



TRANSPORTATION IMPACT ANALYSIS

MADERAS HOTEL

Poway, California
June 21, 2016

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EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has been retained to prepare the following Transportation Impact Analysis associated with the Maderas Hotel project (Project). The Project is located on Old Coach Drive off of Old Coach Road, north of Espola Road, in the City of Poway.

The Project proposes to construct a Resort Hotel with 240 rooms near the Maderas Golf Clubhouse. Access is proposed via Old Coach Drive, north of Old Coach Road

Using SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*, the Project is calculated to generate a total of 1,920 ADT with 58 inbound and 38 outbound trips during the AM peak hour and 54 inbound and 80 outbound trips during the PM peak hour.

A study area encompassing areas of anticipated impact related to the Project, including fourteen (14) intersections and fifteen (15) street segments, was studied under the following six (6) scenarios:

- Existing
- Existing + Project
- Near-Term
- Near-Term + Project
- Year 2035
- Year 2035 + Project

Based on City of Poway and City of San Diego significance criteria, no Project related significant direct or cumulative impacts were calculated, and therefore mitigation measures are not required.

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June 21, 2016

1.0 INTRODUCTION

Linscott, Law & Greenspan, Engineers (LLG) has been retained to prepare the following Transportation Impact Analysis associated with the Maderas Hotel project (Project). The Project is located along Old Coach Drive off of Old Coach Road, north of Espola Road, in the City of Poway.

The Project proposes to construct a Resort Hotel with 240 rooms near the Maderas Golf Clubhouse.

The traffic analysis presented in this report encompasses the following key areas:

- Project Description
- Study Area
- Existing Conditions
- Existing Analysis
- Project Trip Generation/ Distribution/ Assignment
- Existing + Project Analysis
- Cumulative Projects
- Near-Term Analysis
- Year 2035 Analysis
- Conclusions

2.0 PROJECT DESCRIPTION

2.1 Project Location

The Project site is located along Old Coach Drive off of Old Coach Road, North of Espola Road, in the City of Poway.

Figure 2-1 shows the Project vicinity map and *Figure 2-2* shows the Project area map.

2.2 Project Description

The Project proposes a Resort Hotel with 240 rooms near the Maderas Golf Clubhouse. Access is proposed via Old Coach Drive, north of Old Coach Road. Project specifics are still under development, and therefore a site plan is not available at this time.

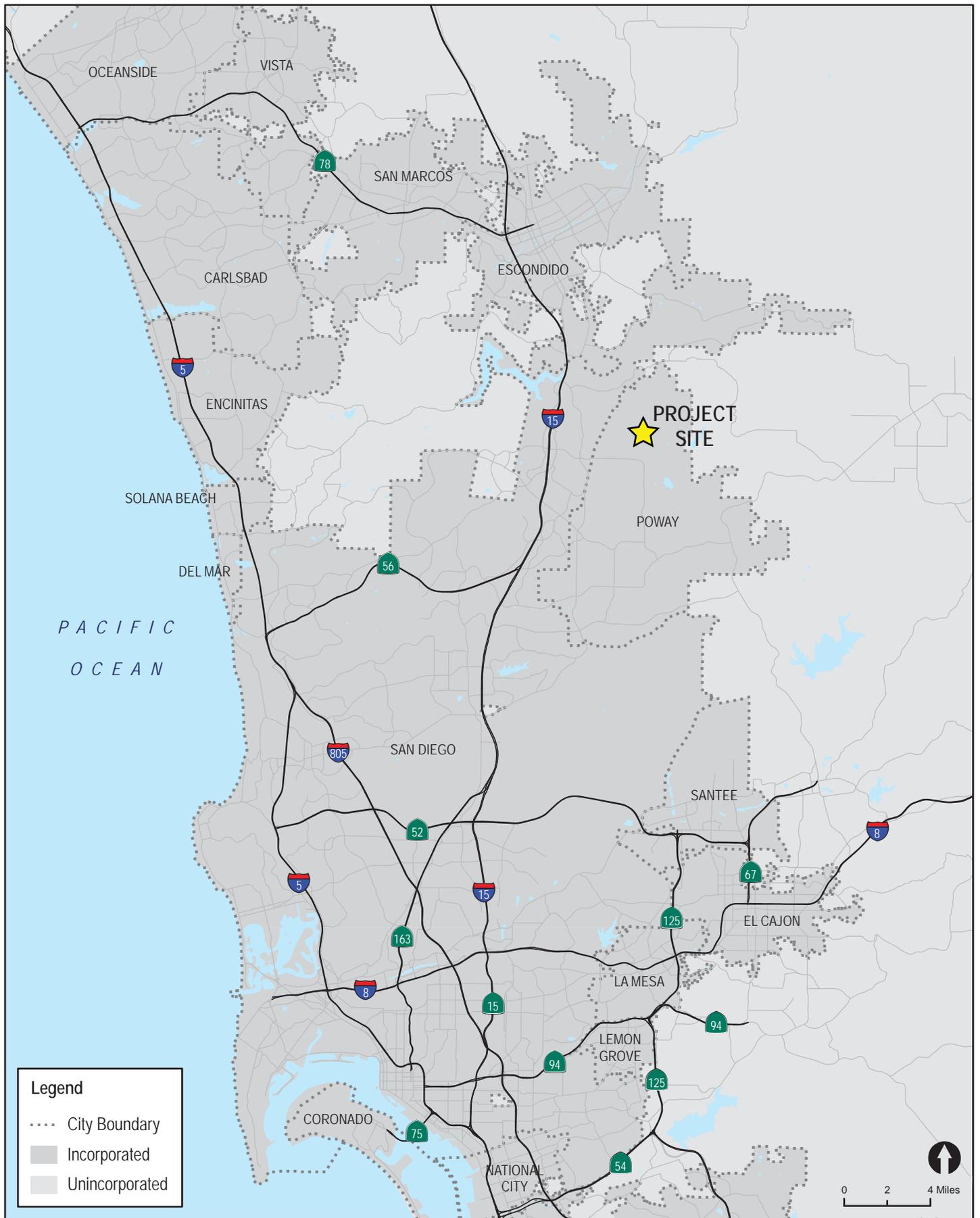
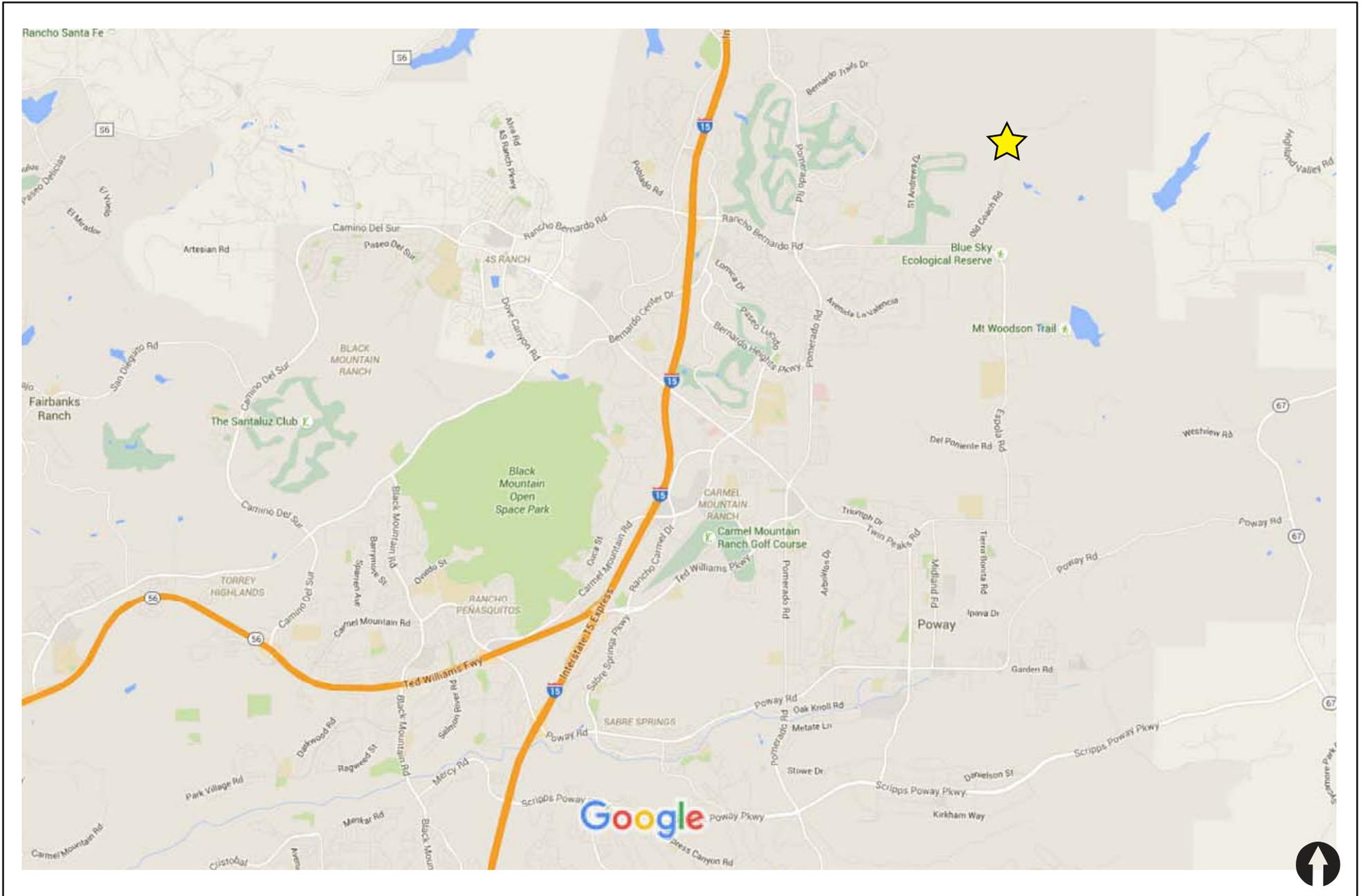


Figure 2-1

Vicinity Map

MADERAS HOTEL



3.0 EXISTING CONDITIONS

Evaluation of the traffic impacts associated with the proposed Project requires an understanding of the existing transportation system within the study area. *Figure 3-1* shows an existing conditions diagram.

3.1 Project Study Area

The study area for this project encompasses areas of anticipated impact related to the project. The scope of the study area was developed with City of Poway staff per the *SANTEC/ITE Regional Guidelines for Traffic Impact Studies* and the *City of San Diego Traffic Impact Study Manual* guidelines for intersections, segments and ramp meters. The development of the study area also took into account a review of approved traffic studies in the project area, and a working knowledge of the local transportation system.

Based on the above guidelines, this study analyzes fourteen (14) intersections, fifteen (15) street segments and two (2) ramp meters. The analyzed facilities fall within either the City of Poway or the City of San Diego, as noted below.

Intersections:

1. Rancho Bernardo Road / I-15 SB Ramps (City of San Diego)
2. Rancho Bernardo Road / I-15 NB Ramps (City of San Diego)
3. Rancho Bernardo Road / Bernardo Center Drive (City of San Diego)
4. Rancho Bernardo Road / Pomerado Road (City of San Diego)
5. Espola Road / Summerfield Lane (Poway)
6. Espola Road / Valle Verde Road (Poway)
7. Espola Road / Martincoit Road (Poway)
8. Espola Road / Old Coach Road (Poway)
9. Espola Road / Lake Poway Road (Poway)
10. Espola Road / Titan Way / Eden Grove (Poway)
11. Espola Road / Del Poniente Road / High Valley Road (Poway)
12. Espola Road / Twin Peaks Road (Poway)
13. Espola Road / Poway Road (Poway)
14. Old Coach Road / Old Coach Drive (Poway)

Street Segments:

Rancho Bernardo Road

- I-15 NB Ramps to Bernardo Center Drive (City of San Diego)
- Bernardo Center Drive to Pomerado Road (City of San Diego)
- Pomerado Road to Summerfield Lane (City of San Diego)

Espola Road

- Summerfield Lane to Valle Verde Road (Poway)

Valle Verde Road to Martincoit Road (Poway)
Martincoit Road to Westling Court (Poway)
Westling Court to Old Coach Road (Poway)
Old Coach Road to Lake Poway Road (Poway)
Lake Poway Road to Titan Way / Eden Grove (Poway)
Titan Way / Eden Grove to Willow Ranch Road (Poway)
Willow Ranch Road to Del Poniente Road / High Valley Road (Poway)
Del Poniente Road / High Valley Road to Twin Peaks Road (Poway)
Twin Peaks Road to Ezra Lane (Poway)
Ezra Lane to Poway Road (Poway)

Old Coach Road

North of Espola Road (Poway)

Ramp Meters:

Westbound Rancho Bernardo Road to Northbound I-15 On-Ramp
Westbound Rancho Bernardo Road to Southbound I-15 On-Ramp

3.2 Existing Street Network

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

Old Coach Road is located within the City of Poway's jurisdiction and is classified as a Local Collector on the City of Poway's *Transportation Master Element*. It is currently built as a 2-lane undivided roadway with a posted speed limit of 35 mph. Bike lanes and bus stops are not provided and on street parking is not permitted.

