

5.14 Transportation and Traffic

This section analyzes information contained in the “Traffic Impact Analysis” (TIA) dated March 2013 prepared by Linscott, Law & Greenspan Engineers. The TIA is included in its entirety as Appendix O, including calculation worksheets for the key study intersections.

The TIA contains documentation of existing traffic conditions; traffic generated by the Proposed Project, including a construction traffic impact assessment, projected impacts with implementation of the Proposed Project; and future traffic projections, including cumulative traffic conditions. The TIA recommends intersection and/or roadway improvements that may be required to accommodate future traffic volumes and restore or maintain an acceptable level of service or mitigate the impact of the Project. The analysis included the potential development of 38 residential units on the adjacent property known as Bridal Hills, LLC. The Bridal Hills property may or may not be developed in the future, and no application to develop the property is pending at the current time. It is not included with the application for 340 residential units in the Proposed Project and is not analyzed in any great detail. However, it is reasonable to assume that up to 38 units could be developed on the Bridal Hills property at some point, and because access to Bridal Hills would be through the Esperanza Hills site, adding the units to the Proposed Project would present a worst case analysis. In addition, access to the Bridal Hills, LLC site would be through the Proposed Project, unlike other adjacent anticipated development such as the proposed Cielo Vista project.

The Proposed Project, in conjunction with the potential Bridal Hills, LLC project, consists of up to 378 single-family residential units with the main access via one of three options: Option 1 via Stonehaven Drive, Option 2 via San Antonio Road at Aspen Way, and Option 2A via San Antonio Road approximately 1,850 feet south of Aspen Way. Option 2A is analyzed in the DEIR as an Alternative in Chapter 6, Alternatives Analysis.

5.14.1 Existing Conditions

The Esperanza Hills site is located on vacant land in the unincorporated area of Orange County east of San Antonio Road and north of Stonehaven Drive near the City of Yorba Linda (City). Via del Agua to the southwest of the site changes to Stonehaven Drive as it angles to the

Acronyms used in this section:

ADT	average daily traffic
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DEIR	Draft Environmental Impact Report
HCM	Highway Capacity Manual
ICU	Intersection Capacity Utilization
ITE	Institute of Traffic Engineers
LOS	Level of Service
mph	miles per hour
OCFA	Orange County Fire Authority
OCTA	Orange County Transportation Authority
V/C	volume-to-capacity ratio
vph	vehicles per hour

east/southeast. Surrounding the Project Site are existing residential communities in the City of Yorba Linda to the south, a proposed residential development site (Cielo Vista) to the west, Chino Hills State Park to the north and east, and additional undeveloped parcels to the west and northwest. The site contains an existing dirt road that has historically been used for access by the oil well operators, the Orange County Fire Authority (OCFA), the City of Yorba Linda, Southern California Edison (SCE), and Chino Hills State Park. Along the western edge of the Project extending south to Stonehaven/Via del Agua lies an existing 50-foot-wide easement for roadway and utility purposes. Stonehaven Drive and Aspen Way provide options as the main access roadways into the Proposed Project's residential areas. The traffic impacts for each option are detailed and analyzed in this section.

1. Traffic Analysis Study Area

In consultation with the County of Orange and the City, 15 key study intersections were identified for evaluation. All are located within the City and provide regional and local access to the Study Area. The key study intersections include:

1. Project access at Stonehaven Drive (Option 1), San Antonio Road at Aspen Way (Option 2) and San Antonio Road at Project Access approximately 1,850 feet south of Aspen Way (Option 2A)
2. Imperial Highway at Yorba Linda Boulevard
3. Lakeview Avenue at Yorba Linda Boulevard
4. Kellogg Drive at Yorba Linda Boulevard
5. Fairmont Boulevard at Yorba Linda Boulevard
6. Village Center Drive at Yorba Linda Boulevard
7. Paseo de Las Palomas at Yorba Linda Boulevard
8. San Antonio Road at Yorba Linda Boulevard
9. Yorba Ranch Road/Dorinda Road at Yorba Linda Boulevard
10. Yorba Linda Boulevard at Via del Agua
11. Yorba Linda Boulevard at Stonehaven Drive
12. Yorba Linda Boulevard at La Palma Avenue
13. Yorba Linda Boulevard at Savi Ranch Parkway
14. Weir Canyon Road at SR-91 WB Ramps
15. Weir Canyon Road at SR-91 EB Ramps

The Key Study Intersections are depicted on Exhibit 5-125 – Key Intersection Map. The Volume/Capacity (V/C) and Level of Service (LOS) analyses at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects, and the Proposed Project.

