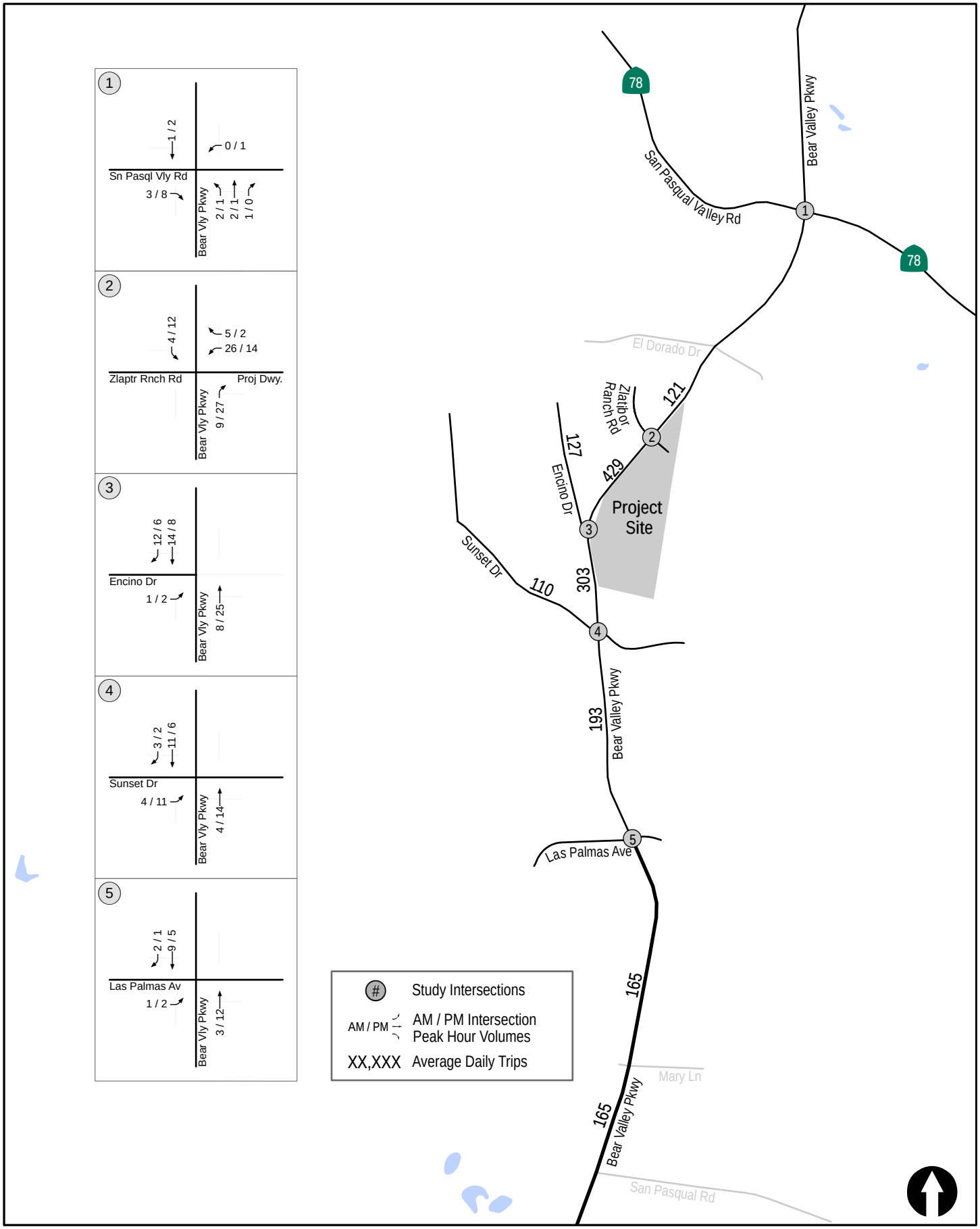

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Figure 7-2

Project Traffic Volumes

661 Bear Valley

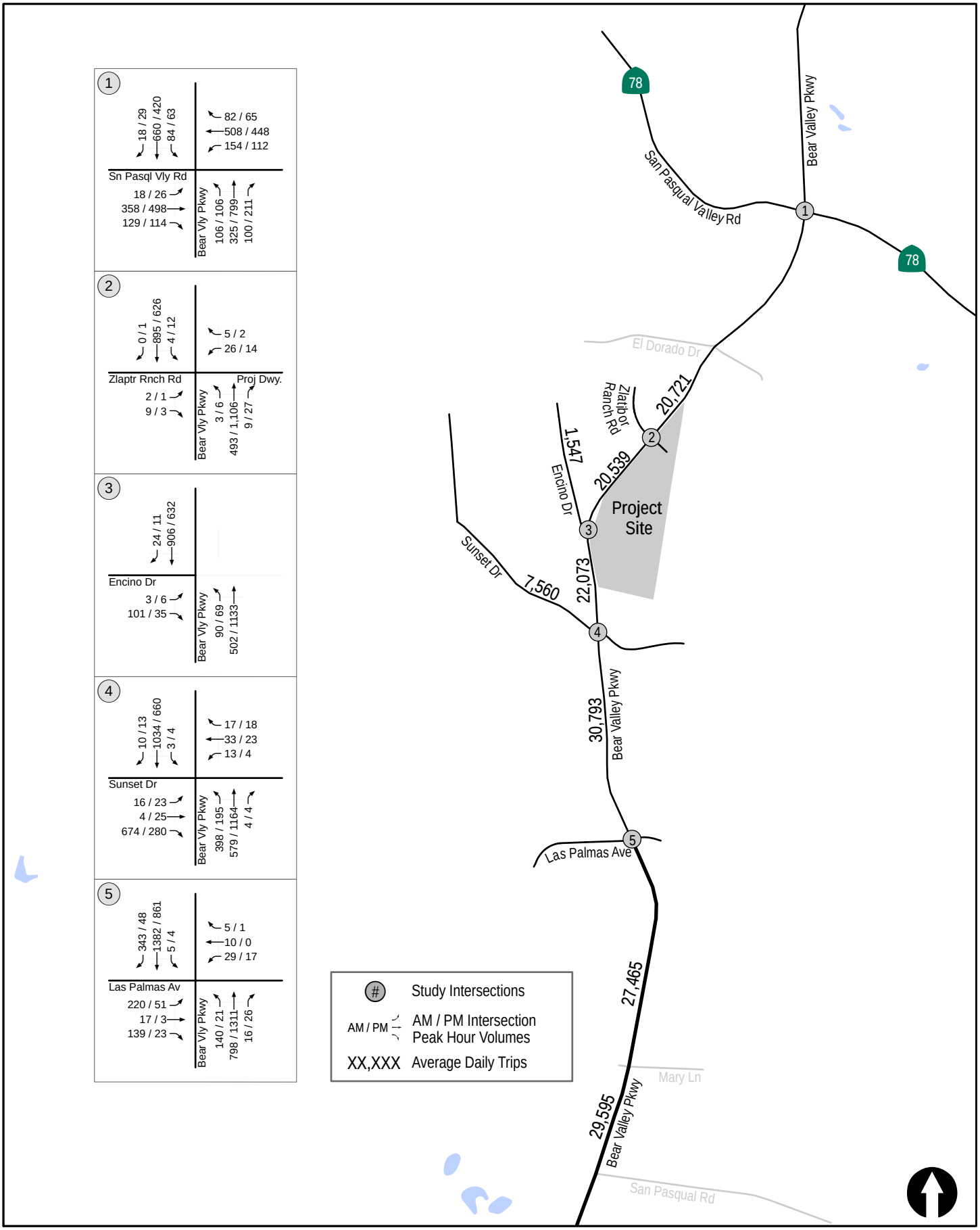

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Figure 7-3

Existing + Project Traffic Volumes

661 BEAR VALLEY

8.0 CUMULATIVE GROWTH TRAFFIC VOLUMES

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG coordinated directly with City of Escondido and County of San Diego staff to determine and obtain cumulative projects' traffic volume information to be included for analysis. Based on coordination with the City, LLG interpolated growth between Year 2035 and existing Year 2014 traffic counts. Typical annual growth ranged between 2-5% at study area intersections and segments. Location-specific growth factors were applied to each study area location for a period of five (5) years to arrive at near-term baseline conditions which are analyzed in this report as "+ Cumulative Growth" scenarios.

Figure 8–1 shows the total cumulative growth traffic volumes. ***Figure 8–2*** shows the existing + cumulative growth traffic volumes. ***Figure 8–3*** shows the existing + project + cumulative growth traffic volumes.

