

TRAFFIC IMPACT ANALYSIS
VICTORY INDUSTRIAL PARK
Escondido, California
May 5, 2016

Prepared for the City of Escondido

LLG Ref. 3-16-2575

EXECUTIVE SUMMARY

The Escondido Victory Industrial Park (“Project”) proposes to develop a 5.24-acre site with 91,000 square feet (SF) of industrial lane uses in the City of Escondido (City). The site is located in the southeastern quadrant of the Harmony Grove Road/ Enterprise Street intersection. Parking is proposed on-site at a rate of 2.02 spaces/1,000 SF. The site is calculated to generate 728 daily trips with 80 AM peak hour trips (72 in/8 out) and 87 PM peak hour trips (17 in/70 out) using published trip generation rates.

The analysis uses the City’s published guidelines for determining study area. The street segments of Harmony Grove Road along the Project frontage and extending northwest (as Enterprise Street) to Andreasen Drive and southeast to Hale Avenue were analyzed for significant traffic impacts. The intersections along Harmony Grove Road at the Project access and Hale Avenue were analyzed along with the intersection of Enterprise Street at Andreasen Drive.

Using analysis methodologies approved by the City of Escondido, the study’s results show that the Project uses exceed the allowable increases in delay (intersections) and V/C (segments) at three (3) locations (1 intersection and 2 street segments). There are two (2) primary factors contributing to these impacts: 1) The potential confluence of traffic generated by County of San Diego General Plan Amendment projects just west of the City limits; and 2) The scheduling delay in constructing the Citracado Parkway Extension Project between Andreasen Drive and Harmony Grove Village Parkway. With these assumptions included in the near-term condition, Harmony Grove Road is forecasted to operate at deficient and unacceptable levels of service. These circumstances, however, are temporary. The planned connection of Citracado Parkway will result in a substantial shift in traffic patterns once completed and has been studied heavily in several planning documents (including the certified Citracado Parkway Extension Project EIR and certified City of Escondido General Plan EIR). The analysis provided in this document indicates that the near-term impacts calculated at the three (3) locations would be alleviated to acceptable levels with the completion of this key infrastructure enhancing project. Unfortunately, the timing and funding for this roadway project remain unknown. Thus, mitigation is proposed to reduce Project impact’s to below levels of significance.

Proposed Project mitigation includes striping improvements to the Harmony Grove Road/ Hale Avenue intersection, striping and widening improvements to Harmony Grove Road along the Project frontage, and the payment of a fair-share contribution toward the Citracado Parkway Extension Project.

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TRAFFIC IMPACT ANALYSIS
ESCONDIDO VICTORY INDUSTRIAL PARK
Escondido, California
May 5, 2016

1.0 INTRODUCTION

1.1 Purpose of the Report

The following traffic study has been prepared to determine and evaluate the traffic impacts on the local circulation system due to the Escondido Victory Industrial Park office development (the “Project”). The Project is located on 5.24 acres in the southeastern quadrant of the Harmony Grove Road/ Enterprise Street intersection in the City of Escondido. The 5.24 acres includes 4.87-acres of private property with a 0.37-acre 20-foot fronting Rincon water easement. This traffic study analyzes local area intersections and street segments in the Project vicinity to determine potential impacts related to the traffic generated by the proposed Project.

Included in this traffic study are the following:

- Project Description
- Analysis Approach and Methodology
- Existing Conditions Discussion
- Significance Criteria
- Analysis of Existing Conditions
- Project Trip Generation/Distribution/Assignment
- Near-Term Cumulative Conditions Discussion
- Analysis of Near-Term Conditions
- General Plan Assessment
- Significance of Impacts, Mitigation Measures and Fair Share Calculations

Figure 1–1 shows the vicinity map. *Figure 1–2* shows a more detailed Project area map.