Espola Road, east of Summerfield Lane, is located within the City of Poway's jurisdiction and is classified as a 4-Lane Collector between Summerfield Lane and Titan Way and as a Specific Arterial between Titan Way and Poway Road on the City of Poway's *Transportation Master Element*. It is currently built as a 4-lane roadway with a two-way left-turn lane between Summerfield Lane and Martincoit Road, as a 3-lane roadway (with two westbound lanes and one eastbound lane) with a two-way left-turn lane between Martincoit Road and Westling Court, as a 4-lane roadway with a two-way left-turn lane between Westling Court and Willow Ranch Road, as a 2-lane roadway with a two-way left-turn lane between Willow Ranch Road and Ezra Road, and as a 2-lane roadway between Ezra Road and Poway Road. The posted speed limit is 45 mph. Bike lanes and bus stops are provided in both directions. On street parking is not permitted.

Rancho Bernardo Road is located within the City of San Diego's jurisdiction and is classified on the *Rancho Bernardo Community Plan* as a 6-Lane Major Road between West Bernardo Drive and Bernardo Center Drive, and as a 4-lane Major Road east of Bernardo Center Drive. It is currently built as a 4-Lane divided roadway with a posted speed limit of 40-45 mph. On street parking is generally permitted west of Bernardo Oaks Drive and bike lanes are provided east of Bernardo Oaks Drive. Bus stops are provided in both directions.

Based on information from the *Rancho Bernardo Community Plan and Public Facilities Financing Plan (PFFP) FY 2013* and the *Black Mountain Ranch Facilities Benefit Assessment (FBA) FY 2015*, Rancho Bernardo Road between the I-15 Northbound Ramps and Bernardo Center Drive is planned to be widened to the *Rancho Bernardo Community Plan* classification of a 6-Lane Major Road. The improvement is fully funded with a date of completion anticipated for FY 2016/2017. This improvement was assumed under Long-Term conditions.

3.3 Existing Traffic Volumes

Existing weekday AM and PM peak hour (7:00-9:00 AM and 4:00-6:00 PM) traffic volumes were commissioned at the study intersections on Thursday April 7, and Tuesday May 10, 2016, while schools in the area were in session.

Existing street segment Average Daily Traffic (ADT) volumes were also commissioned on Thursday April 7, and Tuesday May 10, 2016 while schools in the area were in session. **Table 3-1** provides a summary of the existing street segment average daily traffic volumes within the Project study area.

Figure 3-2 shows the Existing AM and PM peak hour turning movement volumes and daily traffic volumes. **Appendix A** contains copies of the intersection and segment counts sheets and the signal timing plans.

TABLE 3-1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT ^a	Date	Source
Rancho Bernardo Road			
I-15 NB Ramps to Bernardo Center Drive	35,789	April 2016	LLG
Bernardo Center Drive to Pomerado Road	27,230	April 2016	LLG
Pomerado Road to Summerfield Lane	23,643	April 2016	LLG
Espola Road			
Summerfield Lane to Valle Verde Road	23,356	May 2016	LLG
Valle Verde Road to Martincoit Road	18,461	May 2016	LLG
Martincoit Road to Westling Court	14,820	May 2016	LLG
Westling Court to Old Coach Road	14,820	May 2016	LLG
Old Coach Road to Lake Poway Road	13,652	May 2016	LLG
Lake Poway Road to Titan Road / Eden Grove	12,102	May 2016	LLG
Titan Road / Eden Grove to Willow Ranch Road	15,536	May 2016	LLG
Willow Ranch Road to Del Poniente Road / High Valley Road	15,536	May 2016	LLG
Del Poniente Road / High Valley Road to Twin Peaks Road	16,901	May 2016	LLG
Twin Peaks Road to Ezra Lane	15,211	May 2016	LLG
Ezra Lane to Poway Road	15,211	May 2016	LLG
Old Coach Road			
North of Espola Road	2,415	April 2016	LLG

Footnotes:

- a. Average Daily Traffic Volumes.

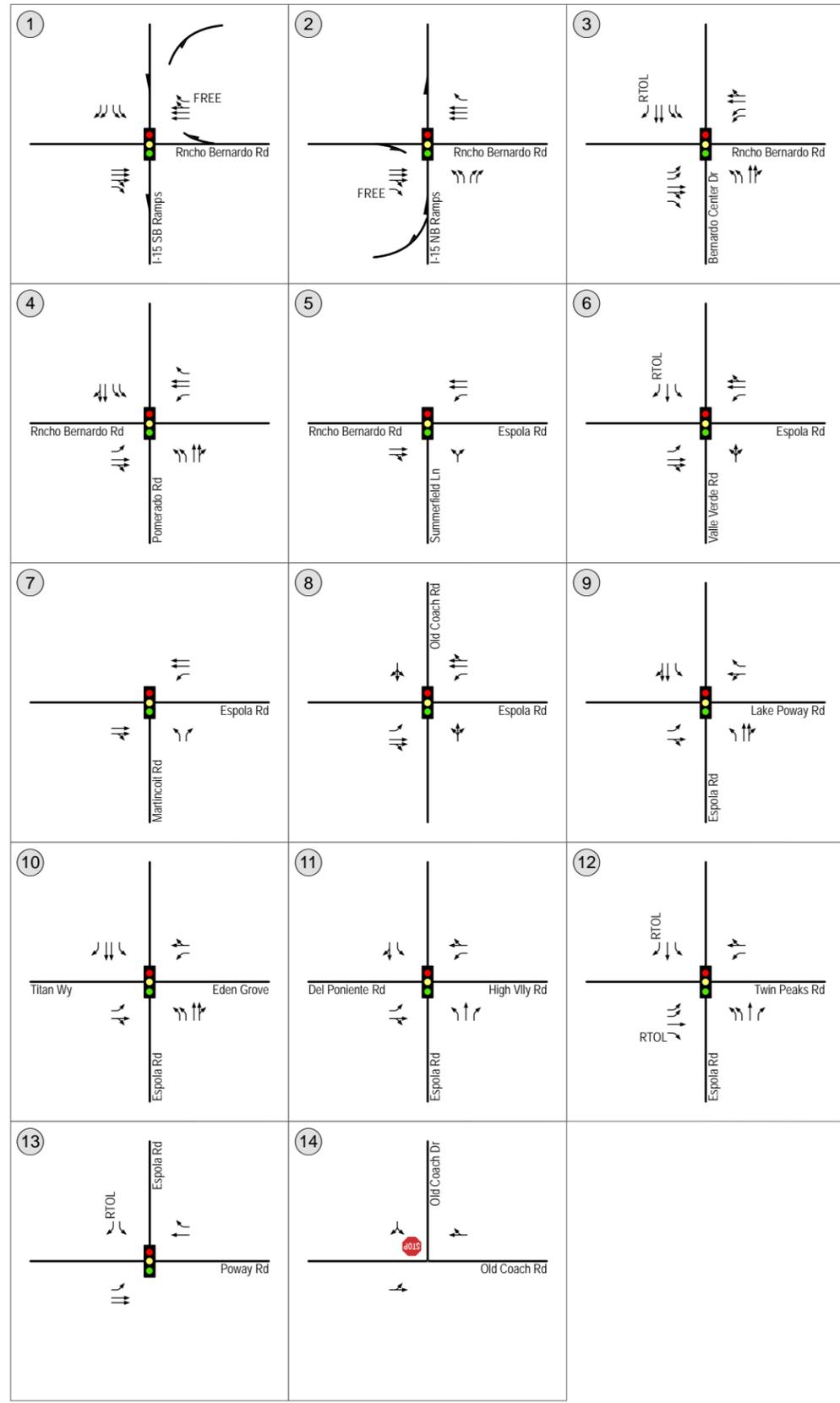


Figure 3-1

Existing Conditions Diagram

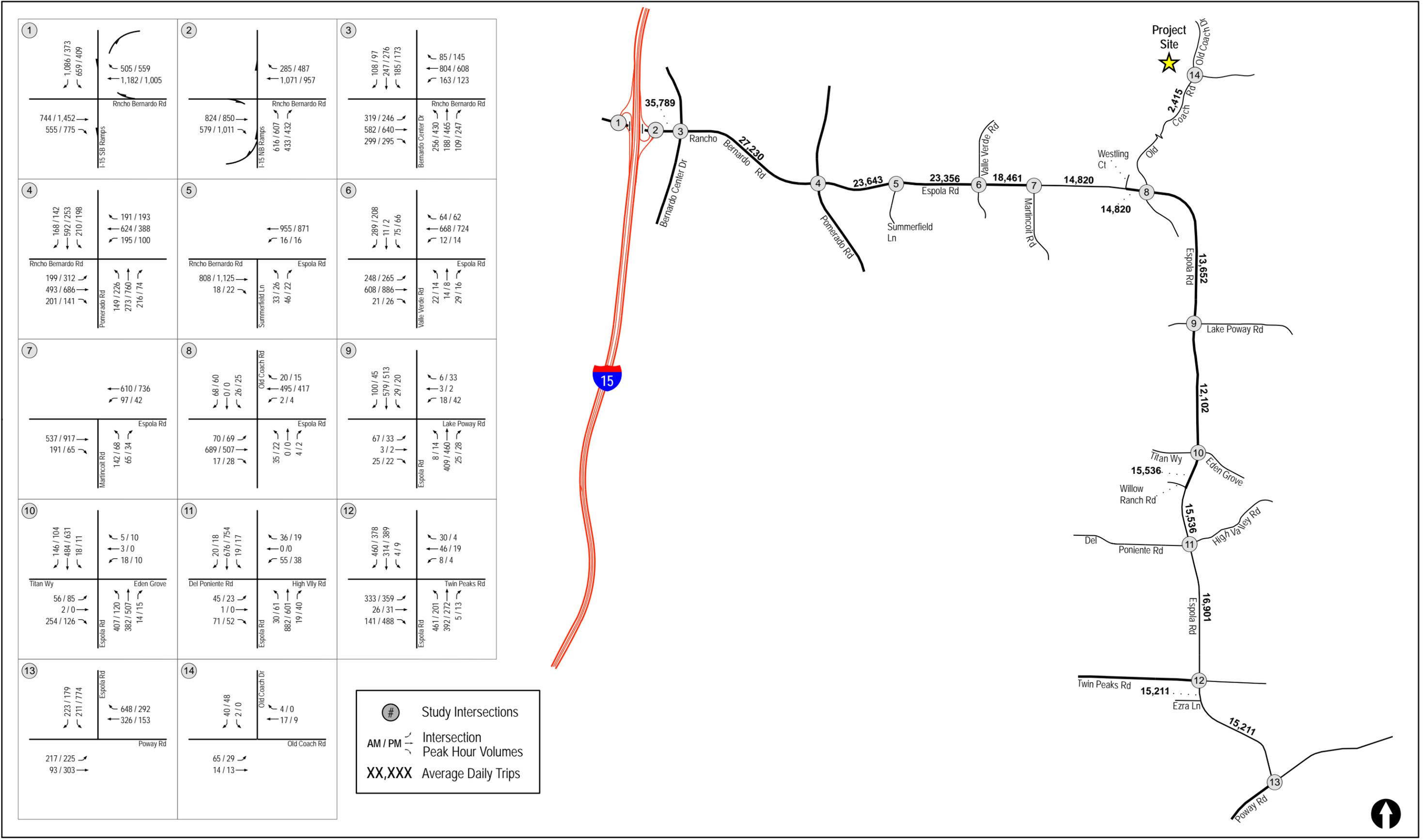


Figure 3-2

Existing Traffic Volumes

4.0 SIGNIFICANCE CRITERIA

The following criteria was used to evaluate potential significant impacts based on either the City of Poway's significance criteria (SANTEC/ITE) or the City of San Diego's significance criteria, depending on where the facility is located.

4.1 City of Poway

A project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a defined threshold. The defined thresholds, shown in *Table 4-1* below for roadway segments and intersections are based on published San Diego Traffic Engineers' Council (SANTEC) guidelines. If the project exceeds the thresholds in *Table 4-1*, then the project may be considered to have a significant project impact.

The impact is designated either a "direct" or "cumulative" impact.

"Direct traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (near term)."

"Cumulative traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when affected community plan area reaches full planned buildout (long-term cumulative)."

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

If the project exceeds the thresholds in *Table 4-1*, then the project may be considered to have a significant "direct" or "cumulative" project impact. A significant impact can also occur if a project causes the Level of Service to degrade from D to E, even if the allowable increases in *Table 4-1* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the SANTEC thresholds, or the impact will be considered significant and unmitigated.

TABLE 4-1
SANTEC / ITE TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Level of Service with Project ^a	Allowable Increase Due to Project Impacts ^b		
	Roadway Segments		Intersections
	V/C	Speed (mph)	Delay (sec.)
E & F	0.02	1	2

Footnotes:

- a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for roadways and intersections is generally “D” (“C” for undeveloped or not densely developed locations per jurisdiction definitions).
- b. If a proposed project’s traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note a above) the project applicant shall be responsible for mitigating significant impact changes.

General Notes:

1. V/C = Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average stopped delay per vehicle measured in seconds for intersections
4. LOS = Level of Service

4.2 City of San Diego

According to the City of San Diego’s *Significance Determination Thresholds* dated January 2011, a project is considered to have a significant impact if project traffic would decrease the operations of surrounding roadways by a defined threshold. For projects deemed complete on or after January 1, 2007, the City defined thresholds are shown in **Table 4-2**.

The impact is designated either a “direct” or “cumulative” impact. According to the City’s *Significance Determination Thresholds*,

“*Direct* traffic impacts are those projected to occur at the time a proposed development becomes operational, including other developments not presently operational but which are anticipated to be operational at that time (opening day).”

“*Cumulative* traffic impacts are those projected to occur at some point after a proposed development becomes operational, such as during subsequent phases of a project and when additional proposed developments in the area become operational (short-term cumulative) or when affected community plan area reaches full planned buildout (long-term cumulative).”