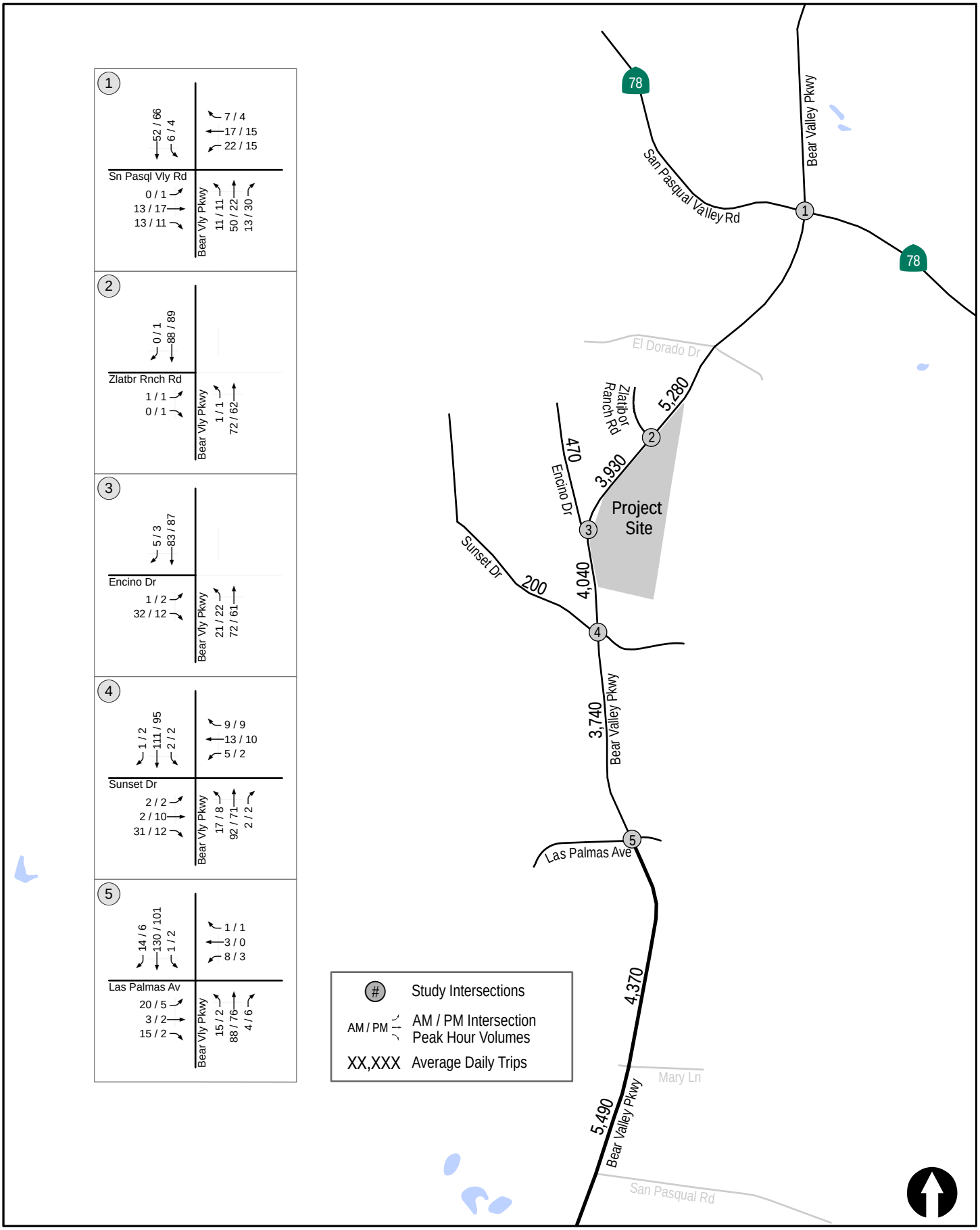

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Figure 8-1

Cumulative Growth Traffic Volumes

661 BEAR VALLEY

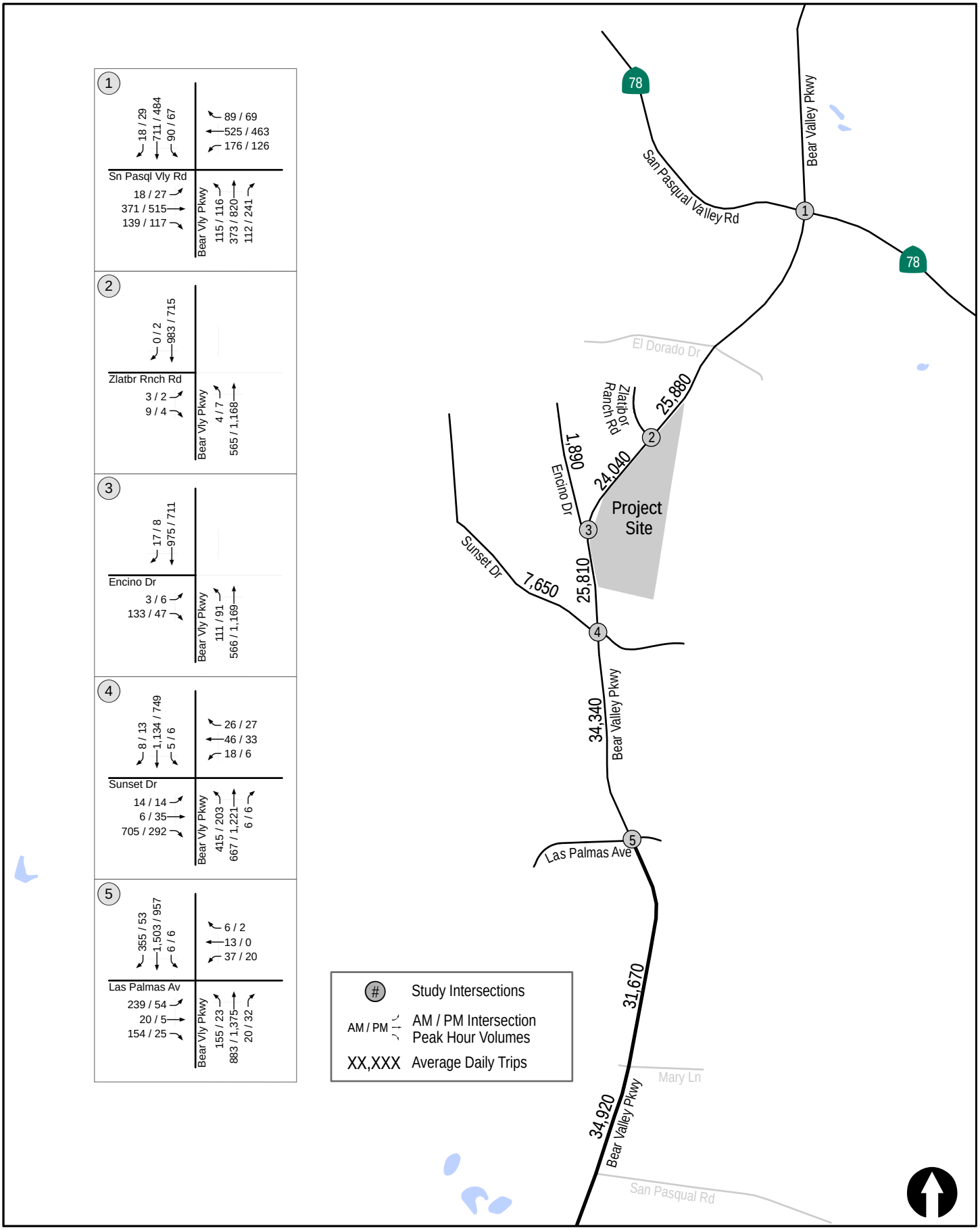

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Figure 8-2

Existing + Cumulative Growth Traffic Volumes

661 BEAR VALLEY

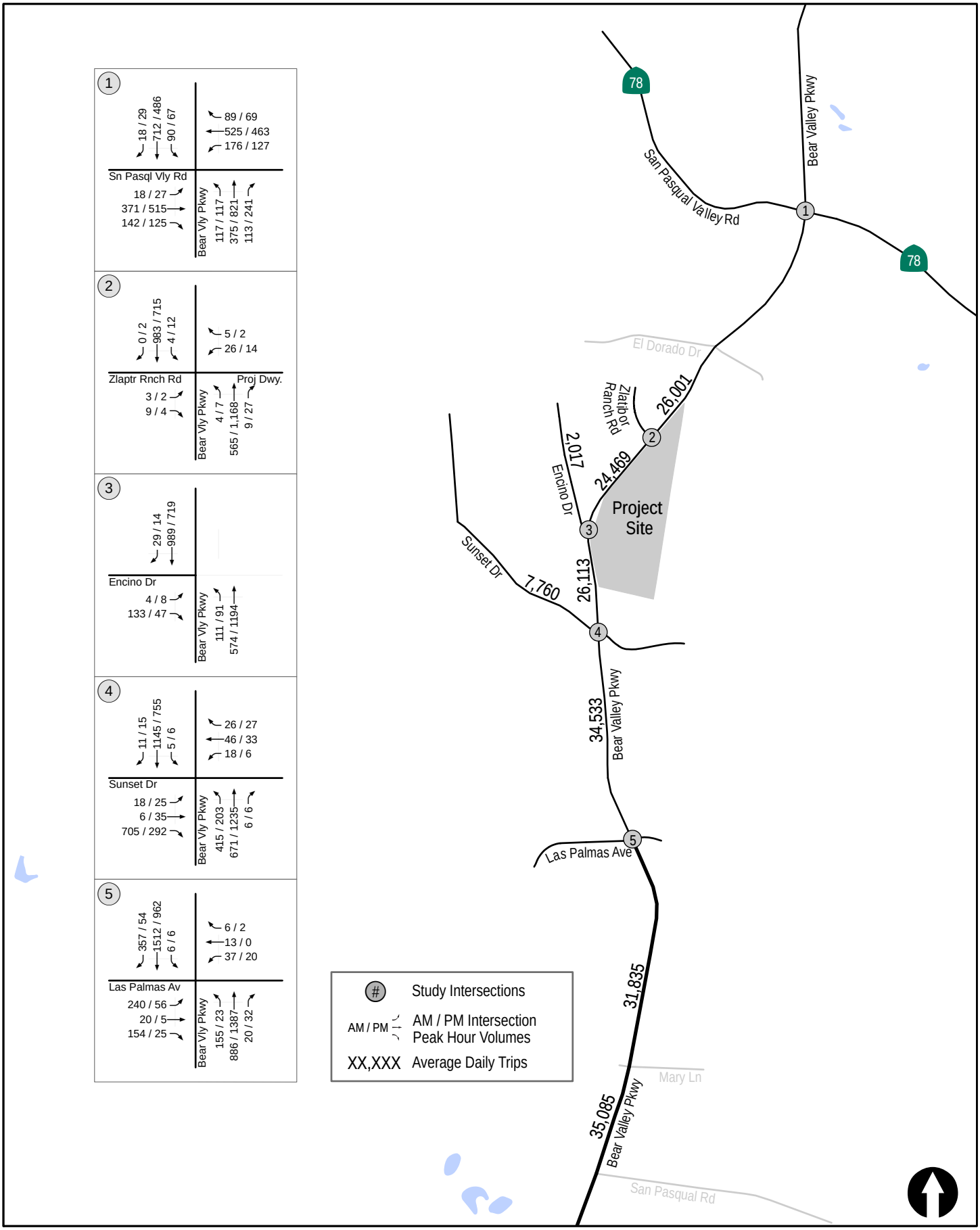

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Figure 8-3

Existing + Project + Cumulative Growth Traffic Volumes

661 BEAR VALLEY

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

9.1.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations with the addition of Project traffic. *Table 9–1* shows that no study area intersections are calculated to degrade in LOS due to Project development. The Project plans to signalize the Bear Valley Parkway/ Zlatibor Ranch Road intersection, where the main Project access point is to be located. Thus, LOS improves at this location under this scenario.

The allowable increase in delay at the LOS D or worse operating intersections is 2.0 seconds. As shown in *Table 9–1*, the Project-attributable increase is less than this amount.