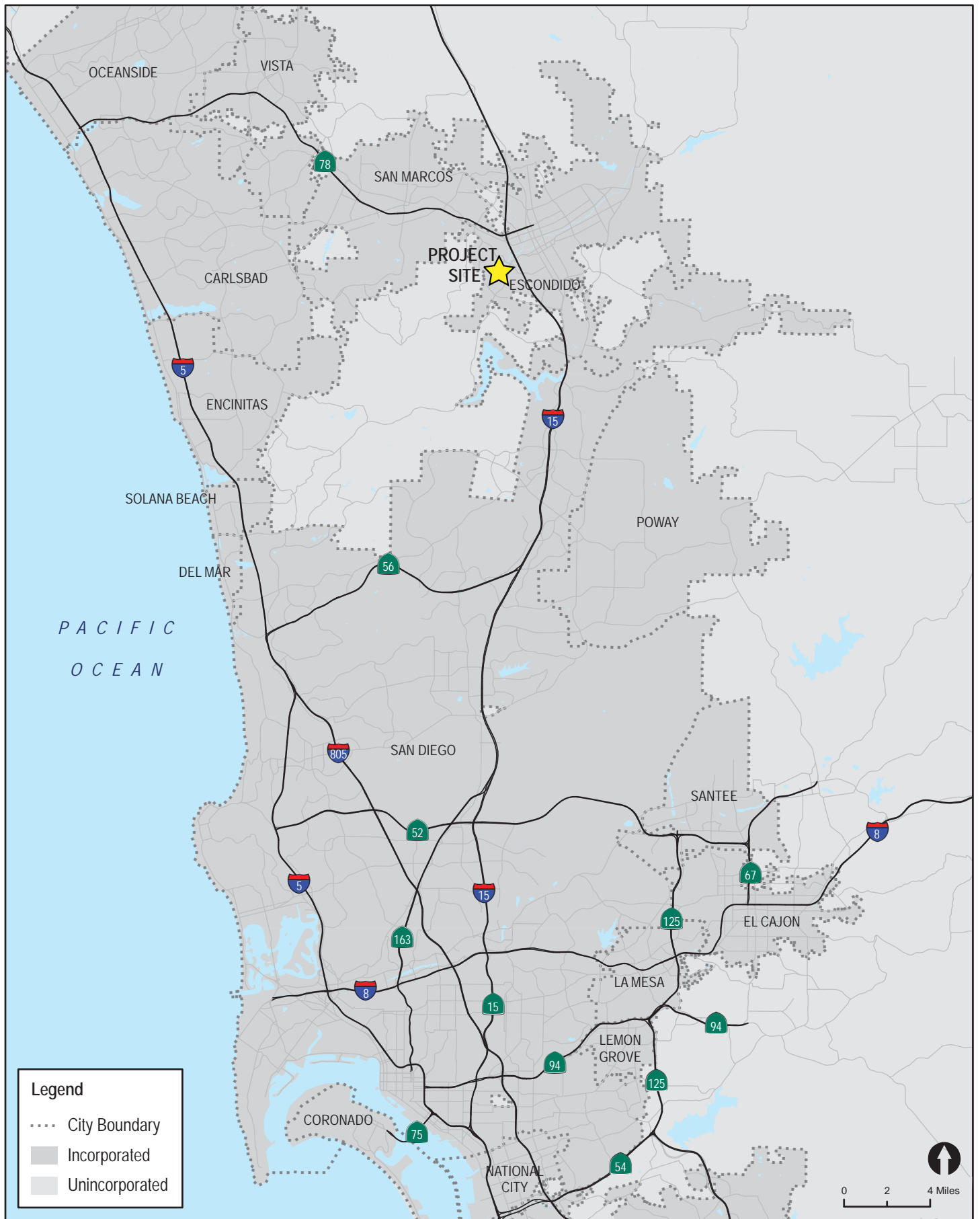


Figure 1-1

Vicinity Map

ESCONDIDO VICTORY INDUSTRIAL PARK

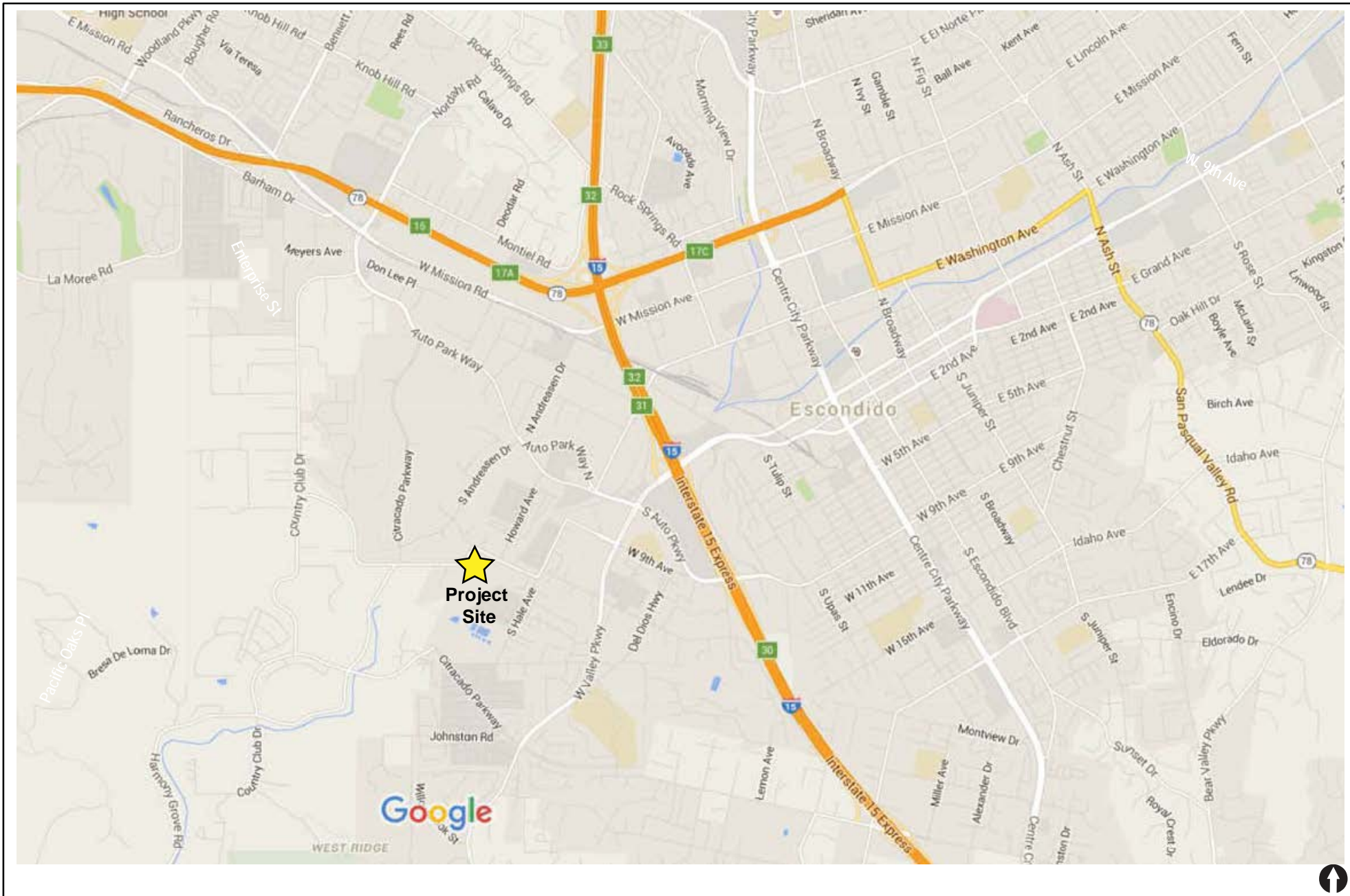


Figure 1-2

Project Area Map

ESCONDIDO VICTORY INDUSTRIAL PARK

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

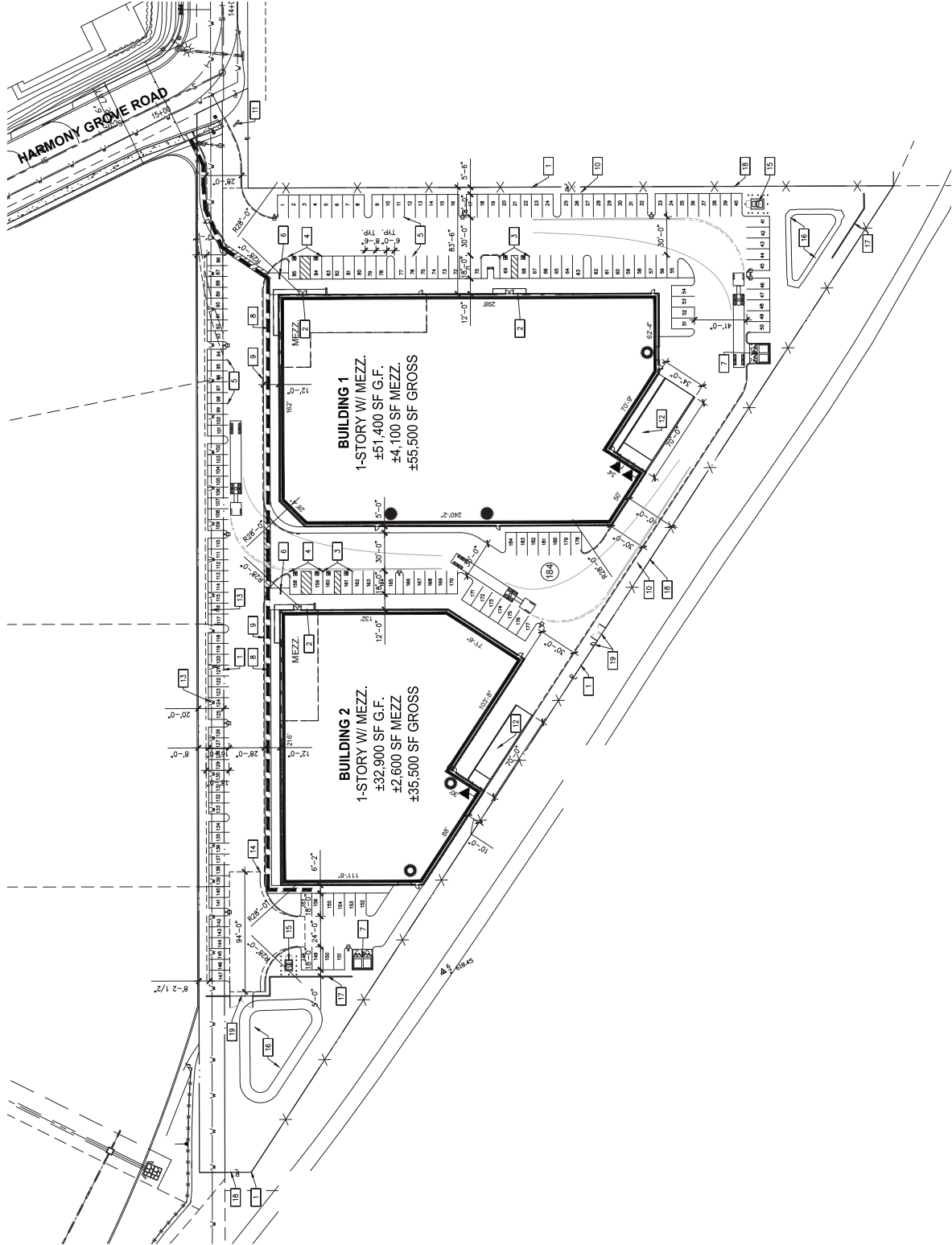
The proposed Project is located at 2005 Harmony Grove Road in the City of Escondido. The Project site lies adjacent to the Escondido Research and Technology Center (ERTC) South Specific Plan Area (SPA) #8 of the City of Escondido's General Plan.

2.2 Project Description

The Project proposes the construction of two industrial buildings totaling approximately 91,000 square-feet (SF). The Project is proposing to provide 184 parking spaces. The site is currently approved for a 22-unit residential subdivision; however, subsequent to that approval the General Plan designation for the site was revised from residential to industrial, and a re-zone is required to bring the zoning consistent with the General Plan. No specific industrial land uses are specified at this time; as such the City is requesting that "the range of industrial uses that could be accommodated at the site" be considered in the traffic study. The parking ratio of 2.02 spaces/1,000 SF would indicate an industrial park use at eight (8) daily trips/1,000 SF; such a ratio would not support general office uses at a higher trip generation rate. Therefore, the Project was assessed in this report categorized as an "Industrial Park" use.

Access to the Project will be provided via one (1) driveway to Harmony Grove Road.

Figure 2-1 shows the conceptual site plan for the Project.



3.0 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
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 3-1 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 3-2 below contains the trigger-points for intersections based on peak hour volumes.

**TABLE 3-1
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)	

Source: City of Escondido "Traffic Impact Analysis Requirement Guidelines"

**TABLE 3-2
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

Source: City of Escondido "Traffic Impact Analysis Requirement Guidelines"

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).

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 9) computer software.

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 A**.

4.0 EXISTING CONDITIONS

4.1 Study Area

The study area was determined in accordance with the City of Escondido's published *Traffic Impact Analysis Requirement Guidelines* (2014). Based on anticipated Project trips, study area intersections and street segments within the City are selected according to ADT thresholds that vary with the roadway's classification. Further details on the City's guidelines for developing the study area were provided earlier in this report in *Section 3.0*.

The Project is located adjacent to the unincorporated area of San Diego County and therefore the County's guidelines for developing the study area were also considered. Per the County of San Diego's Transportation and Traffic Report Format and Content Requirements, the Project study area shall include "roads and intersections that will receive 25 peak hour trips." The Project does not add 25 peak hour trips to any County intersection or street segment.

Based on these criteria, the following intersections and segments are included in the study area and are listed below.

Intersections

1. Harmony Grove Road / Project Access
2. Andreasen Drive / Enterprise Street
3. Harmony Grove Road / Enterprise Street
4. Harmony Grove Road / Hale Avenue

Street Segments

Enterprise Street

1. Andreasen Drive to Harmony Grove Road

Harmony Grove Road

2. Project Access to Enterprise Street
3. Enterprise Street to Hale Avenue

4.2 Existing Transportation Conditions

The following is a description of the study area roadways. Roadway classifications and capacities are based on the City of Escondido's *General Plan Mobility and Infrastructure Element*.

Harmony Grove Road is an unclassified roadway from the Project access to Enterprise Street on the City of Escondido Mobility Element. It is currently built as a two-lane undivided roadway. The posted speed limit is 40 mph. Curbside parking is permitted. Bus stops and bike lanes are not provided. The current paved width is 40 feet with a 16 foot travel lane along the Project frontage and a 24 foot travel lane on the northern side of the roadway. Curb, gutter and sidewalks are provided

along the northern side of the roadway. Given these roadway characteristics, this portion of Harmony Grove Road currently functions as a Local Collector with an LOS E capacity of 10,000 ADT.

From Enterprise Street to Hale Avenue, Harmony Grove Road is classified as a Local Collector. It is currently built as a two-lane roadway with an intermittent two-way left-turn lane (TWLTL) and a posted speed limit of 35 mph. Curbside parking is prohibited and this segment has an LOS E capacity of 15,000 ADT. Bus stops are provided, and there are no bike lanes.

Enterprise Street is classified as a Local Collector from Andreasen Drive to Harmony Grove Road on the City of Escondido Mobility Element. It is currently built as a two-lane roadway divided by a two-way left-turn lane, primarily fronted by industrial uses. Curb, gutter, and sidewalks are provided and on-street parking is permitted. The posted speed limit is 35 mph. Bus stops are provided and bike lanes are omitted. The current paved width is 60 feet, with two 24 foot lanes and a 12-foot two-way left-turn (TWLTL) providing for an effective LOS E roadway capacity of 15,000 ADT.

Figure 4-1 depicts the Existing traffic conditions and the study area intersections and segments graphically.

4.3 Existing Traffic Volumes

Weekday AM/PM peak hour intersection turning movement and 24-hour bi-directional daily traffic counts were conducted in February 2016 when schools were in session. The peak hour counts were conducted between the hours of 7:00-9:00 AM and 4:00-6:00 PM.

Table 4-1 is a summary of the most recent available average daily traffic volumes (ADTs). *Appendix B* contains the manual count sheets.

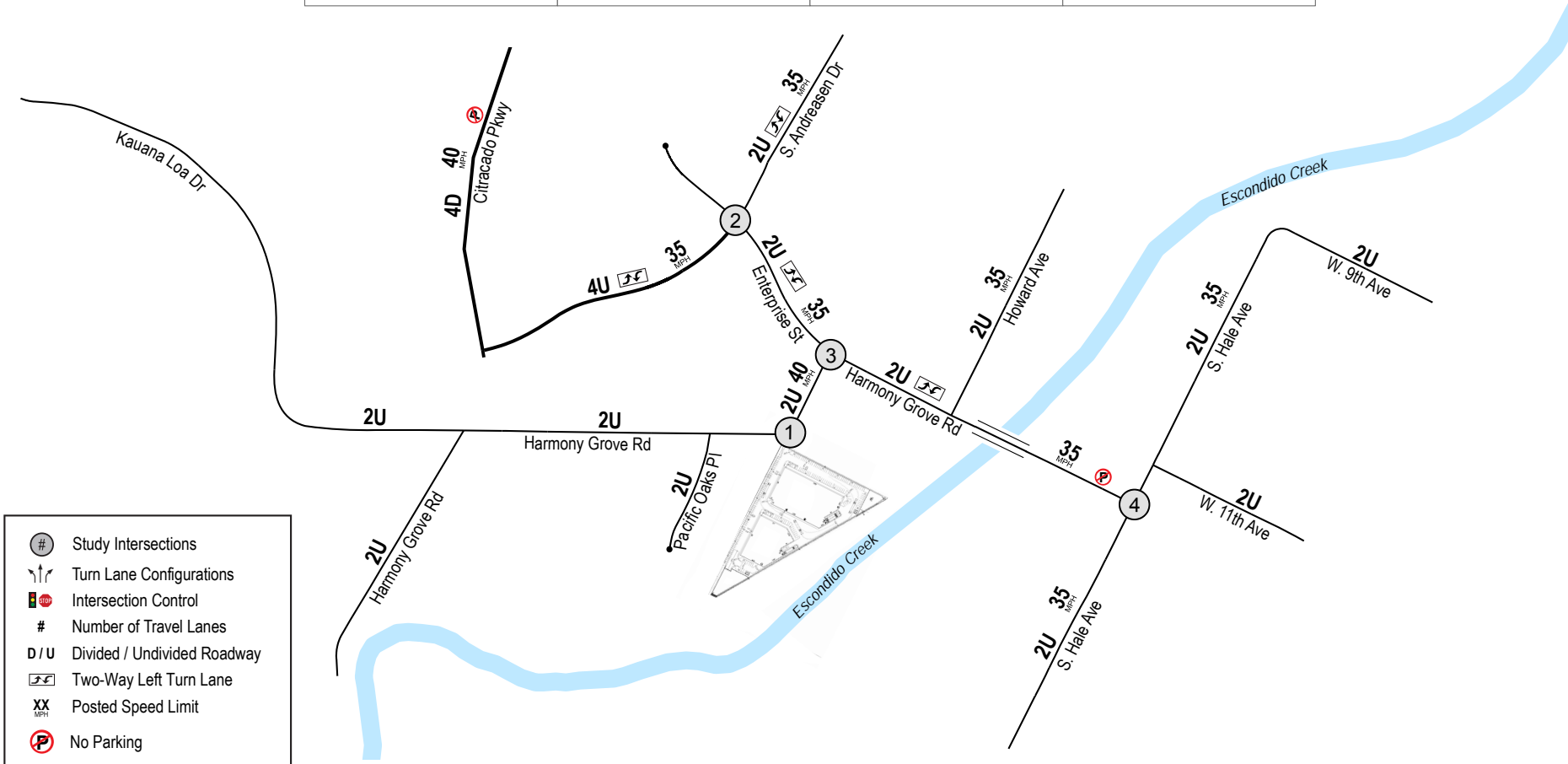
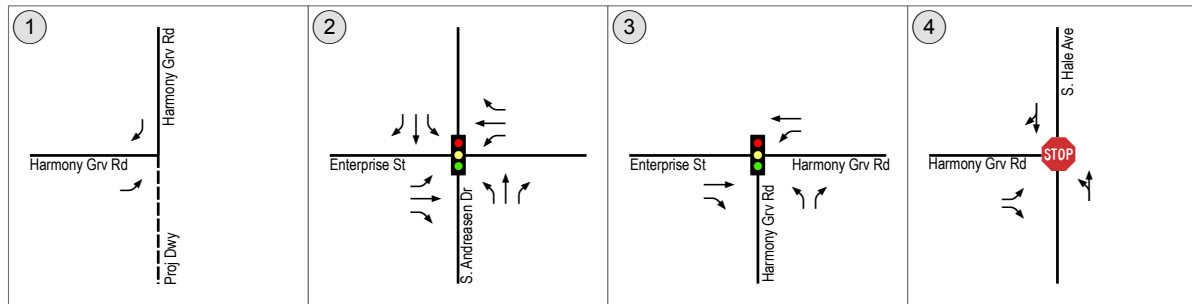
Figure 4-2 depicts the *Existing* peak hour intersection turning movement and 24-hour segment volumes at the study area intersections and segments.