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

For intersections and roadway segments affected by a project, level of service (LOS) D or better is considered acceptable under both direct and cumulative conditions.”

If the project exceeds the thresholds in *Table 4–2*, then the project is considered to have a significant “direct” or “cumulative” project impact. A significant impact can also occur if a project causes the Level of Service to degrade from D to E, even if the allowable increases in *Table 4–2* are not exceeded. A feasible mitigation measure will need to be identified to return the impact within the City thresholds, or the impact will be considered significant and unmitigated.

TABLE 4–2
CITY OF SAN DIEGO
TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

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

Footnotes:

- a. If a proposed project’s traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS.
- b. All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City’s Traffic Impact Study Manual). The acceptable LOS for freeways, roadways, and intersections is generally “D” (“C” for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.
- c. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

General Notes:

1. Delay = Average control delay per vehicle measured in seconds for intersections or minutes for ramp meters
2. LOS = Level of Service
3. V/C = Volume to Capacity ratio
4. Speed = Arterial speed measured in miles per hour

5.0 ANALYSIS APPROACH AND METHODOLOGY

5.1 Study Scenarios

The following six (6) scenarios were analyzed in this study:

- Existing
- Existing + Project
- Near-Term
- Near-Term + Project
- Year 2035
- Year 2035 + Project

5.2 Methodology

5.2.1 Level of Service

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

5.2.2 Intersections

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Volume 3: Interrupted Flow, 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). A more detailed explanation of the methodology is 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 Volume 3: Interrupted Flow, Chapter 19 for two-way stop-controlled intersections and Chapter 20 for all-way stop-controlled intersections of the *2010 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* version 9 computer software. A more detailed explanation of the methodology is attached in **Appendix B**.

5.2.3 Street Segments

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

5.2.4 Ramp Meters

The method currently accepted to calculate ramp delays and queues is a *fixed rate* approach. The fixed rate approach is based solely on the specific time intervals at which the ramp meter is programmed to release traffic.

The fixed rate approach, used in this report, generally tends to produce unrealistic queue lengths and delays. The results are theoretical and based on Caltrans' most restrictive ramp meter rate. Because ramp meter rates are not constant, even within the peak hours, the analysis was conducted using the most restrictive meter rates. The meter rates dynamically adjust based on the level of traffic on the freeway mainlines. The meter rates were obtained from Caltrans. Furthermore, the fixed rate approach does not take into account driver behavior such as "ramp shopping" or trip diversion.

5.3 Alternative Signal Phasing Analysis

The City of Poway has requested that an additional analysis be conducted to assess intersection operations with "Permitted + Protected" phasing for left turns at the following locations, which are currently operating with "Protected" phasing. This alternative phasing is being considered by the City of Poway to improve the flow of traffic along Espola Road.

- Espola Road / Summerfield Lane
- Espola Road / Valle Verde Road
- Espola Road / Martincoit Road
- Espola Road / Old Coach Road

This analysis was conducted for the following scenarios:

- Existing + Project
- Near Term
- Near Term + Project
- Year 2035
- Year 2035 + Project

6.0 ANALYSIS OF EXISTING CONDITIONS

The analysis of existing conditions includes the assessment of the study area intersections, street segments and ramp meters using the methodologies described in *Section 5.0* of this study.

6.1 Existing Intersection Operations

Intersection capacity analyses were conducted for the study intersections under Existing conditions. **Table 6-1** reports the intersection operations during the peak hour conditions. The study area intersections are calculated to currently operate at LOS D or better.

Appendix D contains the intersection analysis worksheets for the Existing scenario.

6.2 Existing Street Segment Operations

Existing street segment analyses were conducted for the study roadways. **Table 6-2** reports the Existing daily street segment operations. The study area street segments are calculated to currently operate at LOS D or better with the exception of Rancho Bernardo Road between the I-15 NB Ramps and Bernardo Center Drive which is calculated to currently operate at LOS E.

6.3 Existing Ramp Meter Operations

Table 6-3 summarizes the Existing ramp meter operations at the Rancho Bernardo Road / I-15 northbound and southbound ramps. It should be noted that the westbound to northbound ramp meter only operates during the PM peak hour and the westbound to southbound ramp meter only operates during the AM peak hour. As seen in **Table 6-3**, the peak hour flow is calculated to be less than Caltrans' most restrictive discharge rate, and therefore no delay is calculated at either ramp.

**TABLE 6-1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing	
			Delay ^a	LOS ^b
1. Rancho Bernardo Road / I-15 SB Ramps	Signal	AM	28.6	C
		PM	14.1	B
2. Rancho Bernardo Road / I-15 NB Ramps	Signal	AM	21.1	C
		PM	18.2	B
3. Rancho Bernardo Road / Bernardo Center Drive	Signal	AM	29.2	C
		PM	34.1	C
4. Rancho Bernardo Road / Pomerado Road	Signal	AM	42.9	D
		PM	47.4	D
5. Espola Road / Summerfield Lane	Signal	AM	5.6	A
		PM	5.2	A
6. Espola Road / Valle Verde Road	Signal	AM	28.9	C
		PM	20.5	C
7. Espola Road / Martincoit Road	Signal	AM	10.4	B
		PM	7.1	A
8. Espola Road / Old Coach Road	Signal	AM	12.8	B
		PM	11.1	B
9. Espola Road / Lake Poway Road	Signal	AM	10.4	B
		PM	9.1	A
10. Espola Road / Titan Way/Eden Grove	Signal	AM	31.0	C
		PM	14.3	B
11. Espola Road / Del Poniente Road/High Valley Road	Signal	AM	24.0	C
		PM	15.1	B
12. Espola Road / Twin Peaks Road	Signal	AM	33.5	C
		PM	27.2	C
13. Espola Road / Poway Road	Signal	AM	51.1	D
		PM	46.8	D

**TABLE 6-1
EXISTING INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing	
			Delay ^a	LOS ^b
14. Old Coach Road / Old Coach Drive	OWSC ^c	AM	8.7	A
		PM	8.6	A

Footnotes:

- a. Average intersection delay per vehicle in seconds.
- b. Level of Service.
- c. OWSC: One-Way-Stop Controlled intersection. Minor Street left-turn delay and LOS reported.

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

**TABLE 6-2
EXISTING SEGMENT OPERATIONS**

Street Segment	Functional Classification ^a	LOS E Capacity ^b	Existing		
			ADT ^c	LOS ^d	V/C ^e
Rancho Bernardo Road					
I-15 NB Ramps to Bernardo Center Drive	4-Lane Major Roadway	40,000	35,789	E	0.895
Bernardo Center Drive to Pomerado Road	4-Lane Major Roadway	40,000	27,230	C	0.681
Pomerado Road to Summerfield Lane	4-Lane Major Roadway	40,000	23,643	C	0.591
Espola Road					
Summerfield Lane to Valle Verde Road	4-Lane Collector	41,000	23,356	C	0.570
Valle Verde Road to Martincoit Road	4-Lane Collector	41,000	18,461	C	0.450
Martincoit Road to Westling Court	3-Lane Collector	31,000	14,820	C	0.478
Westling Court to Old Coach Road	4-Lane Collector	41,000	14,820	B	0.361
Old Coach Road to Lake Poway Road	4-Lane Collector	41,000	13,652	B	0.333
Lake Poway Road to Titan Way/Eden Grove	4-Lane Collector	41,000	12,102	B	0.295
Titan Way/Eden Grove to Willow Ranch Road	4-Lane Collector	41,000	15,536	B	0.379
Willow Ranch Road to Del Poniente Road/High Valley Road	2-Lane w/ Striped Median	29,000	15,536	C	0.536
Del Poniente Road/High Valley Road to Twin Peaks Road	2-Lane w/ Striped Median	29,000	16,901	D	0.583
Twin Peaks Road to Ezra Lane	2-Lane w/ Striped Median	29,000	15,211	C	0.525
Ezra Lane to Poway Road	2-Lane Collector	21,000	15,211	D	0.724
Old Coach Road					
North of Espola Road	2-Lane Local Collector	14,000	2,415	A	0.173

Footnotes:

- a. The current classification at which the roadway functions.
- b. The capacity corresponding to the functional classification of the roadway per City of Poway or City of San Diego Classification table.
- c. Average Daily Traffic.
- d. Level of Service.
- e. Volume to capacity ratio.

TABLE 6-3
EXISTING RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Flow F ^a	Discharge Rate R ^b	Excess Demand E ^a	Delay ^c	Queue ^d
WB Rancho Bernardo Road to NB I-15 – 1 SOV + 1 HOV						
Existing	AM	–	–	–	–	–
	PM	414 ^e	593	0	0.0	0
WB Rancho Bernardo Road to SB I-15 – 1 SOV + 1 HOV						
Existing	AM	429 ^e	492	0	0.0	0
	PM	–	–	–	–	–

Footnotes:

- a. Vehicles per hour per lane.
- b. Ramp Meter discharge rates obtained from Caltrans. Most restrictive rate used.
- c. Calculated delay in minutes per lane.
- d. Calculated queue length in feet per lane.
- e. 15% Reduction in volume due to HOV lane.

General Notes:

1. SOV = Single Occupancy Vehicle, HOV = High Occupancy Vehicle.
2. “–” = Ramp meter non-operational.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

Trip generation calculations were conducted using SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002*. The standard Resort Hotel rate was utilized. The Project proposes to construct 240 rooms.

Table 7-1 summarizes the Project's trip generation calculations. The Project is calculated to generate 1,920 ADT with 58 inbound and 38 outbound trips during the AM peak hour and 54 inbound and 80 outbound trips during the 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		Volume		% of ADT	In:Out		Volume	
					Split	In	Out	Split		In	Out		
Resort Hotel	240 Rooms	8 / Room	1,920	5%	60:40	58	38	7%	40:60	54	80		