9.1.2 *Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of Project traffic. As seen in *Table 9–2*, the study area segments are calculated to continue to operate at LOS D or better, with the exception of the segments on Bear Valley Parkway from Eldorado Drive to Las Palmas Avenue, which continue to operate at LOS F. The allowable increase in V/C at these LOS D or worse operating segments is 0.02. As shown in *Table 9*–2, the Project-attributable increase is greater than this amount at these segments. Thus, project traffic results in significant impacts at the following locations:

- **Bear Valley Parkway: Zlatibor Ranch Road to Encino Drive**
- **Bear Valley Parkway: Encino Drive to Sunset Drive**

9.2 Existing + Cumulative Growth

9.2.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations with the addition of cumulative growth traffic. *Table 9–1* shows that all study area intersections are calculated to operate at LOS D or worse, except for the Bear Valley Parkway/ Zlatibor Ranch Road intersection, which continues to operate at LOS C.

9.2.2 *Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of cumulative growth traffic. As seen in *Table 9–2*, four Bear Valley Parkway segments (from Eldorado Drive to Las Palmas Avenue) are calculated to continue to operate at LOS F. Additionally, Bear Valley Parkway from Las Palmas Avenue to San Pasqual Road is calculated to operate at LOS D/E. Two segments are calculated to operate at LOS A or B.

9.3 Existing + Project + Cumulative Growth

9.3.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations for Existing + Cumulative Growth + Project conditions. *Table 9–1* shows that all but one of the study area intersections are calculated to operate at LOS D or worse. Based on the 2.0 second allowable increase in delay, significant impacts are calculated for the following:

- **Bear Valley Parkway/ Encino Drive – LOS F/E in the AM/PM peak hour**

9.3.2 *Segment Operations*

Table 9–2 summarizes the roadway segment operations for the Existing + Cumulative Growth + Project conditions. As seen in *Table 9–2*, the LOS remains unchanged with the addition of cumulative growth traffic. Based on the 0.02 allowable increase in V/C ratio, significant impacts are calculated at the following two segments:

- **Bear Valley Parkway: Zlatibor Ranch Road to Encino Drive**
- **Bear Valley Parkway: Encino Drive to Sunset Drive**