**TABLE 4-1
EXISTING TRAFFIC VOLUMES**

Street Segment	ADT ^a
Harmony Grove Road	
1. Project Access to Enterprise Street	5,760
2. Enterprise Street to Hale Avenue	9,310
Enterprise Street	
3. Andreasen Drive to Harmony Grove Road	6,100

Footnotes:

- a. Average Daily Traffic Volumes collected February of 2016 when schools were in session.



- # Study Intersections
- ↔ Turn Lane Configurations
- 🚦 Intersection Control
- # Number of Travel Lanes
- D / U Divided / Undivided Roadway
- ↔ Two-Way Left Turn Lane
- XX MPH Posted Speed Limit
- 🚫 No Parking



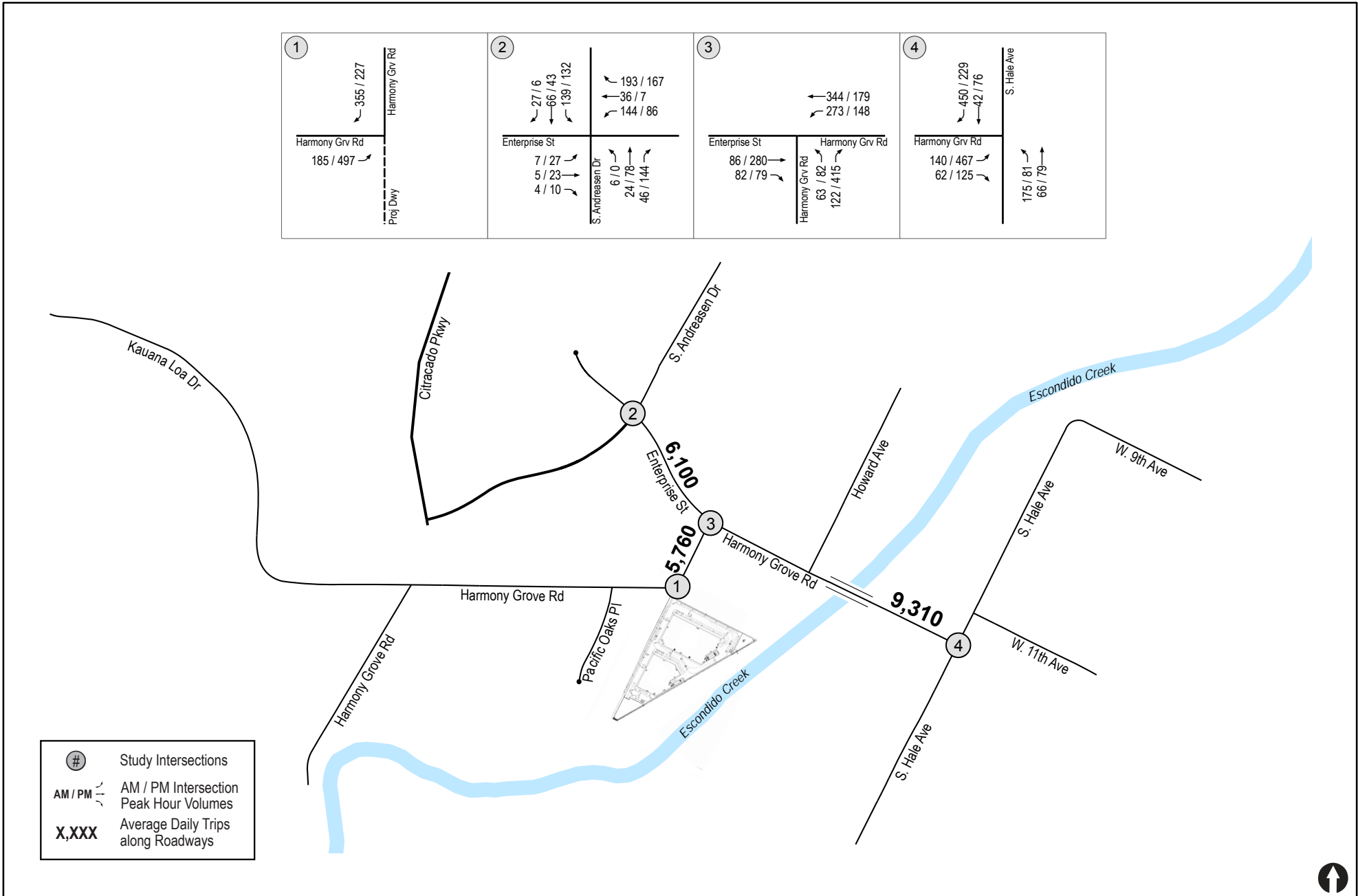


Figure 4-2

Existing Traffic Volumes

ESCONDIDO VICTORY INDUSTRIAL PARK

5.0 SIGNIFICANCE CRITERIA

The following criteria from the City of Escondido’s *Traffic Impact Analysis Guidelines* (2014) were used to evaluate potential significant impacts for study area intersections and segments located in the City of Escondido.

5.1 City of Escondido

The City of Escondido utilizes the San Diego Traffic Engineer’s Council and the San Diego Chapter of the Institute of Transportation Engineers (SANTEC/ITE) guidelines in determining levels of significance. In accordance with “SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region”, the following thresholds shall be used to identify significant traffic impacts 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	1.0	2.0

General Notes:

1. No Significant Impact occurs at areas in GP Downtown Specific Plan that operate at LOS “D” or better.
2. Mitigation measures should also be considered for any segment or intersection operating on LOS “F” subject to less than significant impact.

6.0 ANALYSIS OF EXISTING CONDITIONS

The criteria used for determining unacceptable operations are discussed in *Section 5.0* of this report. The City of Escondido considers LOS D the threshold for unacceptable operations. The following section summarizes the existing analysis of study area locations.

6.1 Peak Hour Intersection Levels of Service

Table 6-1 summarizes the existing intersections LOS. As seen in *Table 6-1*, all intersections are calculated to currently operate at LOS C or better with the exception of:

- Intersection #4. Harmony Grove Road / Hale Avenue – LOS D (PM peak hour)

Appendix C contains the existing intersection analysis worksheets.

6.2 Daily Street Segment Operations

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

**TABLE 6-1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing	
			Delay ^a	LOS ^b
1. Harmony Grove Road / Project Access	DNE ^c	AM	—	—
		PM	—	—
2. Andreasen Drive / Enterprise Street	Signal	AM	26.1	C
		PM	24.6	C
3. Harmony Grove Road / Enterprise Street	Signal	AM	15.9	B
		PM	15.0	B
4. Harmony Grove Road / Hale Avenue	AWSC ^d	AM	15.7	C
		PM	25.5	D

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. DNE = Does Not Exist.
- d. AWSC = All-Way Stop-Controlled intersection. Average delay 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 6-2
EXISTING STREET SEGMENT OPERATIONS**

Street Segments	Currently Built As	Existing Capacity (LOS E) ^a	ADT ^b	LOS ^c	V/C ^d
Harmony Grove Road					
1. Project Access to Enterprise Street	Local Collector	10,000	5,760	C	0.576
2. Enterprise Street to Hale Avenue	Local Collector	15,000	9,310	C	0.621
Enterprise Street					
3. Andreasen Drive to Harmony Grove Road	Local Collector	15,000	6,100	B	0.407

Footnotes:

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

7.0 PROJECT TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

7.1 Project Trip Generation

Using the trip generation rates for the “Industrial Park” land use type listed in the SANDAG (*Not So*) *Brief Guide of Vehicular Traffic Generation Rates*, April 2002, the Project is calculated to generate 728 ADT, with a total of 80 trips during the AM peak hour (72 inbound/ 8 outbound trips) and 87 total trips during PM peak hour (17 inbound/ 70 outbound). **Table 7-1** shows the forecast trip generation for the proposed Project.

7.2 Project Trip Distribution and Assignment

The Project generated traffic was distributed to the street system based on site access parameters, roadway system characteristics, a SANDAG Select Zone Assignment (SZA) model, input from City staff, and professional engineering judgment based upon traffic patterns observed from existing traffic counts for nearby similar land uses. Primarily, adjustments were made to the model to account for the model’s limitations in distributing truck trips associated with an industrial land use that would be required to utilize City truck routes. For example, 25% of trips were assigned to the west by the model when there are currently tonnage limits on Kauana Loa Road and Country Club Drive. This number was adjusted to 20% to account for these circumstances. Additionally, due to the City’s truck routes, 15% of Project trips were assigned to Citracado Parkway north where the model had assigned 0% since this roadway is specifically designated as a truck route where Harmony Grove Road is not.

The adjustments described above can be seen by comparing the trip distribution shown in this report and the SANDAG SZA included in the report appendix. **Appendix D** contains a copy of the SANDAG SZA and the City’s Truck Route Plan.

Using the information described above, approximately 80% of the trips were oriented to/from the east on Harmony Grove Road with 20% oriented to/from the west toward the unincorporated County areas. Once the traffic distribution was established, the Project-generated traffic was assigned to the adjacent street system.

Figure 7-1 shows the local distribution of Project trips. **Figure 7-2** depicts the Project traffic assignment and **Figure 7-3** depicts the Existing + Project traffic volumes.

**TABLE 7-1
PROJECT TRIP GENERATION**

Land Use	Size	Daily Trip Ends (ADTs) ^a		Peak Hour	% of ADT ^b	In:Out	Volume		
		Rate ^b	Volume			Split ^b	In	Out	Total
Industrial Park	91 KSF	8 /KSF	728	AM	11%	9:1	72	8	80
				PM	12%	2:8	17	70	87

Footnotes:

- a. ADT = Average Daily Traffic.
- b. Rates taken from the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

General Notes:

- 1. KSF = Thousand square feet.