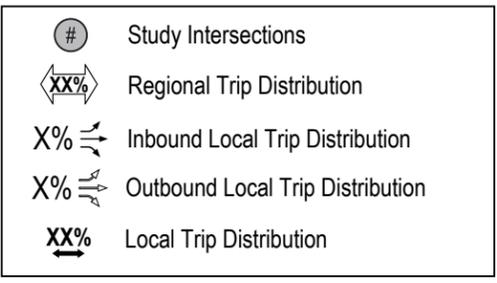
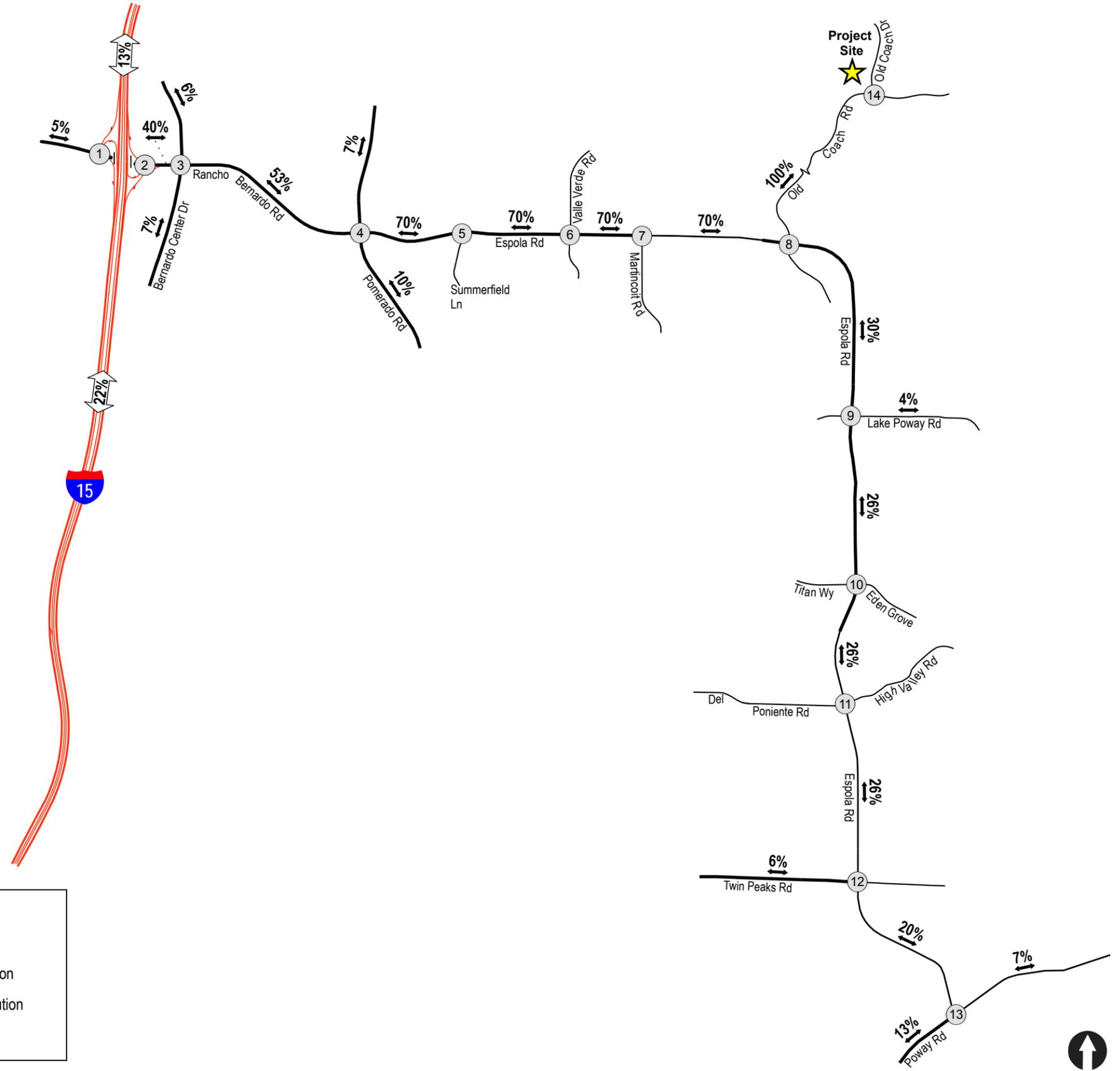
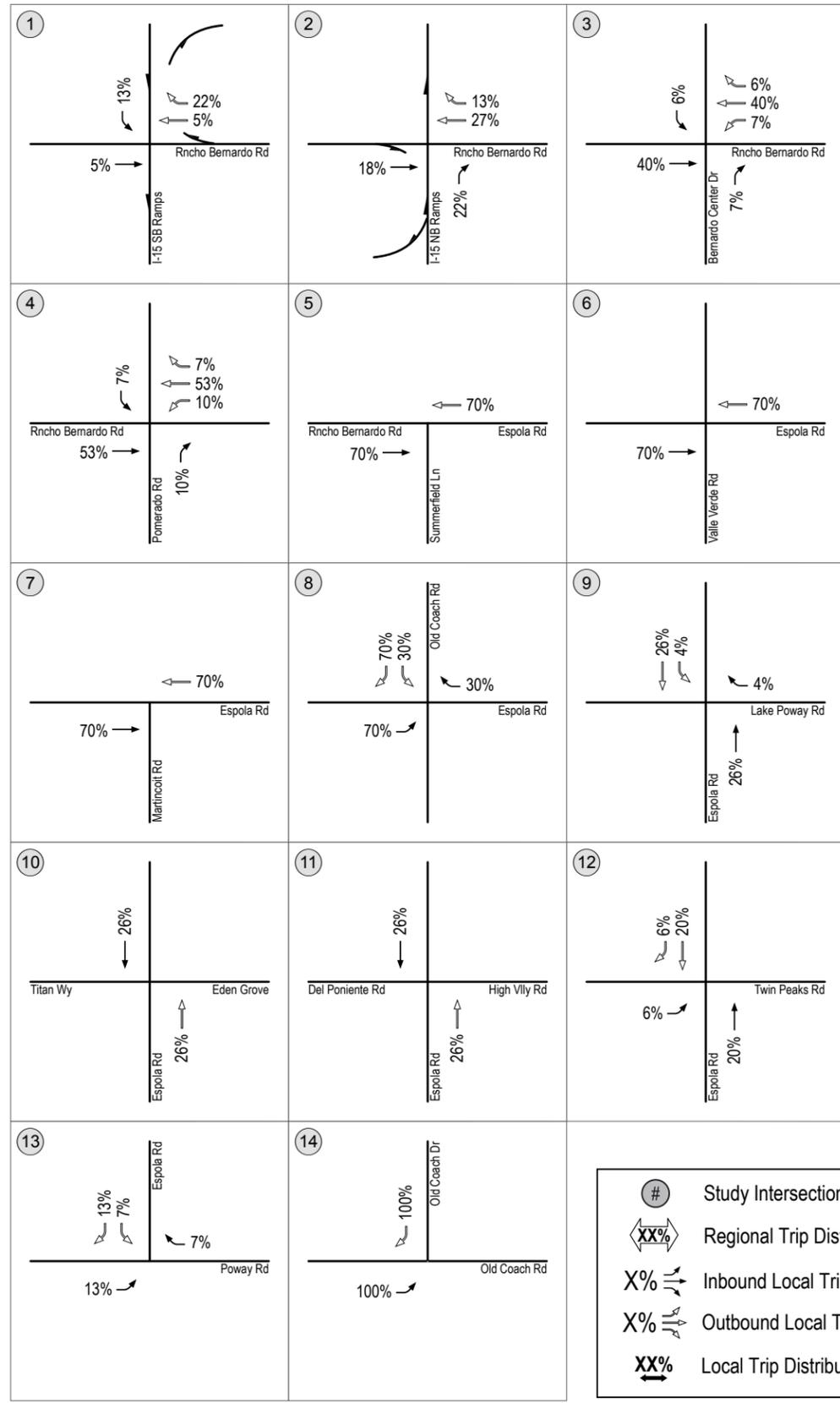
Footnotes:

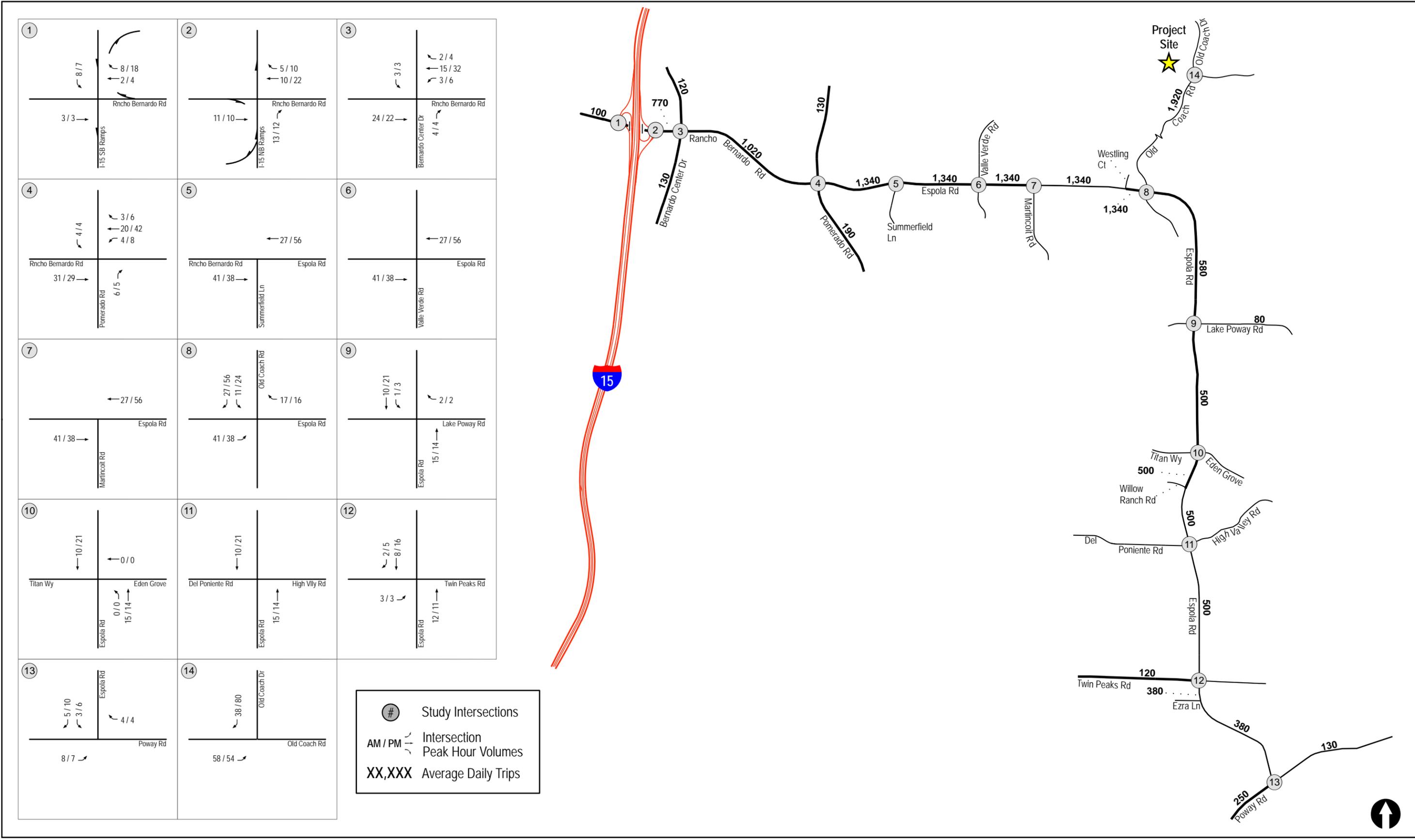
- a. Rate from SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.

7.2 Project Traffic Distribution / Assignment

A Series 12 Year 2035 Select Zone Assignment plot was obtained from SANDAG to assist in determining the regional distribution of Project traffic (SZA for TAZ 1384). The Project's distribution was also informed by the proximity of the Project to major roadways, existing traffic patterns and freeway access.

Figure 7-1 presents the Project traffic distribution. *Figure 7-2* presents the Project traffic assignment.





Study Intersections
 AM / PM Intersection Peak Hour Volumes
 XX,XXX Average Daily Trips

Figure 7-2

Project Traffic Volumes

8.0 EXISTING + PROJECT ANALYSIS

The California Environmental Quality Act (CEQA) Guidelines and recent court cases suggest the assessment of existing (ground) conditions with project build-out conditions. Thus, the Existing + Project analysis presumes the full build out of the project under the existing environmental conditions (existing traffic volumes, existing roadway infrastructure, and existing surrounding land uses).

Figure 8-1 shows the Existing + Project AM and PM peak hour turning movement volumes and daily traffic volumes.

8.1 Existing + Project Intersection Operations

Intersection capacity analyses were conducted for the study intersections under Existing + Project conditions. *Table 8-1* reports the intersection operations during the peak hour conditions. The study area intersections are calculated to continue to operate at LOS D or better under Existing + Project conditions. No significant direct impacts were calculated.

Appendix E contains the intersection analysis worksheets for the Existing + Project scenario.

Intersection capacity analyses were also conducted with “Permitted + Protected” phasing at intersections #5–8. As shown in *Table 8-1* these intersection are calculated to operate better with “Permitted + Protected” phasing as compared to the existing “Protected” phasing.

Appendix J contains the alternative signal phasing intersection analysis worksheets for the Existing + Project scenario.

8.2 Existing + Project Street Segment Operations

Existing + Project street segment analyses were conducted for the study roadways. *Table 8-2* reports the Existing + Project daily street segment operations. With the addition of the Project traffic, the study area street segments are calculated to continue to operate at LOS D or better with the exception of Rancho Bernardo Road between I-15 NB Ramps and Bernardo Center Drive which is calculated to continue to operate at LOS E. Based on City of San Diego significance criteria, a significant direct impact is not calculated at this location since the significance thresholds are not exceeded.

8.3 Existing + Project Ramp Meter Operations

Table 8-3 summarizes the Existing + Project ramp meter operations at the Rancho Bernardo Road / I-15 northbound and southbound ramps. It should be noted that the westbound to northbound ramp meter only operates during the PM peak hour and the westbound to southbound ramp meter only operates during the AM peak hour. As seen in *Table 8-3*, with the addition of Project traffic, the peak hour flow is calculated to be less than Caltrans’ most restrictive discharge rate, and therefore no delay is calculated at either ramp. No significant direct impacts were calculated.

**TABLE 8-1
EXISTING + PROJECT INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ Delay ^c	Impact
			Delay ^a	LOS ^b	Delay	LOS		
1. Rancho Bernardo Road / I-15 SB Ramps	Signal	AM	28.6	C	28.7	C	0.1	None
		PM	14.1	B	14.2	B	0.1	
2. Rancho Bernardo Road / I-15 NB Ramps	Signal	AM	21.1	C	21.1	C	0.0	None
		PM	18.2	B	18.2	B	0.0	
3. Rancho Bernardo Road / Bernardo Center Drive	Signal	AM	29.2	C	29.5	C	0.3	None
		PM	34.1	C	35.0	D	0.9	
4. Rancho Bernardo Road / Pomerado Road	Signal	AM	42.9	D	44.6	D	1.7	None
		PM	47.4	D	48.9	D	1.5	
5. Espola Road / Summerfield Lane	Signal	AM	5.6	A	5.7	A	0.1	None
		PM	5.2	A	5.2	A	0.0	
	Signal Alt ^d	AM	-	-	6.4	A	-	
		PM	-	-	5.9	A	-	
6. Espola Road / Valle Verde Road	Signal	AM	28.9	C	29.3	C	0.4	None
		PM	20.5	C	21.1	C	0.6	
	Signal Alt ^d	AM	-	-	16.5	B	-	
		PM	-	-	14.7	B	-	
7. Espola Road / Martincoit Road	Signal	AM	10.4	B	10.5	B	0.1	None
		PM	7.1	A	7.1	A	0.0	
	Signal Alt ^d	AM	-	-	9.2	A	-	
		PM	-	-	8.2	A	-	
8. Espola Road / Old Coach Road	Signal	AM	12.8	B	16.5	B	3.7	None
		PM	11.1	B	13.3	B	2.2	
	Signal Alt ^d	AM	-	-	7.6	A	-	
		PM	-	-	7.4	A	-	
9. Espola Road / Lake Poway Road	Signal	AM	10.4	B	10.5	B	0.1	None
		PM	9.1	A	9.2	A	0.1	
10. Espola Road / Titan Way/Eden Grove	Signal	AM	31.0	C	31.1	C	0.1	None
		PM	14.3	B	14.4	B	0.1	

**TABLE 8-1
EXISTING + PROJECT INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Existing		Existing + Project		Δ Delay ^c	Impact
			Delay ^a	LOS ^b	Delay	LOS		
11. Espola Road / Del Poniente Road/High Valley Road	Signal	AM	24.0	C	24.6	C	0.6	None
		PM	15.1	B	15.5	B	0.4	
12. Espola Road / Twin Peaks Road	Signal	AM	33.5	C	33.7	C	0.2	None
		PM	27.2	C	27.8	C	0.6	
13. Espola Road / Poway Road	Signal	AM	51.1	D	53.2	D	2.1	None
		PM	46.8	D	49.0	D	2.2	
14. Old Coach Road / Old Coach Drive	OWSC ^e	AM	8.7	A	8.9	A	0.2	None
		PM	8.6	A	9.1	A	0.5	

Footnotes:

- a. Average intersection delay per vehicle in seconds.
- b. Level of Service.
- c. Increase in delay due to Project traffic.
- d. The City of Poway has requested an additional analysis be conducted using "Permitted + Protected" phasing on left turns at the intersection.
- e. OWSC: One-Way-Stop Controlled intersection. Minor Street left-turn delay and LOS reported.