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Growth		Existing + Cumulative Growth + Project			Significant Impact?
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Delay	LOS	Δ	
1. Bear Valley Parkway/ San Pasqual Valley Road (SR 78)[c]	Signal	AM	38.8	D	38.8	D	0.0	42.3	D	42.3	D	0.0	No
		PM	43.1	D	43.1	D	0.0	65.0	E	65.0	E	0.0	No
2. Bear Valley Pkwy/ Zlatibor Ranch Rd (Project Driveway)[d]	OWSC[e]	AM	17.7	C	6.5	A	(11.2)	19.7	C	9.7	A	(10.0)	No
		PM	15.8	C	18.1	B	2.3	18.2	C	27.6	C	9.4	No
3. Bear Valley Parkway/ Encino Drive	OWSC[e]	AM	30.5	D	32.0	D	1.5	57.2	F	**61.1**	**F**	**3.9**	**Yes**
		PM	20.4	C	24.4	C	4.0	28.7	D	**35.4**	**E**	**6.7**	**Yes**
4. Bear Valley Parkway/ Sunset Drive	Signal	AM	121.6	F	121.7	F	0.1	135.1	F	135.8	F	0.7	No
		PM	41.6	D	42.0	D	0.4	61.4	E	62.4	E	1.0	No
5. Bear Valley Parkway/ Las Palmas Avenue	Signal	AM	44.5	D	45.5	D	1.0	61.2	E	62.4	E	1.2	No
		PM	6.7	A	6.8	A	0.1	8.9	A	9.1	A	0.2	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.
d. Intersection is signalized with construction of Project driveway in "with Project" scenarios.
e. OWSC – One-Way Stop Controlled intersection. Minor street left turn delay is reported.

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

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) [a]	Existing			Existing + Project				Existing + Cumulative Projects			Existing + Cumulative Projects + Project				Sig Impact?
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C	Δ[e]	ADT	LOS	V/C	ADT	LOS	V/C	Δ[e]	
Bear Valley Parkway																
Eldorado Dr to Zlatibor Ranch Rd	15,000	20,600	F	1.373	20,721	F	1.381	0.008	25,880	F	1.725	26,001	F	1.733	0.008	No
Zlatibor Ranch Rd to Encino Dr	15,000	20,110	F	1.341	**20,539**	**F**	**1.369**	**0.028**	24,040	F	1.603	**24,469**	**F**	**1.631**	**0.028**	**Yes**
Encino Dr to Sunset Dr	15,000	21,770	F	1.451	**22,073**	**F**	**1.472**	**0.021**	25,810	F	1.721	**26,113**	**F**	**1.742**	**0.021**	**Yes**
Sunset Drive to Las Palmas Ave	15,000	30,600	F	2.040	30,793	F	2.053	0.013	34,340	F	2.289	34,533	F	2.302	0.013	No
Las Palmas Ave to Mary Lane	37,000	27,300	C	0.738	27,465	D	0.742	0.004	31,670	D	0.856	31,835	D	0.860	0.004	No
Mary Lane to San Pasqual Road	37,000	29,430	D	0.795	29,595	D	0.800	0.004	34,920	E	0.944	35,085	E	0.948	0.004	No
Encino Drive																
West of Bear Valley Parkway	15,000	1,420	A	0.095	1,547	A	0.103	0.008	1,890	A	0.126	2,017	A	0.134	0.008	No
Sunset Drive																
West of Bear Valley Parkway	15,000	7,450	B	0.497	7,560	B	0.504	0.007	7,650	B	0.510	7,760	B	0.517	0.007	No

Footnotes:

a. Capacities based on the *City of Escondido Roadway Classification* (See *Appendix C*).
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.
f. Δ denotes a project-induced increase in the volume to capacity ratio.

10.0 ANALYSIS OF BUILDOUT SCENARIO

10.1 Buildout

Buildout traffic volumes were obtained from the SANDAG Series 11 traffic model (Year 2030, volumes adjusted to Year 2035). This model was utilized because it includes the approved land uses associated with the City of Escondido's recent General Plan Update. The City is currently working with SANDAG to update the newer Series 12 traffic model (Year 2035). However, it was agreed that the Series 11 model (with General Plan Update land uses) was the more accurate model to use in the meantime.

Figure 10–1 shows the Year 2035 Buildout traffic volumes. ***Figure 10–2*** shows Year 2035 Buildout + Project traffic volumes.

Table 10–1 summarizes the roadway segment operations for Year 2035. As seen in *Table 10–1*, all Bear Valley Parkway segments within the study area are calculated to operate at LOS E or F. The Encino Drive and Sunset Drive segments are calculated to operate at LOS C or better.