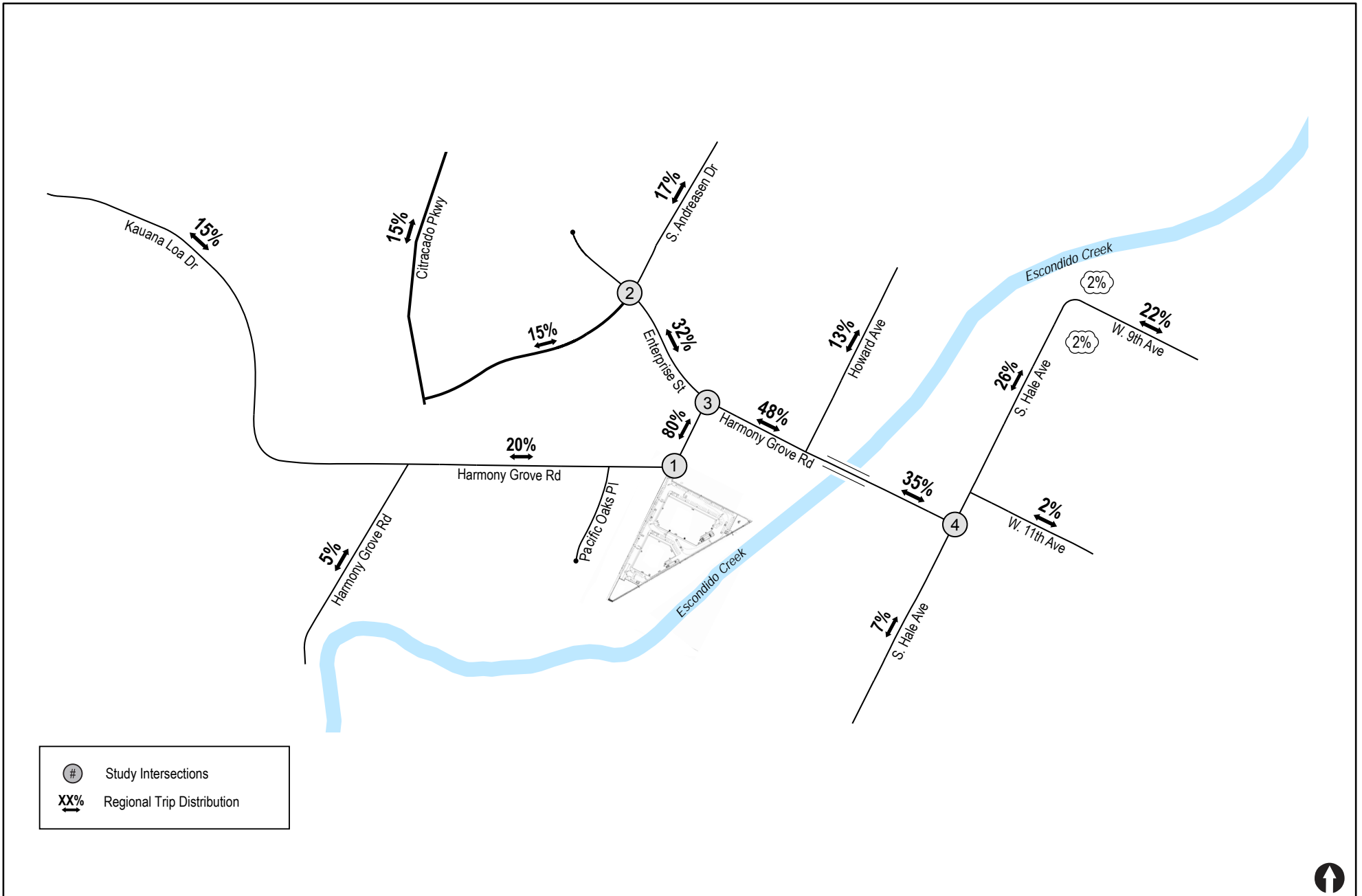


Figure 7-1

Project Traffic Distribution

ESCONDIDO VICTORY INDUSTRIAL PARK

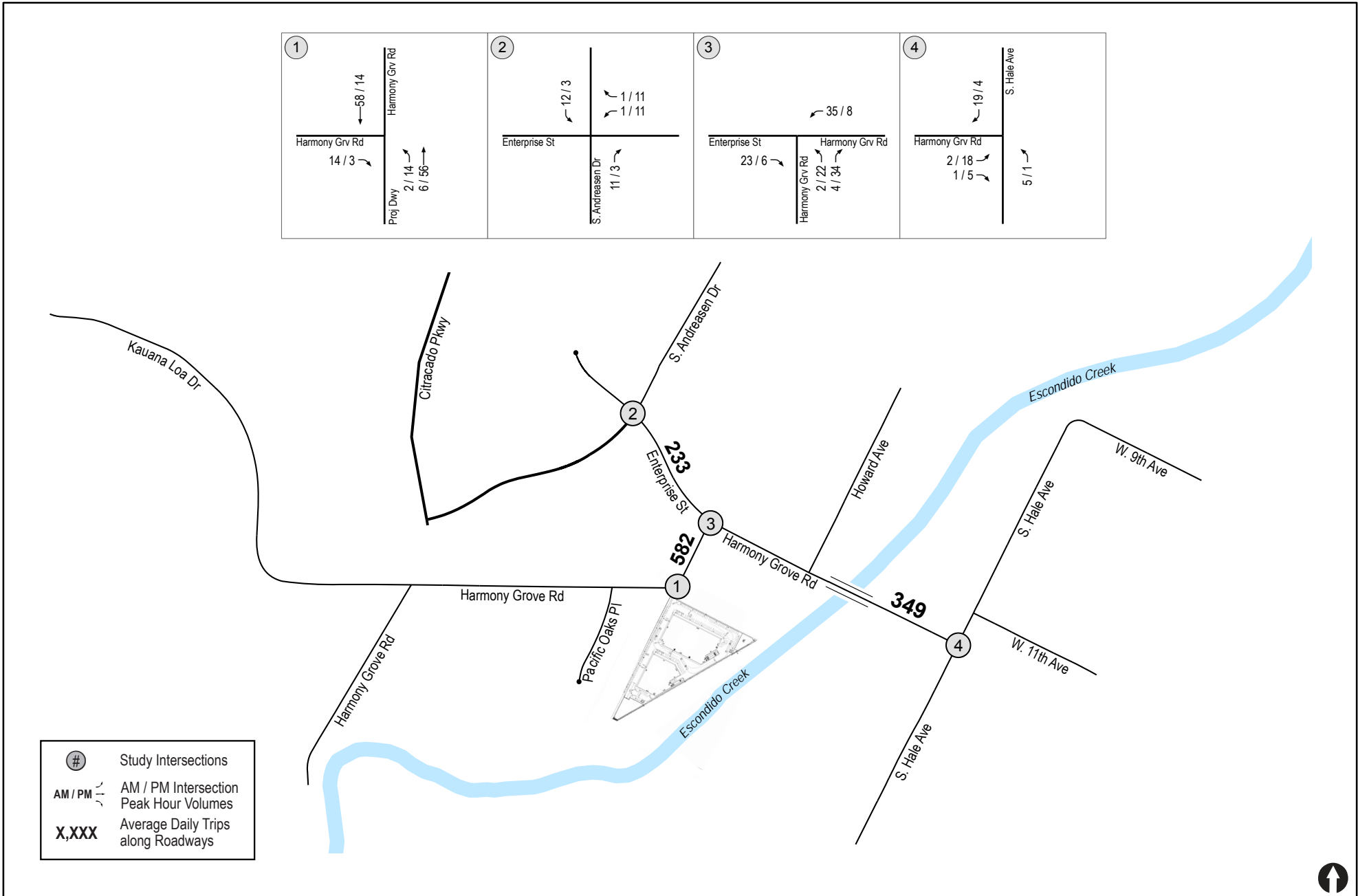
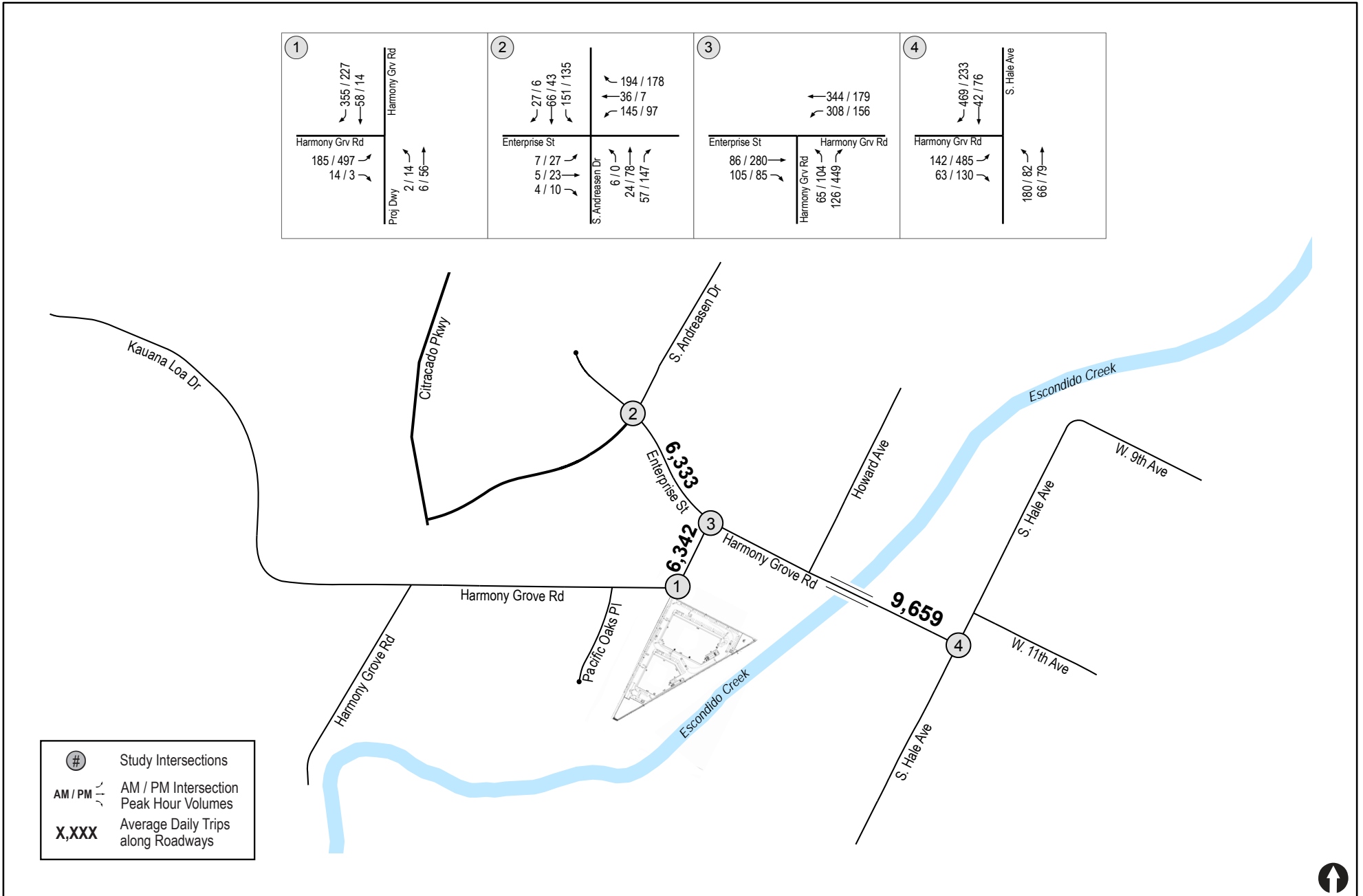


Figure 7-2

Project Traffic Volumes

ESCONDIDO VICTORY INDUSTRIAL PARK



8.0 CUMULATIVE PROJECTS CONDITIONS

8.1 Summary of Cumulative Projects

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. Based on research conducted for the cumulative condition and conversations with City and County staff, four (4) City of Escondido projects and three (3) County of San Diego projects were identified for inclusion in the near-term cumulative analysis. The following is a brief description of each of the cumulative projects in the general vicinity of the Project. *Table 8-1* summarizes the cumulative projects trip generation.