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

**TABLE 8-2
EXISTING + PROJECT SEGMENT OPERATIONS**

Street Segment	Functional Classification ^a	LOS E Capacity ^b	Existing			Existing + Project			Δ V/C ^f	Impact
			ADT ^c	LOS ^d	V/C ^e	ADT	LOS	V/C		
Rancho Bernardo Road										
I-15 NB Ramps to Bernardo Center Drive	4-Lane Major Roadway	40,000	35,789	E	0.895	36,559	E	0.914	0.019	None
Bernardo Center Drive to Pomerado Road	4-Lane Major Roadway	40,000	27,230	C	0.681	25,250	C	0.706	0.025	None
Pomerado Road to Summerfield Lane	4-Lane Major Roadway	40,000	23,643	C	0.591	24,983	C	0.625	0.034	None
Espola Road										
Summerfield Lane to Valle Verde Road	4-Lane Collector	41,000	23,356	C	0.570	24,696	D	0.602	0.032	None
Valle Verde Road to Martincoit Road	4-Lane Collector	41,000	18,461	C	0.450	19,801	C	0.483	0.033	None
Martincoit Road to Westling Court	3-Lane Collector	31,000	14,820	C	0.478	16,160	C	0.521	0.043	None
Westling Court to Old Coach Road	4-Lane Collector	41,000	14,820	B	0.361	16,160	B	0.394	0.033	None
Old Coach Road to Lake Poway Road	4-Lane Collector	41,000	13,652	B	0.333	14,232	B	0.347	0.014	None
Lake Poway Road to Titan Way/Eden Grove	4-Lane Collector	41,000	12,102	B	0.295	12,602	B	0.307	0.012	None
Titan Way/Eden Grove to Willow Ranch Road	4-Lane Collector	41,000	15,536	B	0.379	16,036	B	0.391	0.012	None
Willow Ranch Road to Del Poniente Road/High Valley Road	2-Lane w/ Striped Median	29,000	15,536	C	0.536	16,036	C	0.553	0.017	None
Del Poniente Road/High Valley Road to Twin Peaks Road	2-Lane w/ Striped Median	29,000	16,901	D	0.583	17,401	D	0.600	0.017	None
Twin Peaks Road to Ezra Lane	2-Lane w/ Striped Median	29,000	15,211	C	0.525	15,591	C	0.538	0.013	None
Ezra Lane to Poway Road	2-Lane Collector	21,000	15,211	D	0.724	15,591	D	0.740	0.018	None
Old Coach Road										
North of Espola Road	2-Lane Local Collector	14,000	2,415	A	0.173	4,335	B	0.310	0.137	None

Footnotes:

- a. The current classification at which the roadway functions.
- b. The capacity corresponding to the functional classification of the roadway per City of Poway or City of San Diego Classification table.
- c. Average Daily Traffic.
- d. Level of Service.
- e. Volume to capacity ratio.
- f. Increase in V/C ratio due to Project traffic
- g.

**TABLE 8-3
EXISTING + PROJECT RAMP METER OPERATIONS**

Location/Condition	Peak Hour	Peak Hour Flow F^a	Discharge Rate R^b	Excess Demand E^a	Delay^c	Queue^d
Rancho Bernardo Road to NB I-15 – 1 SOV + 1 HOV Lanes						
Existing	AM	–	–	–	–	–
	PM	414 ^e	593	0	0.0	0
Existing + Project	AM	–	–	–	–	–
	PM	422 ^e	593	0	0.0	0
Rancho Bernardo Road to SB I-15 – 1 SOV + 1 HOV Lanes						
Existing	AM	429 ^e	492	0	0.0	0
	PM	–	–	–	–	–
Existing + Project	AM	436 ^e	492	0	0.0	0
	PM	–	–	–	–	–

Footnotes:

- a. Vehicles per hour per lane.
- b. Ramp Meter discharge rates obtained from Caltrans. Most restrictive rate used.
- c. Calculated delay in minutes per lane.
- d. Calculated queue length in feet per lane.
- e. 15% reduction in volume due to HOV lane.

General Notes:

- 1. SOV = Single Occupancy Vehicle, HOV = High Occupancy Vehicle
- 2. “–” = Ramp meter non-operational.

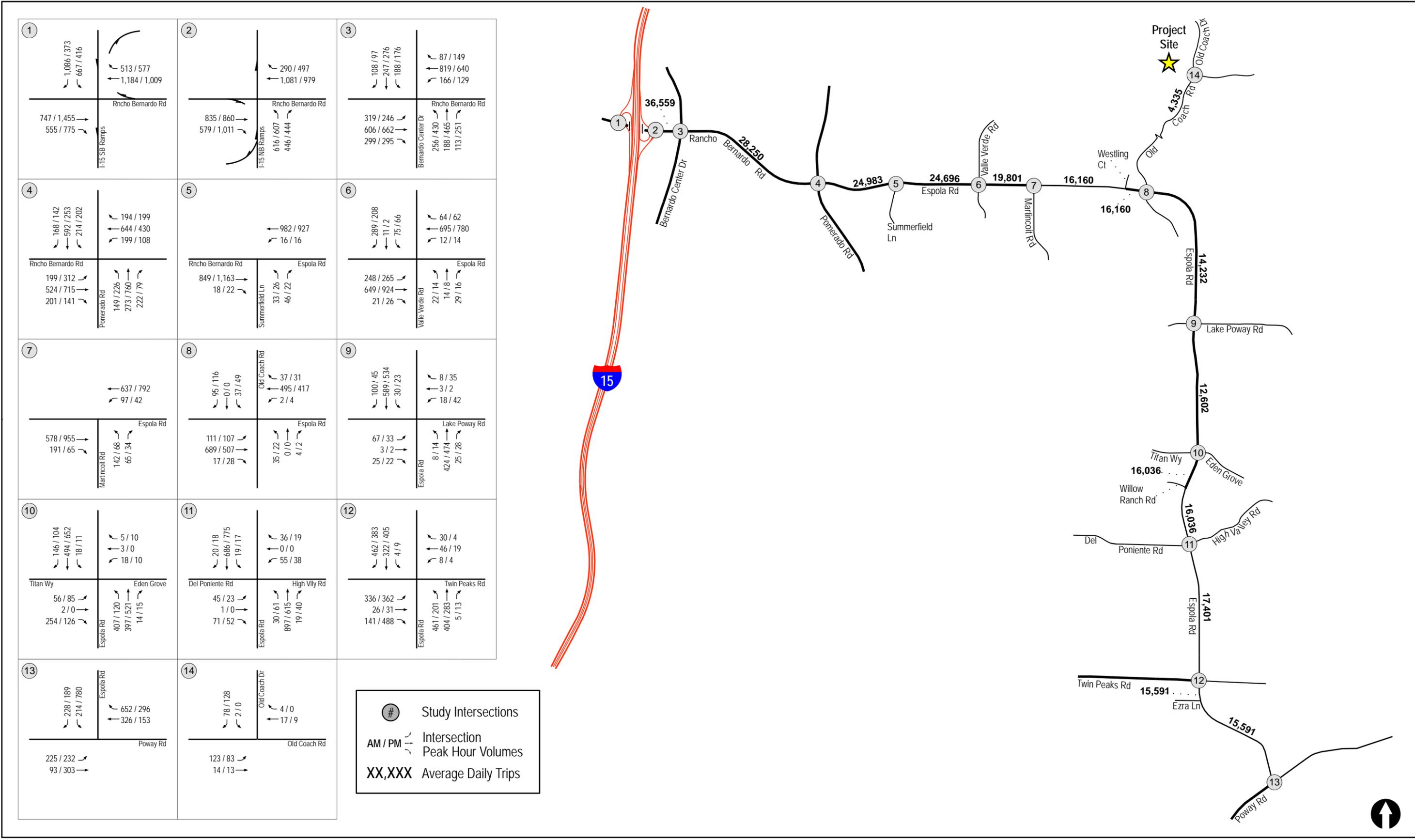


Figure 8-1
Existing + Project Traffic Volumes

9.0 CUMULATIVE PROJECTS

Cumulative projects represent reasonably foreseeable planned development that contribute to background traffic conditions for the Near-Term scenario.

With assistance from the City, LLG identified two (2) cumulative projects to be included in the near-term analysis. **Table 9-1** summarizes the cumulative projects included in the analysis. In addition to the two projects, a 5% growth factor was applied to account for any other potential developing projects in the area.

Figure 9-1 shows the cumulative project traffic assignment.

TABLE 9-1
CUMULATIVE PROJECTS

Project Name	Type of Development	Project Size	ADT ^a
Liguori Estates	Estate Homes	29 Dwelling Units	348
Hidden Valley Ranch	Estate Homes	40 Dwelling Units	480

Footnotes:

- a. Average Daily Traffic.

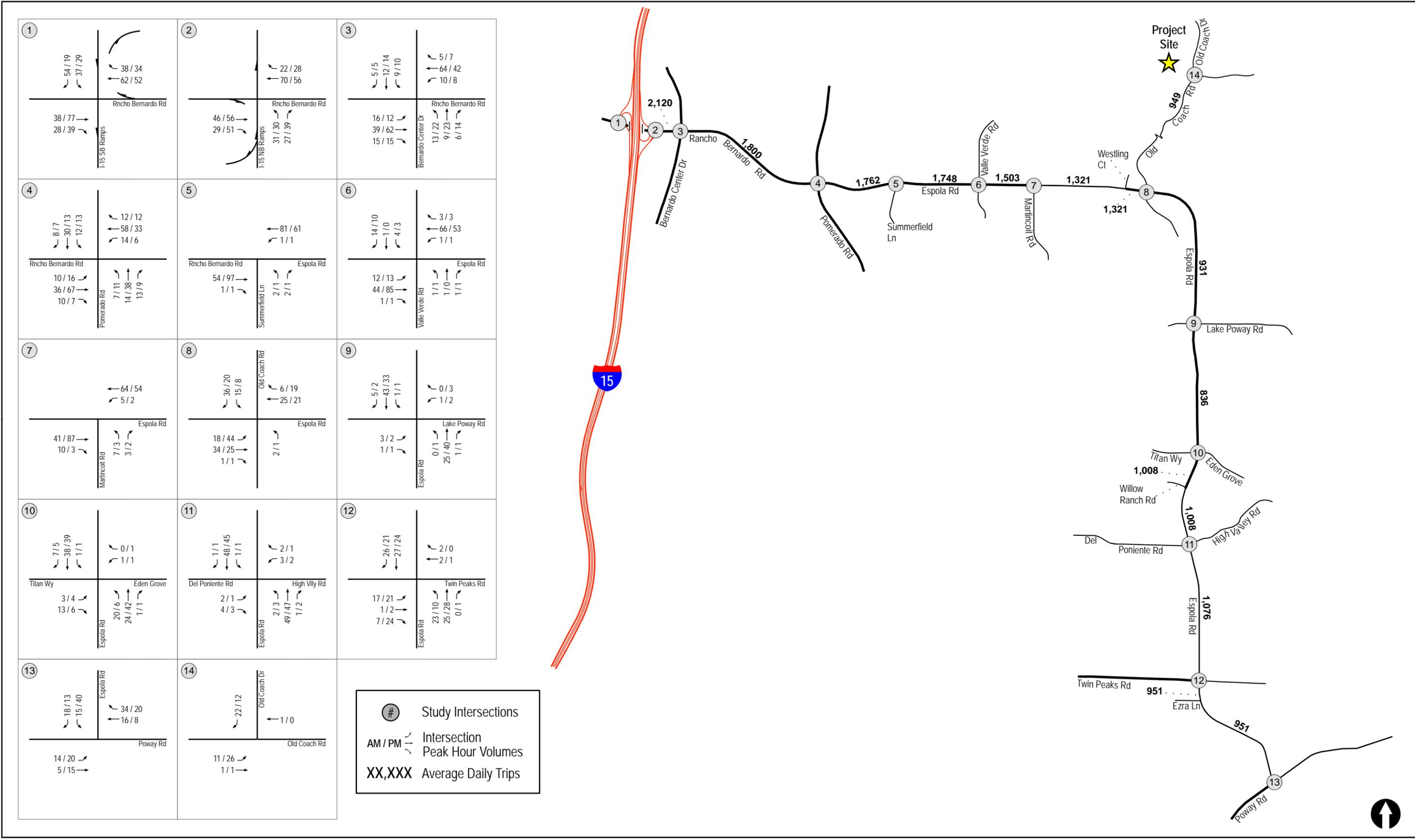


Figure 9-1
Cumulative Projects Traffic Volumes

10.0 NEAR-TERM ANALYSIS

The following section presents the analysis of study area intersections and street segments under Near-Term conditions without and with the Project.