10.2 Buildout + Project

Table 10–1 summarizes the roadway segment operations for Buildout with the addition of Project traffic. As seen in *Table 10–1* the LOS remains unchanged with the addition of Project traffic. The Project-attributable increases in V/C do not exceed the allowable 0.02.

TABLE 10–1
LONG-TERM STREET SEGMENT OPERATIONS

Street Segment	Adopted Circulation Element Capacity (LOS E) [a]	Buildout			Buildout With Project			Δ[e]	Sig? [f]
		ADT[b]	LOS [c]	V/C [d]	ADT	LOS	V/C		
Bear Valley Parkway									
Eldorado Drive to Zlatibor Ranch Road	37,000	35,470	E	0.959	35,899	E	0.970	0.011	No
Zlatibor Ranch Road to Encino Drive	37,000	37,620	F	1.017	37,923	F	1.025	0.008	No
Encino Drive to Sunset Drive	37,000	45,610	F	1.233	45,803	F	1.238	0.005	No
Sunset Drive to Las Palmas Avenue	50,000	45,610	E	0.912	45,803	E	0.916	0.004	No
Las Palmas Avenue to Mary Lane	50,000	44,590	E	0.892	44,755	E	0.895	0.003	No
Mary Lane to San Pasqual Road	50,000	50,940	F	1.019	51,105	F	1.022	0.003	No
Encino Drive									
Amparo Drive to Bear Valley Parkway	15,000	3,180	A	0.212	3,307	A	0.220	0.008	No
Sunset Drive									
Reill View Drive to Bear Valley Parkway	15,000	8,300	C	0.553	8,410	C	0.561	0.008	No

Footnotes:

a. Capacity based on City of Escondido's roadway classification Table.

b. Average Daily Traffic.

c. Level of Service.

d. Volume to Capacity.

e. Δ denotes a Project-induced increase in the Volume to Capacity (V/C) ratio.

f. Sig = significant Project impact based on Significance Criteria.

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Figure 10-1

Year 2035 Traffic Volumes

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Figure 10-2

Year 2035 + Project Traffic Volumes

661 BEAR VALLEY

11.0 PROJECT ACCESS

Access to the proposed project is via two driveway along Bear Valley Parkway. Primary access is proposed via a signalized full access driveway aligned opposite of Zlatibor Ranch Road, on the northern portion of the site. Secondary, emergency-only access is proposed via an unsignalized driveway located on the central/southern portion of the site. 100% of project traffic was distributed through the main signalized driveway.

The main project driveway was assumed to have two outbound lanes (a shared through/left and a right turn lane). A dedicated single northbound right-turn lane and southbound left-turn lane were also assumed.

Table 11–1 restates the driveway operations as proposed.

TABLE 11–1
PROJECT DRIVEWAY OPERATIONS

Intersection	Control Type	Peak Hour	Existing + Project		Existing + Cumulative Projects + Project		Significant Impact?
			Delay[a]	LOS[b]	Delay	LOS	
Bear Valley Parkway/ Main Project Driveway	Signal[c]	AM	6.5	A	9.7	A	No
		PM	18.1	B	27.6	C	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. The traffic signal is assumed as a proposed feature, not a mitigation measure.

SIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 20.0	B
20.1 to 35.0	C
35.1 to 55.0	D
55.1 to 80.0	E
≥ 80.1	F

12.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

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

12.1 Significant Impacts Prior to Mitigation

12.1.1 *Roadway Segments*

- Segment #2: Bear Valley Parkway between Zlatibor Ranch Road and Encino Drive *(Direct and Cumulative)*
- Segment #3: Bear Valley Parkway between Encino Drive and Sunset Drive *(Direct and Cumulative)*

12.1.2 *Intersections*

- Intersection #3: Bear Valley Parkway and Encino Drive *(Cumulative only)*

12.2 Mitigation Measures

12.2.1 *Roadway Segments*

Segment #2: Bear Valley Parkway between Zlatibor Ranch Road and Encino Drive – The Project will improve its frontage to provide full half-width improvements to Bear Valley Parkway, creating a 2nd northbound lane. The capacity of this lane could be up to 7,500 ADT. This will exceed the total demand of the Project (303-429 ADT), thereby mitigating the impact.

Segment #3: Bear Valley Parkway between Encino Drive and Sunset Drive – The Project will improve its frontage to provide full half-width improvements to Bear Valley Parkway, creating a 2nd northbound lane. The capacity of this lane could be up to 7,500 ADT. This will exceed the total demand of the Project (303-429 ADT), thereby mitigating the impact.

12.2.2 *Intersections*

Intersection #3: Bear Valley Parkway and Encino Drive – The cumulative impact at this location will be mitigated by a fair-share contribution to realignment and signalization of the unsignalized intersection. . ***Table 12–1*** shows that the development of this mitigation measure would result in LOS C or better peak hour operations.