CITY OF ESCONDIDO

1. **Escondido Research and Technology Center Kidney Dialysis Center** is a 12,000 SF medical office building proposed along Citracado Parkway with the ERTC SPA.
2. **Escondido Research and Technology Center Medical Office** is a 74,400 SF medical office building proposed along Citracado Parkway with the ERTC SPA.
3. **Stone Brewery Hotel** proposes to construct a 44-room boutique hotel opposing the existing Stone Brewing World Bistro and Gardens. The project is located along Citracado Parkway within the ERTC SPA.
4. **6-Acre Industrial** is a project in the conceptual planning stage that proposes to develop 6 acres immediately adjacent to the proposed Project site with approximately 90,000 SF of Industrial Businesspark land use. Although this project is not yet under City review, due to its location abutting the Project site, it was included in the near-term cumulative condition.

COUNTY OF SAN DIEGO

1. **Harmony Grove Village** is a residential project located north of Harmony Grove Road and bound by Country Club Drive and Wilgen Road. The County General Plan Amendment project includes the development of 710 residential single-family units, 32 live/work lofts with 16,500 square-feet of retail, a 25,000-square foot village core, an equestrian park, public and private parks, an institutional site (assumed to be a tack and feed store), and a fire station. The project is currently under construction with approximately 15% of the homes completed and either sold or selling. The trips generated by the completed portion of the project are represented in the existing traffic count data. The remaining 85% of trips were assumed in the near-term cumulative condition. Roadway improvements completed with the project include the new roadway of Harmony Grove Village Parkway, connecting Country Club Drive in the west to Harmony Grove Road and Citracado Parkway/Avenida Del Diablo in the east. Additional network improvements to Harmony Grove Road south of the proposed Project site have also been completed.

2. **Valiano** is a 334-unit residential development located west of Country Club Drive and south of Hill Valley Road in the County of San Diego, adjacent to the cities of San Marcos and Escondido. This County General Plan Amendment project is currently under review with the County with the Draft EIR having been circulated for public review.

3. **Harmony Grove Village South** is 453-unit residential development located on 111 acres located east of Country Club Drive and south of Harmony Grove Road in the San Dieguito Planning Community of the County of San Diego. This County General Plan Amendment project is currently under review with the County.

**TABLE 8-1
CUMULATIVE DEVELOPMENT PROJECTS SUMMARY**

Jur.	No.	Name	Project	ADT ^a	AM		PM		Status
					In	Out	In	Out	
CITY OF ESCONDIDO	1	ERTC Kidney Dialysis Center	12 KSF Medical Office	480	28	7	20	46	Under Review
	2	ERTC Medical Office	74.4 KSF Medical Office	3,720	178	45	123	286	Under Review
	3	Stone Brewery Hotel	44-Room Boutique Hotel	352	11	8	11	27	Under Review
	4	6-Acre Industrial	Approx. 90 KSF Industrial Businesspark	1,440	138	35	35	138	Conceptual; Not Yet Submitted
COUNTY OF SAN DIEGO	5	Harmony Grove Village <i>(15% Complete; 85% of Trips Assumed in Analysis)</i>	710 SFDU 32 MFDU 16.5 KSF retail 25 KSF Village Core Equestrian Park Park Space Fire Station	7,790	239	382	496	282	Approved, Under Construction
	6	Valiano	334 DU	3,786	88	216	263	113	Draft EIR Public Review
	7	Harmony Grove Village South	453 DU	4,500	108	252	315	135	Under Review
Total Cumulative Projects				22,068	790	945	1,263	1,027	-

Footnotes:

- a. Average daily traffic.

8.2 Network Conditions

Citracado Parkway is currently constructed from Auto Park Way southward to its current terminus at Andreasen Drive as a four-lane major roadway with a LOS “E” capacity of 37,000 average daily trips (ADT). The roadway restarts at Harmony Grove Village Parkway and continues southeast past Valley Parkway where it again terminates, this time at Greenwood Place. This section has been constructed to a four-lane major road cross-section, but is currently striped as a two-lane divided roadway with one lane in each direction and a LOS “E” capacity of 15,000 ADT. Citracado Parkway is ultimately planned as four-lane major road for its entirety, including the future connection between Andreasen Drive and Harmony Grove Village Parkway.

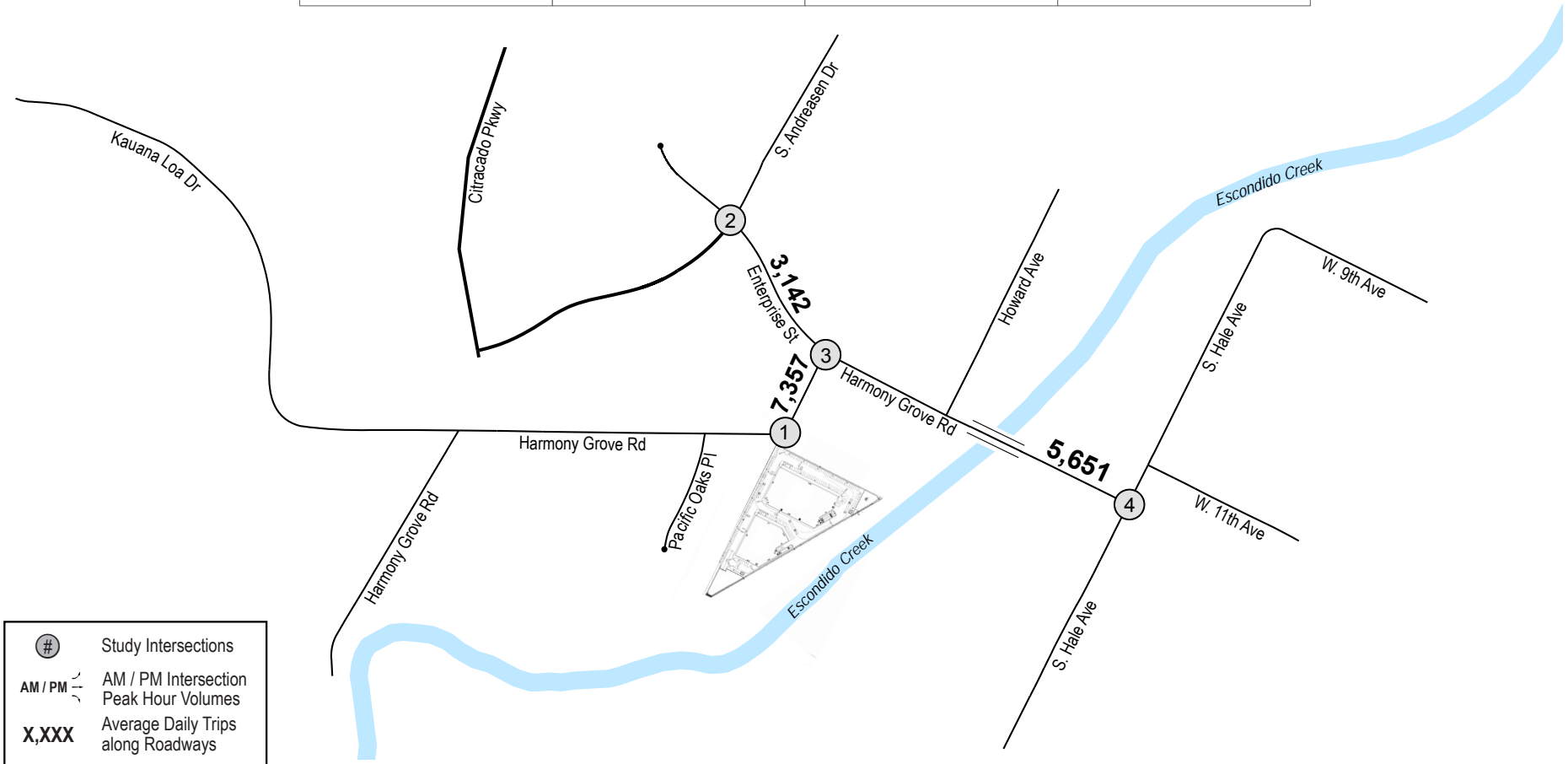
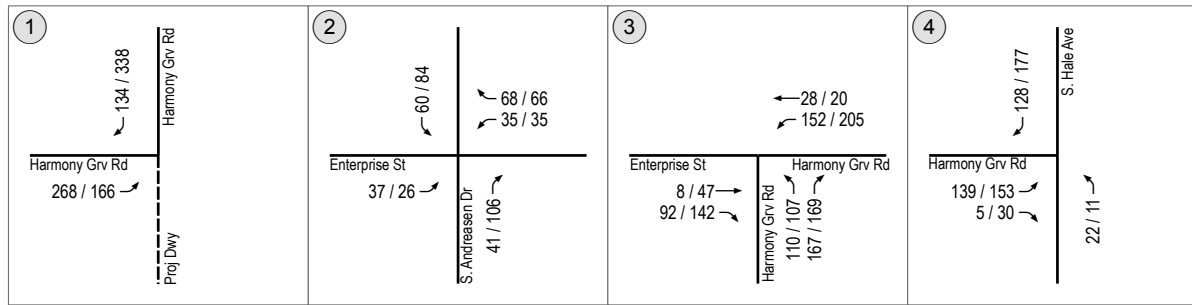
LLG has closely coordinated with City of Escondido and County staff regarding the status of this roadway extension project given our experience working on several projects affected by this network improvement. As of October 2015, the City’s application for the 2015 Department of Transportation TIGER Grant was denied and therefore, funding remains insufficient and the timing for completion of the improvements has been set back. The City anticipates the completion of Citracado Parkway within the next five (5) years. However, given the uncertainty of timing and funding, it has not been included in the near-term analysis included in this report.

Further discussion of the Citracado Extension Project is included in *Section 10.1* of this report.

8.3 Traffic Volumes

Cumulative project traffic generated by the developments listed above and summarized in *Table 8-1* was assigned to the street system to arrive at Project opening day conditions. Given the Project’s proposed near-term opening day condition is assumed to be two (2) years from today, it is overly conservative to assume 100% of the trips from the cumulative development projects would be completed and generating traffic by the Year 2018. However, for purposes of being consistent with the cumulative analyses of those projects and to be conservative, the total amount of trips was assigned to the study area. It should also be noted that although the total buildout traffic from the cumulative projects was conservatively assumed in the Existing + Cumulative Projects condition, no infrastructure improvements were included.

Figure 8-1 shows the Cumulative Project only traffic volumes. *Figure 8-2* depicts the Existing + Cumulative Projects traffic volumes and *Figure 8-2* shows the Existing + Cumulative Projects + Project traffic volumes in the study area.