10.1 Near-Term Traffic Volumes

Near-Term traffic volumes were calculated for the study area by manually adding the cumulative project volumes and 5% growth onto the existing volumes. The traffic volumes represent LLG's best efforts, based on standard practice, of forecasting Near-Term conditions with the most recent information available at the time this report was prepared.

The volumes were also checked for consistency between intersections, where no driveways or roadways exist between intersections.

Figure 10-1 shows the Near-Term AM and PM peak hour turning movement volumes and daily traffic volumes. *Figure 10-2* shows the Near-Term + Project AM and PM peak hour turning movement volumes and daily traffic volumes.

10.2 Near-Term Intersection Operations

Intersection capacity analyses were conducted for the study intersections under Near-Term without and with Project conditions. *Table 10-1* reports the intersection operations during the peak hour conditions. The majority of the study area intersections are calculated to operate at LOS D or better under Near-Term without and with Project conditions with the exception of the following:

- Espola Road / Poway Road: LOS E both without and with Project traffic during the AM and PM peak hours.

Based on City of Poway significance criteria, a significant direct impact is not calculated at this location since the significance thresholds are not exceeded.

Appendix F contains the intersection analysis worksheets for the Near-Term scenario. *Appendix G* contains the intersection analysis worksheets for the Near-Term + Project scenario.

Intersection capacity analyses were also conducted with "Permitted + Protected" phasing at intersections #5-8. As shown in *Table 10-1* these intersection are calculated to operate better with "Permitted + Protected" phasing as compared to the existing "Protected" phasing.

Appendix J contains the alternative signal phasing intersection analysis worksheets for the Near-Term scenario.

10.3 Near-Term Street Segment Operations

Street segment analyses were conducted for the study roadways under Near-Term without and with Project conditions. *Table 10-2* reports the daily street segment operations. As shown in *Table 10-2*, the study area street segments are calculated to operate at LOS D or better under without and with

Project conditions with the exception of Rancho Bernardo Road between the I-15 NB Ramps and Bernardo Center Drive, which is calculated to operate at LOS E under without and with Project conditions, and Espola Road between Ezra Lane and Poway Road, which is calculated to operate at LOS E under without and with Project conditions. Based on City of Poway and City of San Diego significance criteria, significant direct impacts are not calculated at these locations since the significance thresholds are not exceeded.

10.4 Near-Term Ramp Meter Operations

Table 10-3 summarizes the Near Term ramp meter operations at the Rancho Bernardo Road / I-15 northbound and southbound ramps. It should be noted that the westbound to northbound ramp meter only operates during the PM peak hour and the westbound to southbound ramp meter only operates during the AM peak hour. As seen in *Table 10-3*, under Near-Term and Near-Term + Project conditions, the peak hour flow is calculated to be less than Caltrans' most restrictive discharge rate, and therefore no delay is calculated at either ramp.

Based on City of San Diego significance criteria, no significant direct impacts were calculated.

**TABLE 10-1
NEAR-TERM INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Near Term		Near Term + Project		Δ Delay ^c	Impact
			Delay ^a	LOS ^b	Delay	LOS		
1. Rancho Bernardo Road / I-15 SB Ramps	Signal	AM	29.7	C	29.7	C	0.0	None
		PM	14.6	B	14.7	B	0.1	
2. Rancho Bernardo Road / I-15 NB Ramps	Signal	AM	21.1	C	21.2	C	0.1	None
		PM	18.4	B	18.5	B	0.1	
3. Rancho Bernardo Road / Bernardo Center Drive	Signal	AM	31.4	C	31.7	C	0.3	None
		PM	37.2	D	38.3	D	1.1	
4. Rancho Bernardo Road / Pomerado Road	Signal	AM	49.5	D	50.8	D	1.3	None
		PM	53.5	D	54.9	D	1.4	
5. Espola Road / Summerfield Lane	Signal	AM	5.8	A	5.8	A	0.0	None
		PM	5.3	A	5.3	A	0.0	
	Signal Alt ^d	AM	6.1	A	6.2	A	0.1	
		PM	5.7	A	5.7	A	0.0	
6. Espola Road / Valle Verde Road	Signal	AM	32.9	C	34.0	C	1.1	None
		PM	22.2	C	22.9	C	0.7	
	Signal Alt ^d	AM	16.9	B	17.2	B	0.3	
		PM	15.0	B	15.2	B	0.2	
7. Espola Road / Martincoit Road	Signal	AM	10.8	B	10.9	B	0.1	None
		PM	7.2	A	7.2	A	0.0	
	Signal Alt ^d	AM	9.4	A	9.6	A	0.2	
		PM	7.8	A	7.9	A	0.1	
8. Espola Road / Old Coach Road	Signal	AM	16.0	B	23.2	C	7.2	None
		PM	12.2	B	15.5	B	3.3	
	Signal Alt ^d	AM	8.1	A	9.3	A	1.2	
		PM	6.4	A	8.0	A	1.6	
9. Espola Road / Lake Poway Road	Signal	AM	10.8	B	10.8	B	0.0	None
		PM	9.3	A	9.3	A	0.0	
10. Espola Road / Titan Way/Eden Grove	Signal	AM	33.3	C	33.4	C	0.1	None
		PM	14.8	B	14.8	B	0.0	

**TABLE 10-1
NEAR-TERM INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Near Term		Near Term + Project		Δ Delay ^c	Impact
			Delay ^a	LOS ^b	Delay	LOS		
11. Espola Road / Del Poniente Road/High Valley Road	Signal	AM	27.7	C	28.6	C	0.9	None
		PM	16.5	B	17.0	B	0.5	
12. Espola Road / Twin Peaks Road	Signal	AM	38.2	D	38.4	D	0.2	None
		PM	30.3	C	31.4	C	1.1	
13. Espola Road / Poway Road	Signal	AM	62.0	E	62.7	E	0.7	None
		PM	61.9	E	61.9	E	0.0	
14. Old Coach Road / Old Coach Drive	OWSC ^e	AM	8.8	A	9.0	A	0.2	None
		PM	8.7	A	9.2	A	0.5	

Footnotes:

- a. Average intersection delay per vehicle in seconds.
- b. Level of Service.
- c. Increase in delay due to Project traffic.
- d. For purposes unrelated to the Project, the City of Poway has requested an additional analysis be conducted using "Permitted + Protected" phasing on left turns at the intersection.
- e. OWSC: One-Way-Stop Controlled intersection. Minor Street left-turn delay and LOS reported.

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

**TABLE 10-2
NEAR TERM SEGMENT OPERATIONS**

Street Segment	Functional Classification ^a	LOS E Capacity ^b	Near Term			Near Term + Project			Δ V/C ^f	Impact
			ADT ^c	LOS ^d	V/C ^e	ADT	LOS	V/C		
Rancho Bernardo Road										
I-15 NB Ramps to Bernardo Center Drive	4-Lane Major Roadway	40,000	37,909	E	0.948	38,679	E	0.967	0.019	None
Bernardo Center Drive to Pomerado Road	4-Lane Major Roadway	40,000	29,030	C	0.726	30,050	D	0.751	0.025	None
Pomerado Road to Summerfield Lane	4-Lane Major Roadway	40,000	25,405	C	0.635	26,745	C	0.669	0.034	None
Espola Road										
Summerfield Lane to Valle Verde Road	4-Lane Collector	41,000	25,104	D	0.612	26,444	D	0.645	0.033	None
Valle Verde Road to Martincoit Road	4-Lane Collector	41,000	19,964	C	0.487	21,304	C	0.520	0.033	None
Martincoit Road to Westling Court	3-Lane Collector	31,000	16,141	C	0.521	17,481	C	0.564	0.043	None
Westling Court to Old Coach Road	4-Lane Collector	41,000	16,141	B	0.394	17,481	C	0.426	0.032	None
Old Coach Road to Lake Poway Road	4-Lane Collector	41,000	14,583	B	0.356	15,163	B	0.370	0.014	None
Lake Poway Road to Titan Way/Eden Grove	4-Lane Collector	41,000	12,938	B	0.316	13,438	B	0.328	0.012	None
Titan Way/Eden Grove to Willow Ranch Road	4-Lane Collector	41,000	16,544	B	0.404	17,044	C	0.416	0.012	None
Willow Ranch Road to Del Poniente Road/High Valley Road	2-Lane w/ Striped Median	29,000	16,544	C	0.570	17,044	D	0.588	0.018	None
Del Poniente Road/High Valley Road to Twin Peaks Road	2-Lane w/ Striped Median	29,000	17,977	D	0.620	18,477	D	0.637	0.017	None
Twin Peaks Road to Ezra Lane	2-Lane w/ Striped Median	29,000	16,162	C	0.557	16,542	C	0.570	0.013	None
Ezra Lane to Poway Road	2-Lane Collector	21,000	16,162	E	0.770	16,542	E	0.788	0.018	None
Old Coach Road										
North of Espola Road	2-Lane Local Collector	14,000	3,364	A	0.240	5,284	B	0.377	0.137	None

Footnotes:

- a. The current classification at which the roadway functions.
- b. The capacity corresponding to the functional classification of the roadway per City of Poway or City of San Diego Classification table.
- c. Average Daily Traffic.
- d. Level of Service.
- e. Volume to capacity ratio.
- f. Increase in V/C ratio due to Project traffic

TABLE 10-3
NEAR TERM RAMP METER OPERATIONS

Location/Condition	Peak Hour	Peak Hour Flow F ^a	Discharge Rate R ^b	Excess Demand E ^a	Delay ^c	Queue ^d
Rancho Bernardo Road to NB I-15 – 1 SOV + 1 HOV Lanes						
Near Term	AM	–	–	–	–	–
	PM	438 ^e	593	0	0.0	0
Near Term + Project	AM	–	–	–	–	–
	PM	446 ^e	593	0	0.0	0
Rancho Bernardo Road to SB I-15 – 1 SOV + 1 HOV Lanes						
Near Term	AM	462 ^e	492	0	0.0	0
	PM	–	–	–	–	–
Near Term + Project	AM	468 ^e	492	0	0.0	0
	PM	–	–	–	–	–

Footnotes:

- a. Vehicles per hour per lane.
- b. Ramp Meter discharge rates obtained from Caltrans. Most restrictive rate used.
- c. Calculated delay in minutes per lane.
- d. Calculated queue length in feet per lane.
- e. 15% reduction in volume due to HOV lane.

General Notes:

1. SOV = Single Occupancy Vehicle, HOV = High Occupancy Vehicle
2. “–” = Ramp meter non-operational.

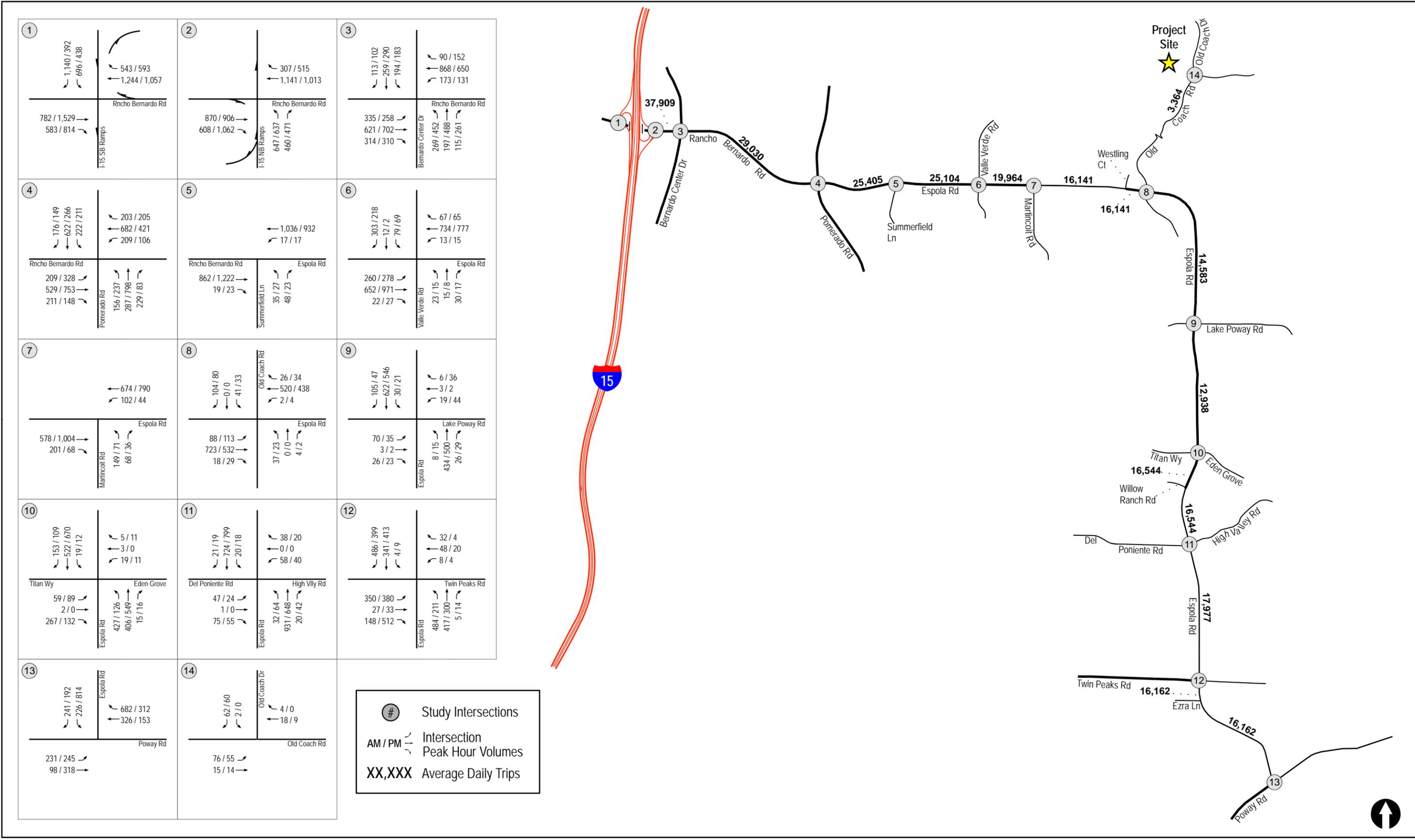
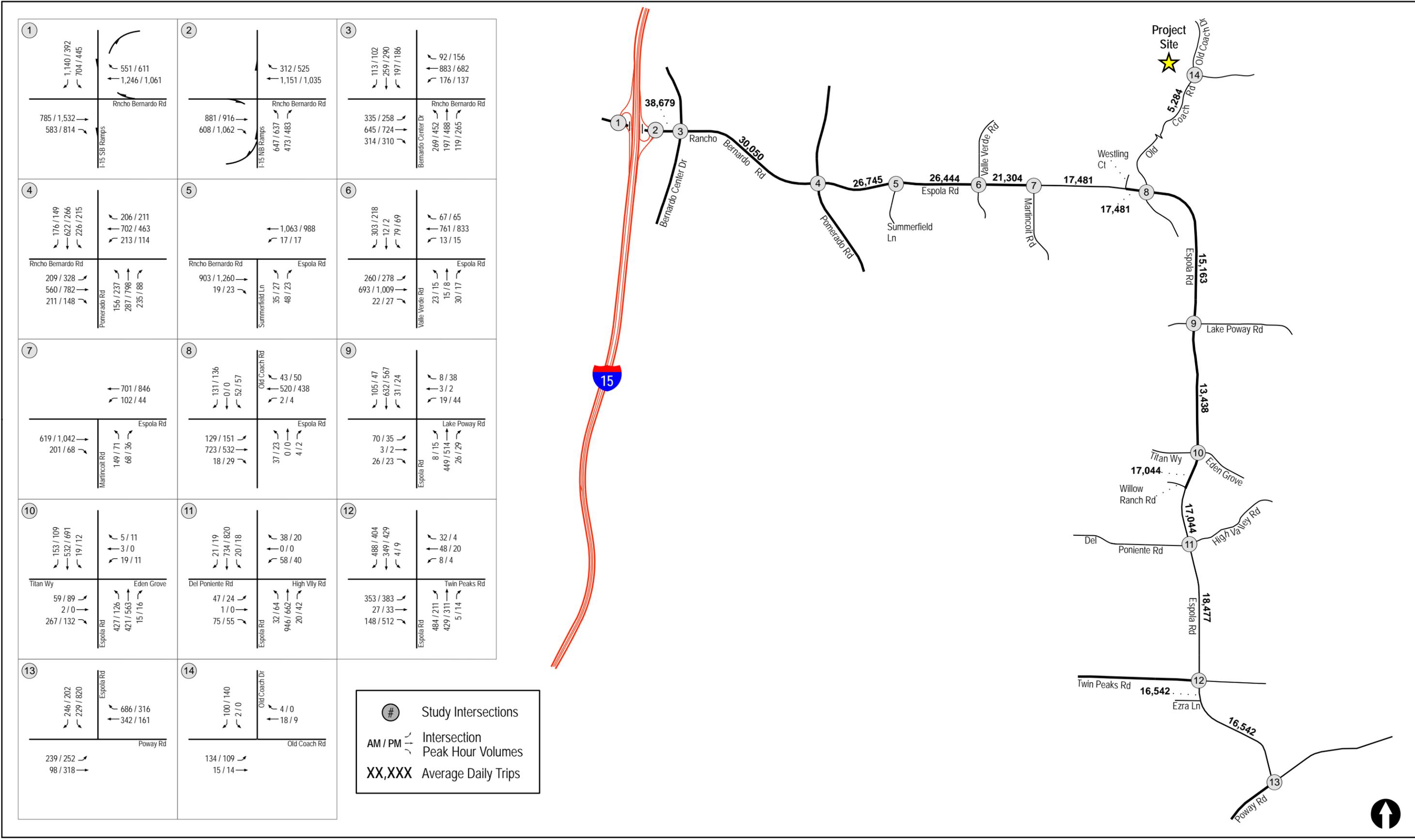


Figure 10-1
Near-Term Without Project Traffic Volumes



11.0 YEAR 2035 ANALYSIS

The following section presents the analysis of study area intersections and street segments under Year 2035 conditions without and with the Project.

11.1 Long-Term Conditions

As noted in *Section 3.2*, Rancho Bernardo Road between the I-15 Northbound Ramps and Bernardo Center Drive is planned to be widened to the Rancho Bernardo Community Plan classification of a 6-Lane Major Road. The improvement is fully funded with a date of completion anticipated for FY 2016/2017. This improvement was assumed under Long-Term conditions.

11.2 Year 2035 Traffic Volumes

Year 2035 traffic volumes were forecasted for the study area using the SANDAG Series 12 Regional Traffic Model. The traffic volumes represent LLG's best efforts of forecasting Year 2035 conditions with the most recent modeling information available at the time this report was prepared.

Based on the projected forecast ADT volumes, the Year 2035 peak hour volumes were calculated based on the existing relationship between ADT and peak hour volumes. The forecast volumes were also checked for consistency between intersections, where no driveways or roadways exist between intersections, and were compared to existing volumes for accuracy.

Figure 11-1 shows the forecasted Year 2035 AM and PM peak hour turning movement volumes and daily traffic volumes. *Figure 11-2* shows the forecasted Year 2035 + Project AM and PM peak hour turning movement volumes and daily traffic volumes.

11.3 Year 2035 Intersection Operations

Intersection capacity analyses were conducted for the study intersections under Year 2035 without and with Project conditions. *Table 11-1* reports the intersection operations during the peak hour conditions. As shown in *Table 11-1*, the following intersections are calculated to operate at LOS F:

- Rancho Bernardo Road / Pomerado Road: LOS F both without and with Project traffic during the AM and PM peak hours.
- Espola Road / Del Poniente Road / High Valley Road: LOS F both without and with Project traffic during the AM peak hour.
- Espola Road / Twin Peaks Road: LOS F both without and with Project traffic during the AM and PM peak hours.
- Espola Road / Poway Road: LOS F both without and with Project traffic during the AM and PM peak hours.

Based on City of Poway and City of San Diego significance criteria, significant cumulative impacts are not calculated at these locations since the significance thresholds are not exceeded.

Appendix H contains the intersection analysis worksheets for the Year 2035 scenario. *Appendix I* contains the intersection analysis worksheets for the Year 2035 + Project scenario.

Intersection capacity analyses were also conducted with “Permitted + Protected” phasing at intersections #5–8. As shown in *Table 11-1* these intersection are calculated to operate better with “Permitted + Protected” phasing as compared to the existing “Protected” phasing.

Appendix J contains the alternative signal phasing intersection analysis worksheets for the Year 2035 scenario.

11.4 Year 2035 Street Segment Operations

Street segment analyses were conducted for the study roadways under Year 2035 without and with Project conditions. *Table 11-2* reports the daily street segment operations. As shown in *Table 11-2*, the following study area street segments are calculated to operate at LOS E:

- Espola Road – Del Poniente Road / High Valley Road to Twin Peaks Road: LOS E both without and with Project traffic.
- Espola Road – Twin Peaks Road to Ezra Lane: LOS E both without and with Project traffic.
- Espola Road – Ezra Lane to Poway Road: LOS E both without and with Project traffic.

Based on City of Poway significance criteria, significant cumulative impacts are not calculated at these locations since the significance thresholds are not exceeded.

11.5 Year 2035 Ramp Meter Operations

Table 11-3 summarizes the Year 2035 ramp meter operations at the Rancho Bernardo Road / I-15 northbound and southbound ramps. It should be noted that the westbound to northbound ramp meter only operates in the PM peak hour and the westbound to southbound ramp meter only operates in the AM peak hour. Based on City of San Diego significance criteria, no significant direct impacts were calculated.

**TABLE 11-1
YEAR 2035 INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project		Δ Delay ^c	Impact
			Delay ^a	LOS ^b	Delay	LOS		
1. Rancho Bernardo Road / I-15 SB Ramps	Signal	AM	33.5	C	33.5	C	0.0	None
		PM	16.0	B	16.1	B	0.1	
2. Rancho Bernardo Road / I-15 NB Ramps	Signal	AM	21.5	C	21.6	C	0.1	None
		PM	19.2	B	19.3	B	0.1	
3. Rancho Bernardo Road / Bernardo Center Drive	Signal	AM	39.9	D	40.6	D	0.7	None
		PM	47.9	D	48.8	D	0.9	
4. Rancho Bernardo Road / Pomerado Road	Signal	AM	81.3	F	81.8	F	0.5	None
		PM	99.1	F	99.7	F	0.6	
5. Espola Road / Summerfield Lane	Signal	AM	6.0	A	6.1	A	0.1	None
		PM	5.8	A	6.0	A	0.2	
	Signal Alt ^d	AM	6.3	A	6.5	A	0.2	
		PM	5.6	A	5.7	A	0.1	
6. Espola Road / Valle Verde Road	Signal	AM	47.0	D	47.8	D	0.8	None
		PM	30.0	C	32.4	C	2.4	
	Signal Alt ^d	AM	19.9	B	19.9	B	0.0	
		PM	16.2	B	16.8	B	0.6	
7. Espola Road / Martincoit Road	Signal	AM	13.5	B	13.7	B	0.2	None
		PM	7.5	A	7.6	A	0.1	
	Signal Alt ^d	AM	10.7	B	10.7	B	0.0	
		PM	8.6	A	8.8	A	0.2	
8. Espola Road / Old Coach Road	Signal	AM	21.6	C	33.6	C	12.0	None
		PM	13.5	B	17.6	B	4.1	
	Signal Alt ^d	AM	7.9	A	9.6	A	1.7	
		PM	7.0	A	8.6	A	1.6	
9. Espola Road / Lake Poway Road	Signal	AM	40.9	D	41.9	D	1.0	None
		PM	18.0	B	18.2	B	0.2	
10. Espola Road / Titan Way/Eden Grove	Signal	AM	48.6	D	49.2	D	0.6	None
		PM	16.4	B	16.4	B	0.0	

**TABLE 11-1
YEAR 2035 INTERSECTION OPERATIONS**

Intersection	Control Type	Peak Hour	Year 2035		Year 2035 + Project		Δ Delay ^c	Impact
			Delay ^a	LOS ^b	Delay	LOS		
11. Espola Road / Del Poniente Road/High Valley Road	Signal	AM	88.3	F	88.7	F	0.4	None
		PM	37.4	D	40.8	D	2.4	
12. Espola Road / Twin Peaks Road	Signal	AM	104.7	F	105.1	F	0.4	None
		PM	92.6	F	93.0	F	0.4	
13. Espola Road / Poway Road	Signal	AM	161.5	F	161.8	F	0.3	None
		PM	162.7	F	163.1	F	0.4	
14. Old Coach Road / Old Coach Drive	OWSC ^e	AM	8.9	A	9.1	A	0.2	None
		PM	8.7	A	9.2	A	0.5	

Footnotes:

- a. Average intersection delay per vehicle in seconds.
- b. Level of Service.
- c. Increase in delay due to Project traffic.
- d. For purposes unrelated to the Project, the City of Poway has requested an additional analysis be conducted using “Permitted + Protected” phasing on left turns at the intersection.
- e. OWSC: One-Way-Stop Controlled intersection. Minor Street left-turn delay and LOS reported.