Figure 12–1 shows the proposed mitigation measures and post-mitigation conditions. ***Appendix D*** contains the post-mitigation intersection analysis worksheets.

TABLE 12–1
POST-MITIGATION INTERSECTION OPERATIONS

Intersection	Control Type *(Mitigation)*	Peak Hour	Existing		Existing + Cumulative Projects + Project *(with Mitigation)*	
			Delay[a]	**LOS**[b]	**Delay**	**LOS**
2. Bear Valley Parkway / Encino Drive	OWSC[c] *(Signal)*	AM	30.5	D	30.7	C
		PM	20.4	C	8.2	A

Footnotes:

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

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

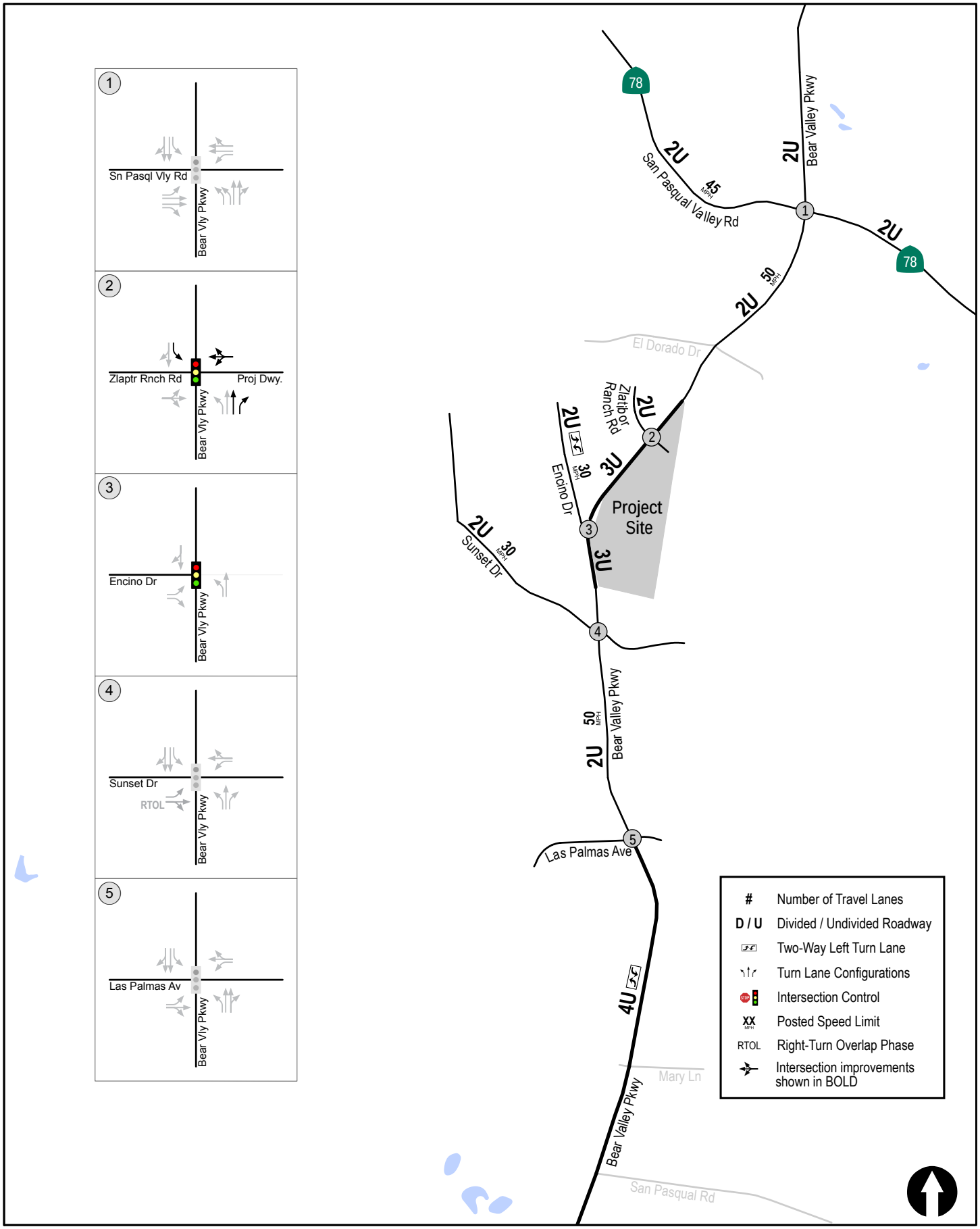

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Figure 13-1

Post-Mitigation Conditions Diagram

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End of Report