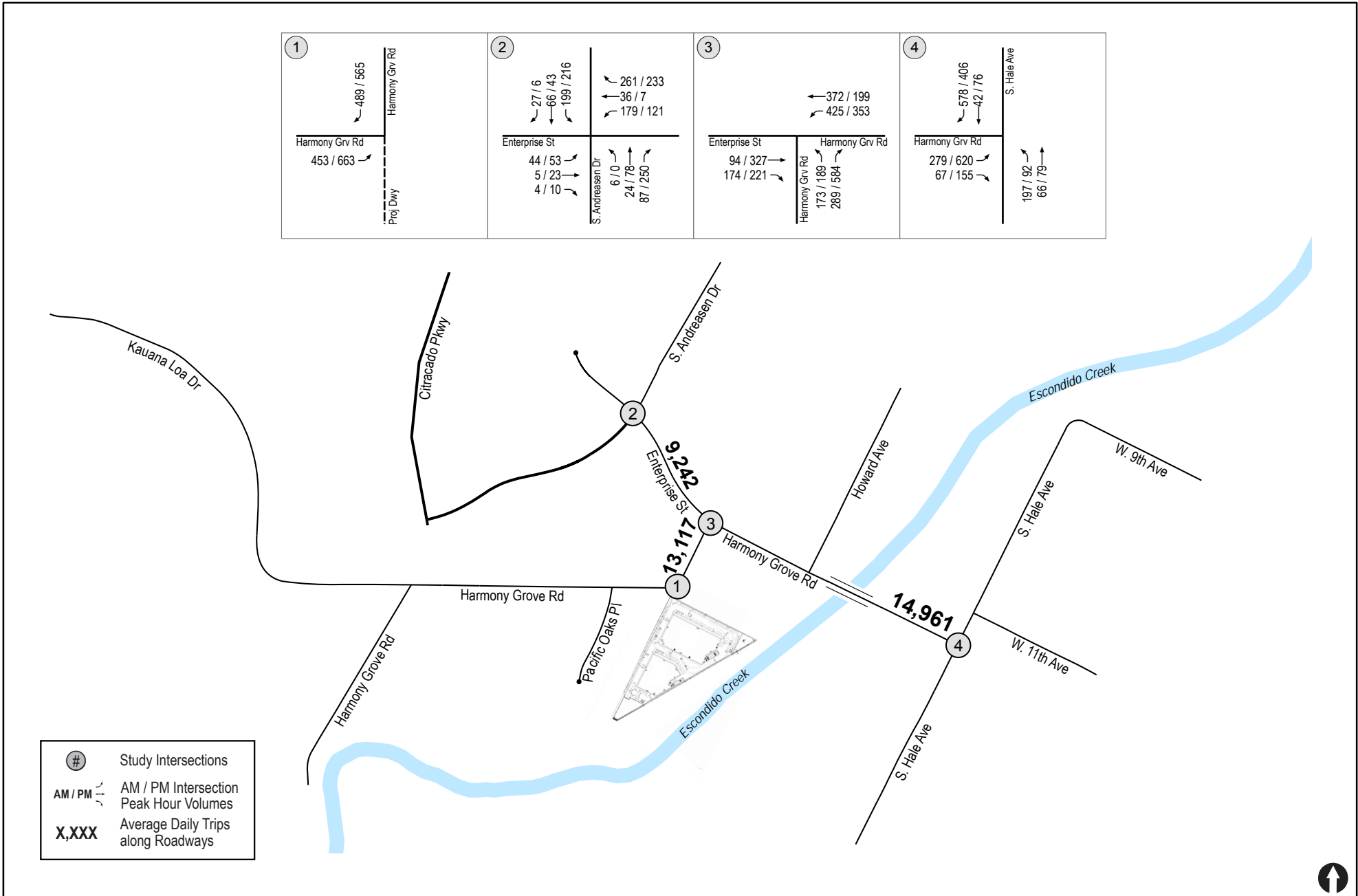
Study Intersections
 AM / PM ↕ Peak Hour Volumes
 X,XXX Average Daily Trips along Roadways



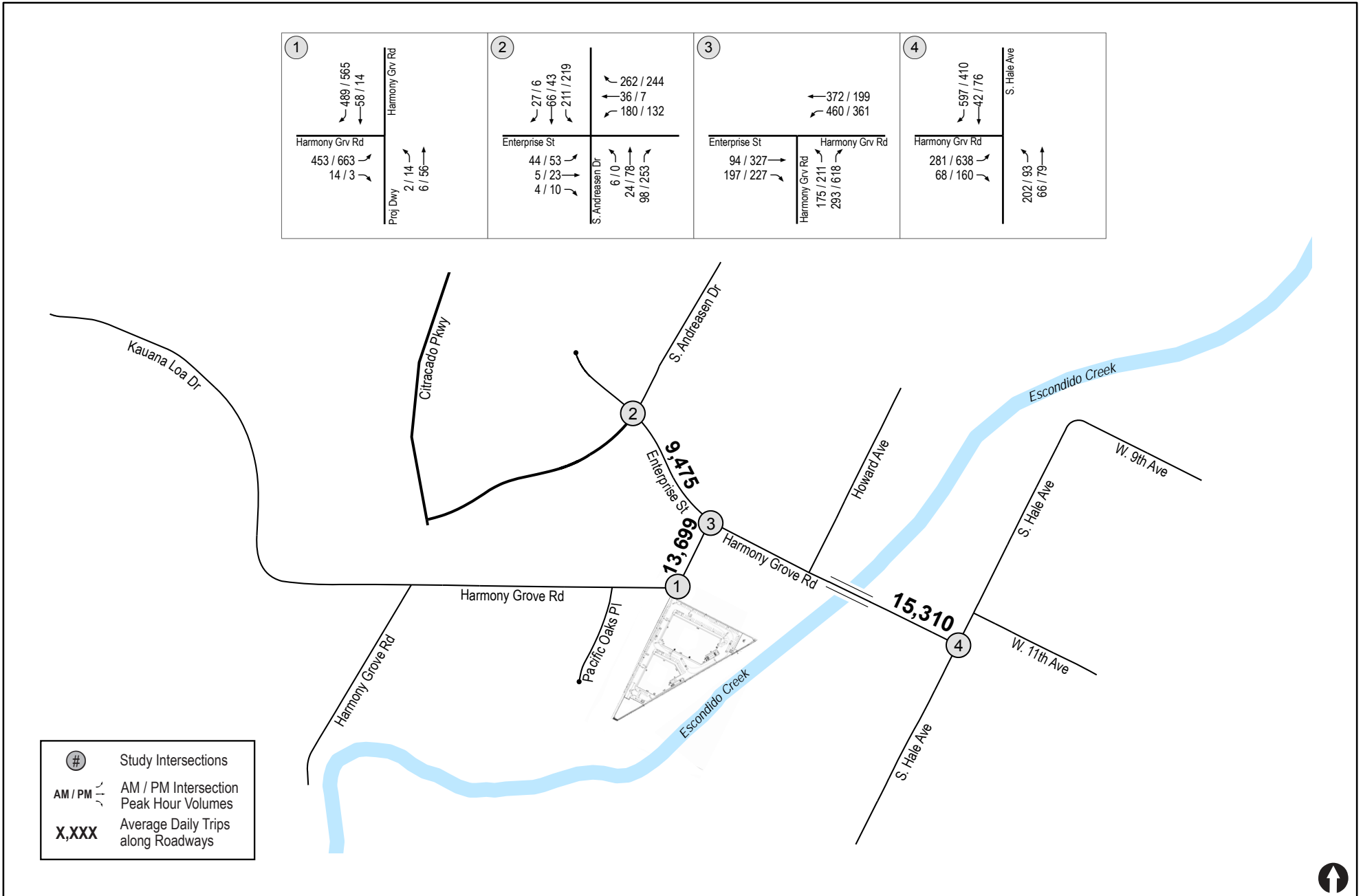
Figure 8-1

Cumulative Projects Traffic Volumes

ESCONDIDO VICTORY INDUSTRIAL PARK



Existing + Cumulative Projects Traffic Volumes



Existing + Project + Cumulative Projects Traffic Volumes

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

9.1 Existing + Project Conditions

9.1.1 Peak Hour Intersection Levels of Service

Table 9-1 summarizes the Existing + Project intersections LOS. As seen in *Table 9-1*, with the addition of Project traffic, study area intersections are calculated to operate at LOS C or better except for the following:

- Intersection #4. Harmony Grove Road / Hale Avenue – LOS D in the PM peak hour

Based on the applied significance criteria, **one (1) significant direct impact** was calculated with the addition of Project traffic at the intersection noted above since the Project-induced increase in delay is greater than 2.0 seconds for LOS D operating intersections within the City of Escondido.

Appendix E contains the Existing + Project intersection analysis worksheets.

9.1.2 Daily Street Segment Operations

Table 9-2 summarizes the Existing + Project roadway segment LOS. As seen in *Table 9-2*, with the addition of Project traffic, all study area segments are calculated to operate at LOS C or better.

9.2 Existing + Cumulative Project Conditions

9.2.1 Peak Hour Intersection Levels of Service

Table 9-1 summarizes the Existing + Cumulative Projects intersections LOS. As seen in *Table 9-1*, with the addition of cumulative projects traffic, study area intersections are calculated to operate at LOS C or better except for the following:

- Intersection #4. Harmony Grove Road / Hale Avenue – LOS E/E during the AM/PM peak hours

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

9.2.2 Daily Street Segment Operations

Table 9-2 summarizes the Existing + Cumulative Projects roadway segment LOS. As seen in *Table 9-2*, with the addition of cumulative projects traffic, the following study area segments are calculated to operate at LOS E or worse:

- Street Segment #1. Harmony Grove Road: Project Access to Enterprise Street – LOS F
- Street Segment #2. Harmony Grove Road: Enterprise Street to Hale Avenue – LOS E

9.3 Existing + Project + Cumulative Projects Conditions

9.3.1 Peak Hour Intersection Levels of Service

Table 9–1 summarizes the Existing + Project + Cumulative Projects intersections LOS. As seen in Table 9–1, with the addition of Project traffic and cumulative project traffic, the following intersections are calculated to operate at unacceptable levels of service:

- Intersection #4. Harmony Grove Road / Hale Avenue – LOS E/E during the AM/PM peak hours

Based on the applied significance criteria, **no significant cumulative impacts** were calculated with the addition of Project traffic and cumulative projects traffic at the intersection noted above since the Project-induced increase in delay is less than 2.0 seconds for LOS E operating intersections within the City of Escondido.

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

9.3.2 Daily Street Segment Operations

Table 9–2 summarizes the Existing + Project + Cumulative Projects roadway segment LOS. As seen in Table 9–2 with the addition of Project traffic and cumulative project traffic, the following study area segments are calculated to operate at LOS E or worse:

- Street Segment #1. Harmony Grove Road: Project Access to Enterprise Street – LOS F
- Street Segment #2. Harmony Grove Road: Enterprise Street to Hale Avenue – LOS F

Based on the applied significance criteria, **two (2) significant cumulative impacts** were calculated with the addition of Project traffic and cumulative projects traffic on the street segments noted above since the Project-induced increase in V/C is greater than 0.02 for LOS F operating street segments in the City of Escondido.

**TABLE 9-1
NEAR-TERM INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Existing + Cumulative Projects		Existing + Project + Cumulative Projects			Impact Type
			Delay ^a	LOS ^b	Delay	LOS	Δ ^c	Delay	LOS	Delay	LOS	Δ ^c	
1. Harmony Grove Road / Project Access	DNE/ MSSC ^d	AM	—	—	10.2	B	—	—	—	15.0	B	—	None
		PM	—	—	14.1	B	—	—	—	21.3	C	—	
2. Andreasen Drive / Enterprise Street	Signal	AM	26.1	C	26.2	C	0.1	29.2	C	29.3	C	0.1	None
		PM	24.6	C	25.0	C	0.4	29.8	C	30.9	C	1.1	
3. Harmony Grove Road / Enterprise Street	Signal	AM	15.9	B	16.6	B	0.7	18.6	B	20.7	C	2.1	None
		PM	15.0	B	15.6	B	0.3	20.2	C	20.9	C	0.7	
4. Harmony Grove Road / Hale Avenue	AWSC ^e	AM	15.7	C	16.8	C	1.1	39.4	E	39.8	E	0.4	Direct
		PM	25.5	D	28.9	D	3.4	41.2	E	41.7	E	0.5	

Footnotes:

- a. Average delay expressed in seconds per vehicle.
- b. Level of Service.
- c. “Δ” denotes the Project-induced increase in delay.
- d. MSSC – Minor Street Stop Controlled intersection. Minor street left-turn delay is reported.
- e. AWSC – All Way Stop Controlled intersection. Average intersection delay is reported.