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

TABLE 11-2
YEAR 2035 SEGMENT OPERATIONS

Street Segment	Classification ^a	LOS E Capacity ^b	Year 2035			Year 2035 + Project			Δ V/C ^f	Impact
			ADT ^c	LOS ^d	V/C ^e	ADT	LOS	V/C		
Rancho Bernardo Road										
I-15 NB Ramps to Bernardo Center Drive	6-Lane Major Roadway	50,000	43,770	D	0.875	44,450	D	0.891	0.016	None
Bernardo Center Drive to Pomerado Road	4-Lane Major Roadway	40,000	33,600	D	0.840	34,620	D	0.866	0.026	None
Pomerado Road to Summerfield Lane	4-Lane Major Roadway	40,000	31,000	D	0.775	32,340	D	0.809	0.034	None
Espola Road										
Summerfield Lane to Valle Verde Road	4-Lane Collector	41,000	28,900	D	0.705	30,240	D	0.738	0.033	None
Valle Verde Road to Martincoit Road	4-Lane Collector	41,000	22,980	C	0.560	24,320	D	0.593	0.033	None
Martincoit Road to Westling Court	4-Lane Collector	41,000	21,300	C	0.520	22,640	C	0.552	0.032	None
Westling Court to Old Coach Road	4-Lane Collector	41,000	18,570	C	0.453	19,910	C	0.486	0.033	None
Old Coach Road to Lake Poway Road	4-Lane Collector	41,000	18,300	C	0.446	18,880	C	0.460	0.014	None
Lake Poway Road to Titan Way/Eden Grove	4-Lane Collector	41,000	17,600	C	0.429	18,100	C	0.441	0.012	None
Titan Way/Eden Grove to Willow Ranch Road	Specific Arterial	29,000	19,400	D	0.669	19,900	D	0.686	0.017	None
Willow Ranch Road to Del Poniente Road/High Valley Road	Specific Arterial	29,000	19,400	D	0.669	19,900	D	0.686	0.017	None
Del Poniente Road/High Valley Road to Twin Peaks Road	Specific Arterial	29,000	23,500	E	0.810	24,000	E	0.828	0.018	None
Twin Peaks Road to Ezra Lane	Specific Arterial	29,000	22,500	E	0.776	22,880	E	0.789	0.013	None
Ezra Lane to Poway Road	Specific Arterial	29,000	22,500	E	0.776	22,880	E	0.789	0.013	None
Old Coach Road										
North of Espola Road	2-Lane Local Collector	14,000	3,840	B	0.274	5,760	C	0.411	0.137	None

Footnotes:

- a. The roadway classification as outlined in the City of Poway's *Transportation Master Element*, and the City of San Diego's *Rancho Bernardo Community Plan*.
- b. The capacity corresponding to the functional classification of the roadway per City of Poway or City of San Diego Classification table.
- c. Average Daily Traffic.
- d. Level of Service.
- e. Volume to capacity ratio.
- f. Increase in V/C ratio due to Project traffic

TABLE 10-3
YEAR 2035 RAMP METER OPERATIONS

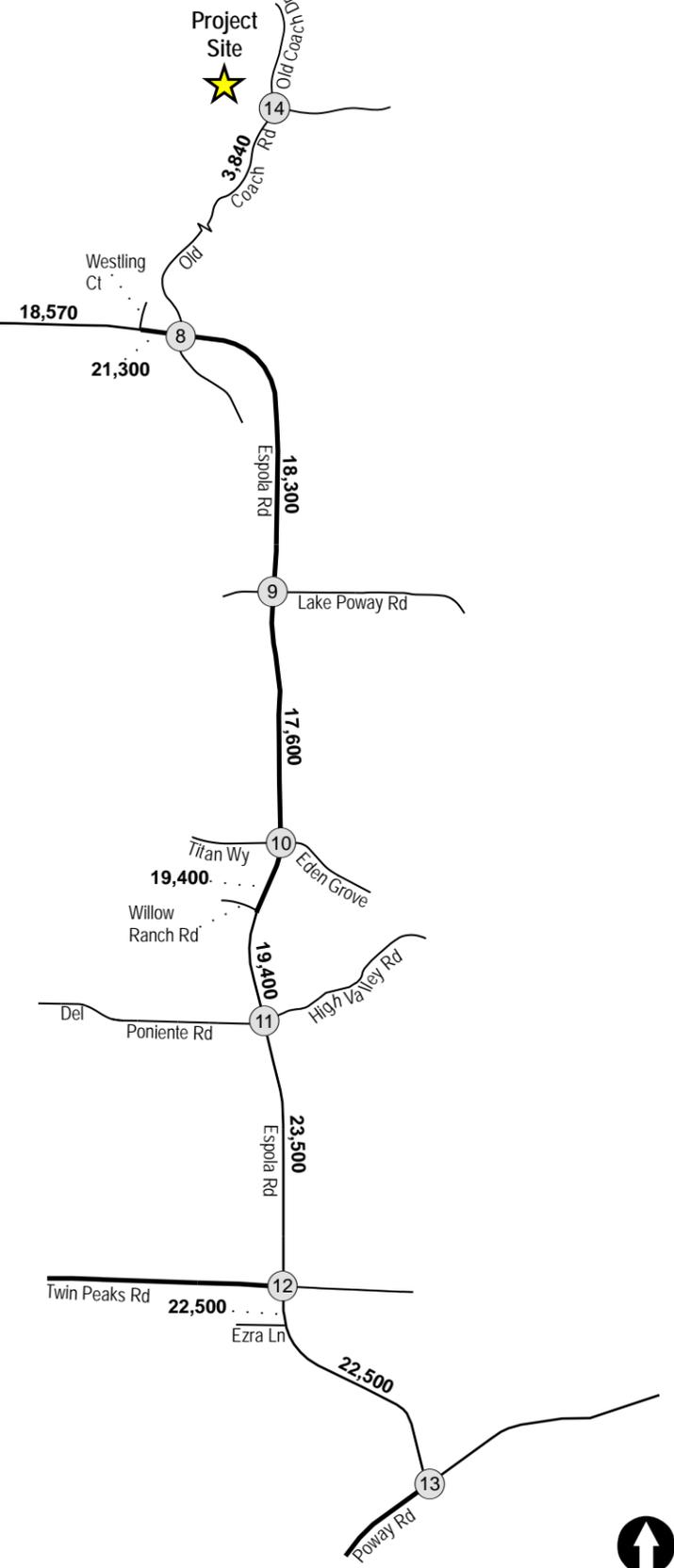
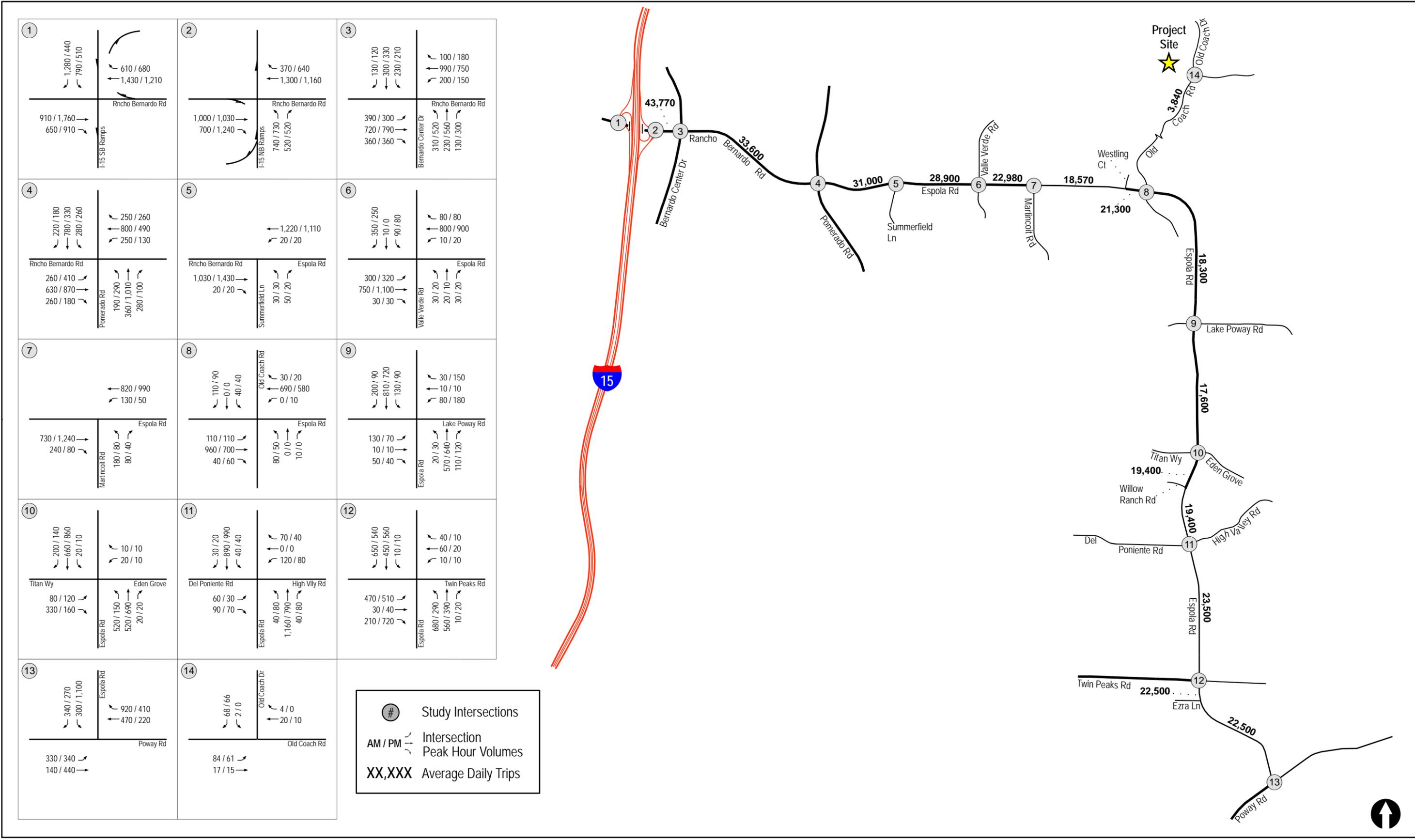
Location/Condition	Peak Hour	Peak Hour Flow F ^a	Discharge Rate R ^b	Excess Demand E ^a	Delay ^c	Queue ^d
Rancho Bernardo Road to NB I-15 – 1 SOV + 1 HOV Lanes						
Year 2035	AM	–	–	–	–	–
	PM	544 ^e	593	0	0.0	0
Year 2035 + Project	AM	–	–	–	–	–
	PM	553 ^e	593	0	0.0	0
Rancho Bernardo Road to SB I-15 – 1 SOV + 1 HOV Lanes						
Year 2035	AM	519 ^e	492	27	3.3	675
	PM	–	–	–	–	–
Year 2035 + Project	AM	525 ^e	492	33	4.0	825
	PM	–	–	–	–	–

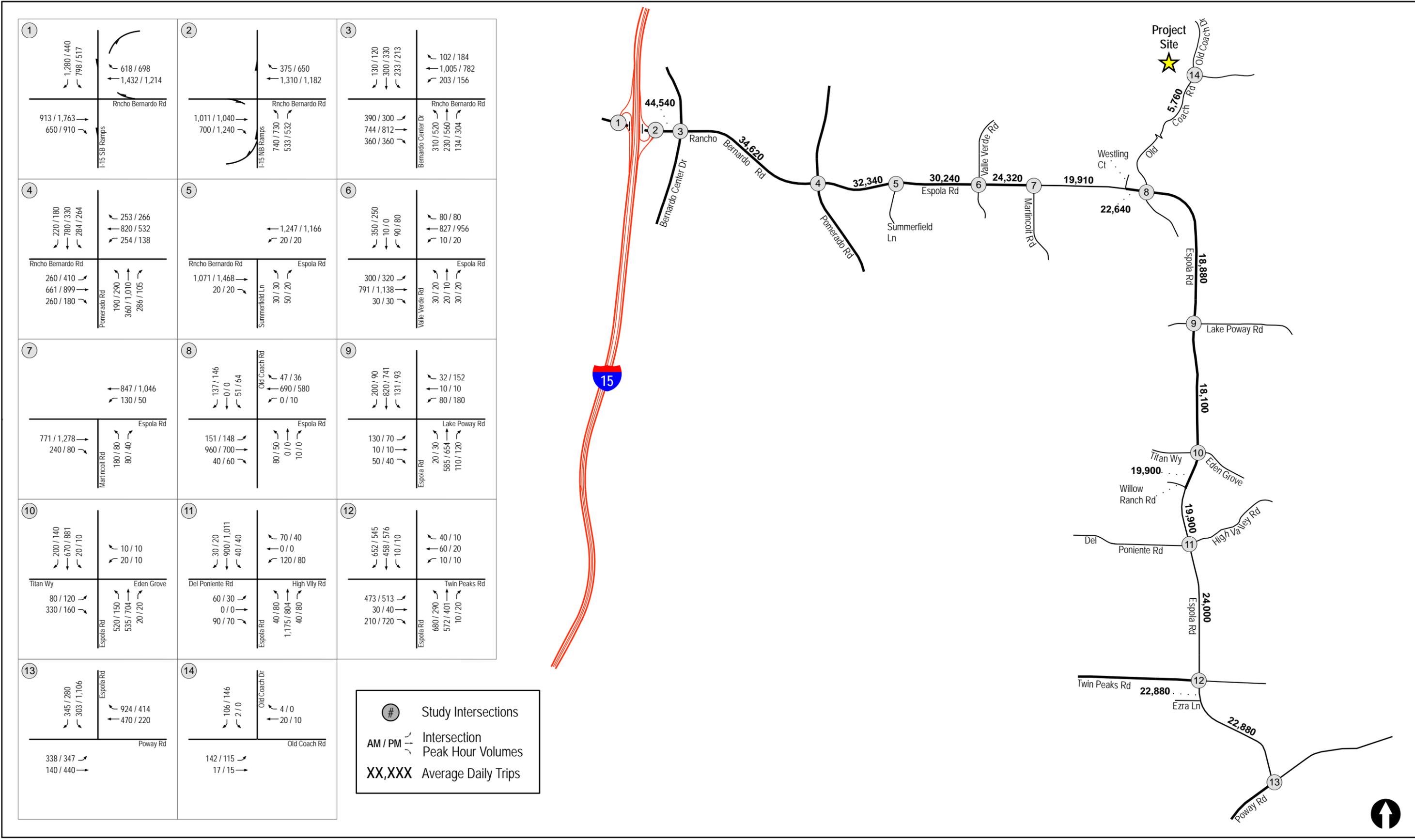
Footnotes:

- a. Vehicles per hour per lane.
- b. Ramp Meter discharge rates obtained from Caltrans. Most restrictive rate used.
- c. Calculated delay in minutes per lane.
- d. Calculated queue length in feet per lane.
- e. 15% reduction in volume due to HOV lane.

General Notes:

1. SOV = Single Occupancy Vehicle, HOV = High Occupancy Vehicle
2. “–” = Ramp meter non-operational.





12.0 CONCLUSIONS

Based on the City of Poway and City of San Diego significance thresholds and the analysis methodology presented in this report, Project related traffic is not calculated to contribute to significant direct or cumulative impacts within the study area. Therefore, no mitigation measures are required.