General Notes:

1. DNE = Does not exist.
2. **Bold** typeface and **shading** represents a significant impact.

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**

City of Escondido Street Segments	Existing Capacity (LOS E) ^a	Existing			Existing + Project				Existing + Cumulative Projects			Existing + Project + Cumulative Projects				Project Added Trips	Impact Type
		ADT ^b	LOS ^c	V/C ^d	ADT	LOS	V/C	Δ ^e	ADT	LOS	V/C	ADT	LOS	V/C	Δ ^e		
Harmony Grove Road																	
1. Project Access to Enterprise Street	10,000	5,760	C	0.576	6,342	C	0.634	0.058	13,117	F	1.312	13,699	F	1.370	0.058	582	Cuml.
2. Enterprise Street to Hale Avenue	15,000	9,310	C	0.621	9,659	C	0.644	0.023	14,961	E	0.997	15,310	F	1.021	0.024	349	Cuml
Enterprise Street																	
3. Andreasen Drive to Harmony Grove Rd	15,000	6,100	B	0.407	6,333	B	0.422	0.015	9,242	C	0.924	9,475	C	0.948	0.024	233	None

Footnotes:

- a. Capacities based on City of Escondido Classification Tables.
- b. ADT – Average Daily Traffic Volumes.
- c. LOS – Level of Service.
- d. V/C – Volume to Capacity ratio.
- e. “Δ” denotes the Project-induced increase in V/C.

General Notes:

- 1. **Bold** typeface and **shading** represents a significant impact.
- 2. Cuml – Cumulative impact

10.0 GENERAL PLAN ASSESSMENT

10.1 Citracado Parkway Extension Project

As previously mentioned in *Section 8.2* of this report and according to City staff, the Citracado Parkway Extension Project is anticipated to occur within the next five (5) years, although the timing for completion and the availability of funding are not yet fully defined. With the connection of Citracado Parkway from its northern terminus at Andreasen Drive to its current southern terminus at Avenida Del Diablo, a substantial shift in traffic patterns is anticipated and has been studied heavily in several planning documents. The extension project plans to connect and improve Citracado Parkway to Four-Lane Major Road standards, complete with intersection enhancements proposed at Andreasen Drive (additional lanes), Harmony Grove Road (traffic signal), Harmony Grove Village Parkway (traffic signal), and Valley Parkway (additional lanes). In addition, a key infrastructure change with the extension project largely affecting the Project access is the planned cul-de-sac of Harmony Grove Road, just west of Pacific Oaks Place.

Figure 10–1 shows the major changes to the General Plan network with the completion of Citracado Parkway.

Section 10.2 below discusses the changes in traffic volumes with the Citracado Parkway Extension Project.

10.2 General Plan Land Use and Traffic Volumes

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 approved General Plan (adopted in 2011). 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 land uses) was the more accurate model to use in the meantime.

The proposed Project is consistent with the City’s General Plan Land Use Element, designating this site for industrial uses. Therefore, the buildout volumes and analysis presented in this report are representative of the operations forecasted per the General Plan.

The model also accounts for the Mobility Element network proposed at buildout of the City’s General Plan, including the Citracado Parkway Extension Project. As mentioned above in *Section 10.1*, the Citracado Parkway connection has been evaluated and modeled in several planning documents over the years. Without the connection of Citracado Parkway, existing travel patterns show drivers destined to/from the westerly City boundary along Harmony Grove Road currently traverse Harmony Grove Road to Hale Avenue, ultimately destined to/from the City proper or Interstate 15 (I-15). Both Harmony Grove Road and Hale Avenue are classified as Local Collectors on the City’s Mobility Element and are built as two-lane roadways with an existing LOS E capacity of 10,000 ADT or 15,000 ADT, according to City standards.

Figure 10–2 shows the General Plan (Year 2035) traffic volumes.

10.3 Daily Street Segment Operations

Table 9–1 and 9–2 provided earlier in this report indicate that with the construction of County General Plan Amendment projects in the near-term and without the connection of Citracado Parkway, Harmony Grove Road is forecasted to operate poorly at LOS E and F. Significant, temporary near-term Project impacts are calculated as a result of the absence of this infrastructure improvement. However, with the completion of the Citracado Parkway Extension Project, the poor operations forecasted in the near-term are alleviated to acceptable levels. Connecting Citracado Parkway as a Major Road thoroughfare provides drivers an alternative route between the County, City and I-15, where drivers currently use local roadways not suitable for such travel. The implementation of this network enhancing project will alleviate congestion along the Project study area roadways by redirecting trips off two-lane Harmony Grove Road and onto four-lane Citracado Parkway. It also completes a portion of the City’s proposed Truck Route circulation plan, lessening the use of City streets for trucking operations from the local industrial uses. These changes in travel patterns, reductions in traffic volumes on local roadways, and improvements in levels of service are shown in the *Citracado Parkway Final EIR*, approved February 2012 and in the City’s certified General Plan Update EIR.

Notably, the cul-de-sac proposed on Harmony Grove Road, just west of the Project site and east of the proposed Citracado Parkway extension would eliminate any “cut-through” traffic along the Project frontage. This reduction in cut-through traffic greatly improves the available capacity on Harmony Grove Road from LOS F in the near-term without Citracado Parkway to good LOS B operations with the future connection.

The analysis results are summarized below in **Table 10–1**. As seen in *Table 10–1*, Enterprise Street and Harmony Grove Road are calculated to operate at LOS B or better with buildout of the General Plan land uses (including this Project) and network changes (Citracado Parkway), as well as with the additional traffic generated by the County General Plan Amendment projects included in the near-term condition.

**TABLE 10-1
GENERAL PLAN STREET SEGMENT OPERATIONS**

Street Segments	General Plan Classification ^a	General Plan Capacity (LOS E) ^a	General Plan (Year 2035) With Proposed Project		
			ADT ^b	LOS ^c	V/C ^d
Harmony Grove Road					
1. Project Access to Enterprise Street	Unclassified ^e	15,000	5,500	B	0.367
2. Enterprise Street to Hale Avenue	Local Collector	15,000	7,230	B	0.482
Enterprise Street					
3. Andreasen Drive to Harmony Grove Road	Local Collector	15,000	4,770	A	0.318

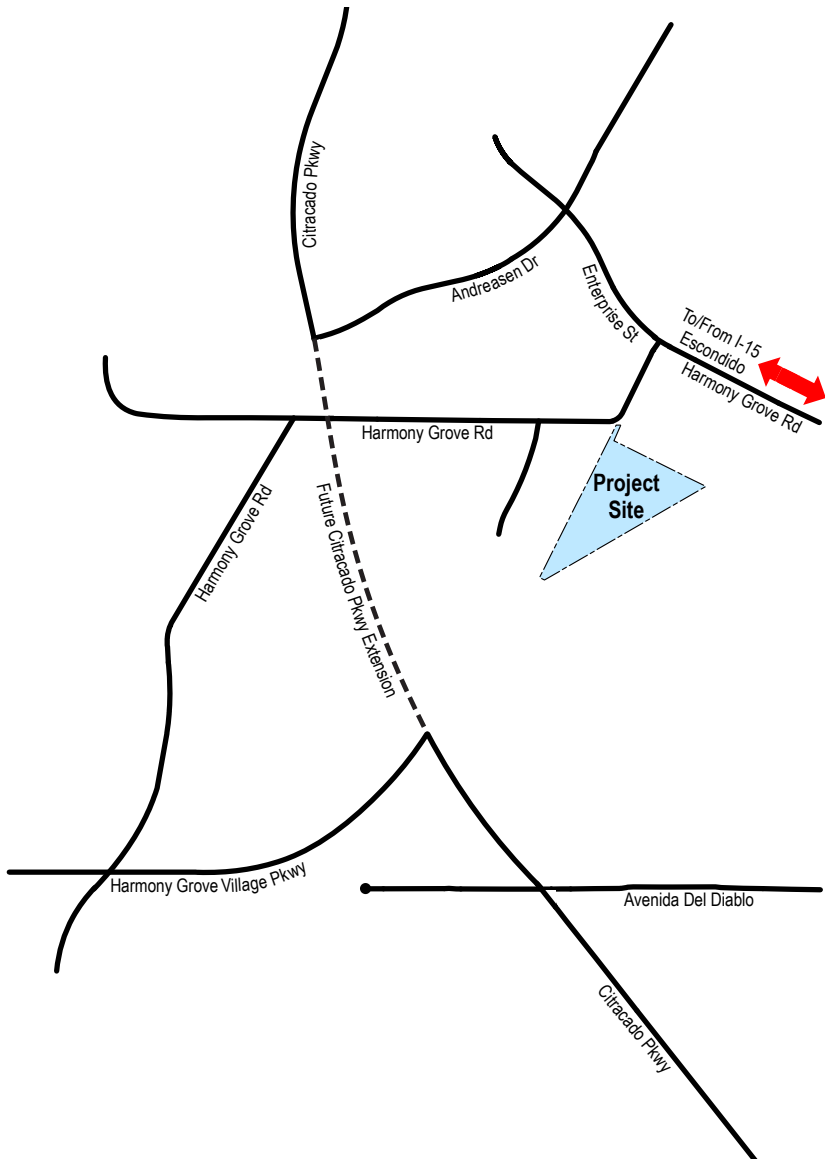
Footnotes:

- a. Classifications and capacities based on the City of Escondido General Plan EIR (certified May 2012) and City of Escondido Roadway Classification Tables.
- b. ADT = Average Daily Traffic Volumes, rounded to the nearest hundredth.
- c. LOS = Level of Service.
- d. V/C = Volume to Capacity ratio.
- e. This portion of Harmony Grove Road is unclassified on the City's Mobility Element. However, given the roadway is partially improved to Local Collector standards, it was assumed to be built to full Local Collector standards by buildout conditions.

General Notes:

1. Improvement in level of service from near-term conditions representative of the completion of the Citracado Parkway Extension Project.

EXISTING



GENERAL PLAN

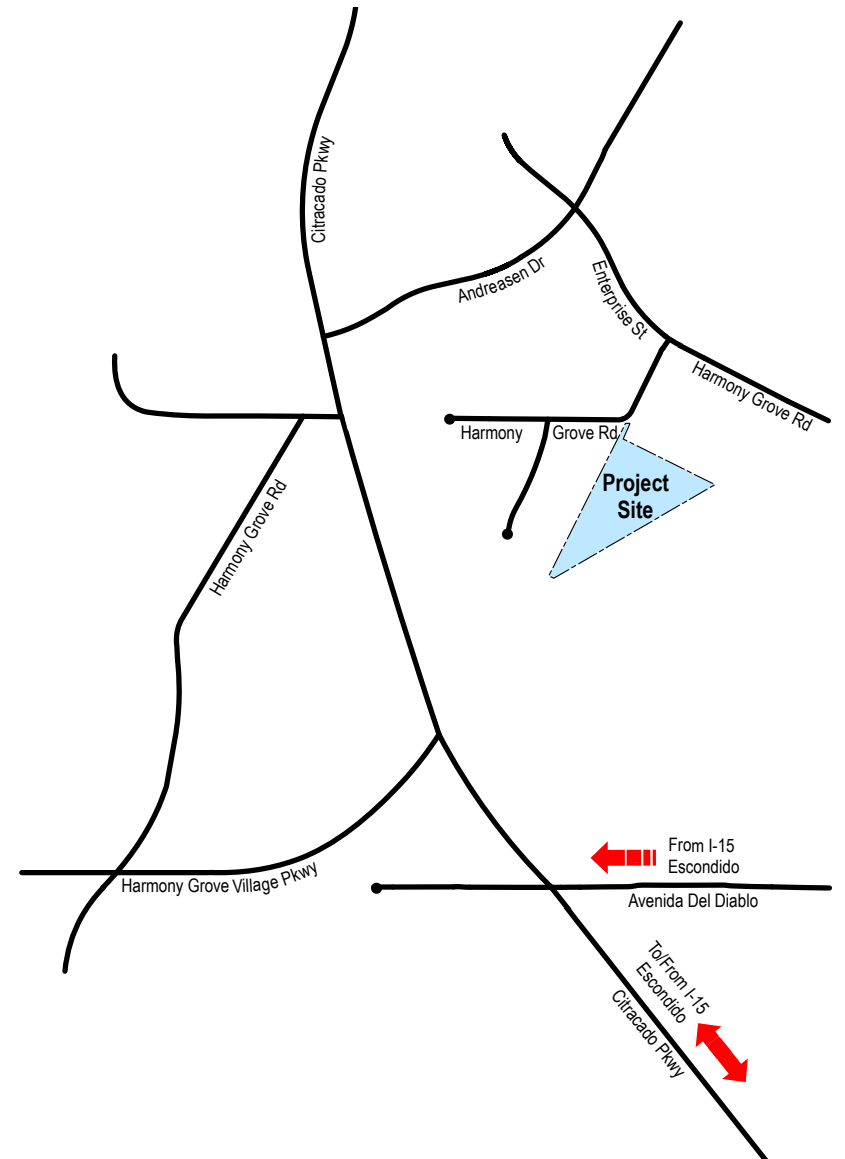
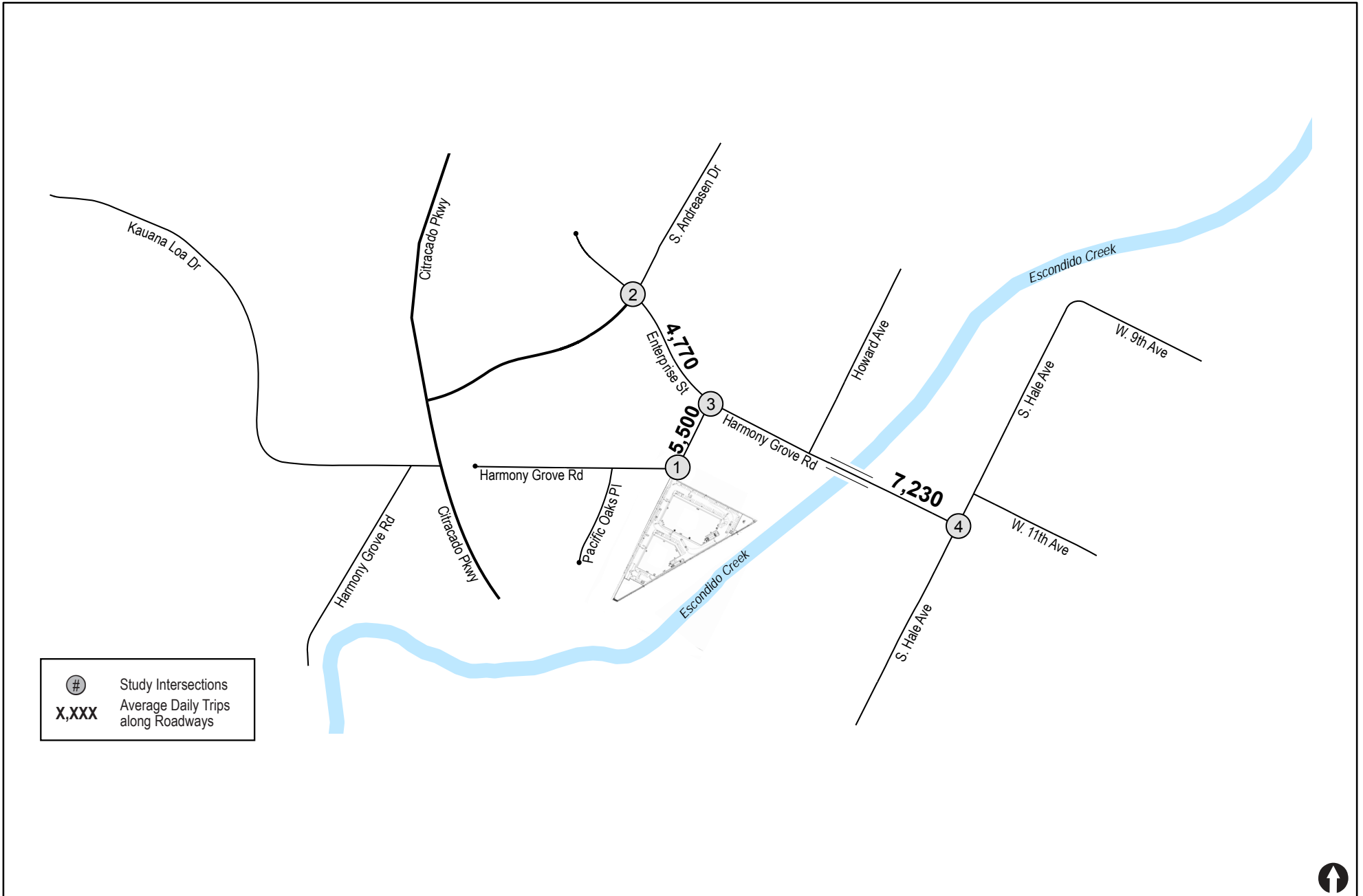


Figure 10-1

General Plan Network Changes



11.0 SUMMARY OF SIGNIFICANT IMPACTS, MITIGATION MEASURES & FAIR SHARE CALCULATIONS

Per the City of Escondido'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 City of Escondido requires that physical improvements be implemented for direct impacts where a project reduces levels of service to below acceptable LOS C thresholds. A fair share payment toward future improvements is required where the addition of project traffic is cumulative to the overall LOS D or worse pre-project conditions.

Mitigation to lower identified significant impacts to less-than-significant levels has been identified for the three (3) impacts within the City of Escondido's jurisdiction. These identified measures will result in less-than-significant impacts for identified short-term temporary direct and cumulative Project-related effects upon implementation, and will become Conditions of the Project, as appropriate.

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

11.1 Significant Impacts Prior to Mitigation

Per the City of Escondido significance thresholds and the analysis methodologies presented in this report, one (1) short-term significant direct impact and two (2) short-term significant cumulative impacts were calculated within the study area. They are listed below.

11.1.1 Intersections

TRA-1. Intersection #4. Harmony Grove Road at Hale Avenue (*Short-Term Direct*)

11.1.2 Street Segments

TRA-2. Street Segment #1. Harmony Grove Road between the Project Driveway and Enterprise Street (*Short-Term Cumulative*)

TRA-3. Street Segment #2. Harmony Grove Road between Enterprise Street and Hale Avenue (*Short-Term Cumulative*)

11.2 Mitigation Measures

11.2.1 Intersections

TRA-4. Intersection #4. Harmony Grove Road at Hale Avenue – Restripe the approach on Hale Avenue within the existing 21-foot southbound lane to provide one dedicated right-turn lane (11-feet wide) and one (1) through lane (10-feet wide) extending 120 feet from the stop bar. This would match the number of lanes on the eastbound approach on Harmony Grove Road which provides one dedicated right-turn lane (11-

feet wide) and one (1) dedicated left-turn lane (10-feet wide). *Figure 11-1* shows the conceptual striping plan for these improvements. Although a dedicated truck route exists along Auto Park Way, there is the tendency for large semi-trucks to maneuver through Hale Avenue to Harmony Grove Road. Trucks would continue to be able to navigate through this intersection as they do today. This is demonstrated on *Figure 11-2*.

The additional capacity provided by this 120-foot southbound right-turn lane would be able to store up to five (5) automobiles assuming the industrial standard 22-feet of storage per automobile at any given time without excess backup past 11th Avenue. The number of Project trips making the southbound right-turn movement is 19 AM peak hour trips. In an hour, that amounts to approximately one (1) vehicle every three (3) minutes. The new 120-foot right-turn lane will be able to queue at least five (5) automobiles per minute which would amount to 300 vehicles processed per hour.

Therefore, the additional capacity created by the dedicated southbound right-turn lane would more than accommodate the 19 trips generated by the Project during the AM peak hour, thus mitigating the Project's direct impact to below significant levels.

11.2.2 Street Segments

- TRA-1. **Street Segment #2. Harmony Grove Road between the Project Driveway and Enterprise Street** – Widen Harmony Grove Road within the existing right-of-way between the Project Driveway to Enterprise Street to provide a two-way left-turn lane serving as a refuge for left-turning vehicles in and out of the Project site and nearby industrial driveways, thus allowing for improved flow for thru traffic along Harmony Grove Road. From the Project Driveway to Enterprise Street (a length of approximately 415 feet), widen Harmony Grove Road extending north along the Project frontage to provide a 13 to 18-foot northbound lane and an 11-foot two-way left-turn lane for a total paved width varying between 38 and 54 feet. *Appendix H* contains the City of Escondido preferred concept drawing with truck turning analysis along this segment.

Implementation of these recommendations improves the street segment to pre-Project conditions and therefore, mitigates the Project's cumulative impact to below significant levels.

It should also be noted that the completion of the Citracado Parkway Extension Project will cul-de-sac Harmony Grove Road just west of Pacific Oaks Place (west of the Project access), reducing the amount of cut-through trips along this roadway and improve operations to LOS B along this roadway segment, as shown earlier in this report in *Table 10-1*.

- TRA-2. **Street Segment #2. Harmony Grove Road between Enterprise Street and Hale Avenue** – The Project should pay a fair share toward the Citracado Parkway Extension Project to improve and redirect the flow of traffic along this roadway. As shown earlier in *Table 10-1* of this report, acceptable LOS B operations are forecasted on this segment with the connection of Citracado Parkway.

11.3 Fair Share Calculations

The City of Escondido does not have a standard fair share formula to determine a development project's financial contribution to future infrastructure improvement projects, such as Citracado Parkway. As such, a review of the City of San Diego's standard fair share formula (typical for the region) was conducted. The City of San Diego's formula calculates a development project's fair share contribution by dividing a project's total trips by the anticipated growth in traffic volumes in the future, i.e. future volumes minus existing volumes:

$$\text{Fair Share \%} = \frac{\text{Project Traffic Volumes}}{\text{Buildout (With Project) Traffic Volumes} - \text{Existing Traffic Volumes}}$$

*Calculation represents City of San Diego standard fair share formula for cumulative traffic impacts.

The fair share payment required by the Project would be paid toward the future Citracado Parkway Extension Project that is not currently constructed, and therefore does not have existing traffic volumes to be discounted from the formula. It was thus decided that the formula would be modified to exclude the existing traffic volumes from the denominator, as follows:

$$\text{Fair Share \%} = \frac{\text{Project Traffic Volumes}}{\text{Buildout (With Project) Traffic Volumes}}$$

*Calculation represents modified City of San Diego standard fair share formula for cumulative traffic impacts, to be applied toward the Citracado Parkway Extension Project.

The next step to determine the Project's fair share toward the Citracado Parkway Extension Project was to understand the number of Project trips that would utilize this new roadway. A review of the SANDAG SZA used in the Project distribution and in discussions with City staff, a total of 14% of Project trips were assumed to use the new section of Citracado Parkway between Andreasen Drive and Harmony Grove Road, once connected. **Appendix I** provides a graphic representation of the Project distribution with the completion of the Citracado Parkway Extension Project.

According to the City's General Plan Mobility Element and accounting for the currently known County of San Diego General Plan Amendment Projects, the forecasted volume on this section of Citracado Parkway between Andreasen Drive and Harmony Grove Road is 25,200 ADT. The Project's fair share would thus be calculated as:

$$0.004 \% = \frac{102 \text{ Project ADT}}{25,200 \text{ ADT}}$$



Figure 11-1
 Conceptual Striping Condition



SCALE: 1"=60'

REV. 5/3/2016
 N:\2575\Figures\LLG2575 FIG11-2

**LINSCOTT
 LAW &
 GREENSPAN**
 →
engineers

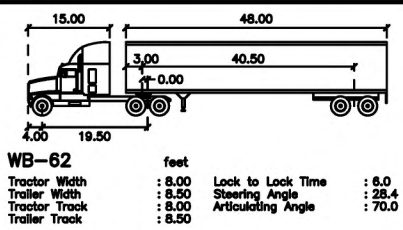


Figure 11-2
Truck Turning Analysis

End of Report