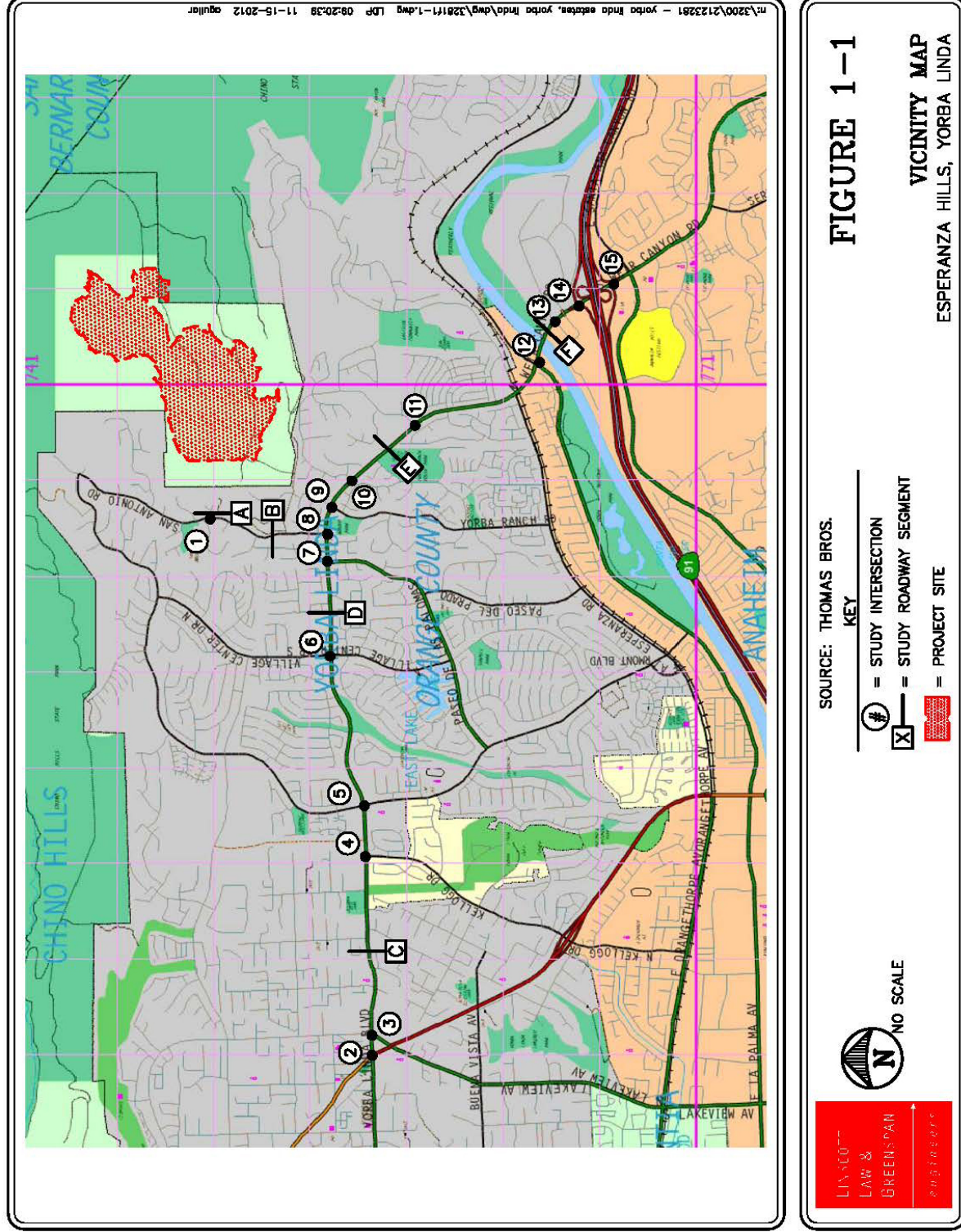


Exhibit 5-125– Key Intersection Map

2. Existing Street System

Regional access to the site is provided by the SR-91 Freeway. Streets serving the site are Yorba Linda Boulevard, Weir Canyon Road, Imperial Highway, Lakeview Avenue, Kellogg Drive, Fairmont Boulevard, Village Center Drive, Paseo de las Palomas, San Antonio Road, Yorba Ranch Road, Via del Agua/Stonehaven Drive, La Palma Avenue, and Savi Ranch Parkway. The Yorba Linda General Plan (Yorba Linda GP) designates Stonehaven Drive and Via del Agua as the roadways that will provide access to the Project Site, with the recognition that easements would need to be provided across the property to the west and south (General Plan, LU-55; Appendix, Murdock Property).

The following brief descriptions of each street are based on an inventory of existing roadway conditions.

- **Yorba Linda Boulevard** is primarily an east-west, six-lane divided roadway located south of the Project Site with no permitted parking on either side of the roadway. South of Savi Ranch Parkway, Yorba Linda Boulevard becomes Weir Canyon Road. The posted speed limit is 40 miles per hour (mph). The intersections of Yorba Linda Boulevard at Imperial Highway, Lakeview Avenue, Kellogg Drive, Fairmont Boulevard, Village Center Drive, Paseo de las Palomas, San Antonio Road, Yorba Ranch Road/Dorinda Road, Stonehaven Drive, La Palma Avenue, and Savi Ranch Parkway are controlled by traffic signals. The intersections of Weir Canyon Road at SR-91 westbound ramps and SR-91 eastbound ramps are controlled by traffic signals as well.
- **Imperial Highway** is primarily a north-south, six-lane divided roadway located west of the Project Site with no permitted parking on either side of the roadway. South of Yorba Linda Boulevard, Imperial Highway becomes the Richard M. Nixon Freeway, a six-lane divided highway. North of Yorba Linda Boulevard, the posted speed limit is 45 mph. South of Yorba Linda Boulevard, the posted speed limit is 65 mph.
- **Lakeview Avenue** is primarily a north-south, two-lane divided roadway located west of the Project Site with no parking permitted on either side of the roadway. South of Yorba Linda Boulevard, Lakeview Avenue is a two-lane, undivided roadway. The posted speed limit on Lakeview Avenue is 35 mph.
- **Kellogg Drive** is a north-south, two-lane divided roadway located southwest of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 40 mph.
- **Fairmont Boulevard** is primarily a north-south, four-lane divided roadway located west of the Project Site. North of Yorba Linda Boulevard, Fairmont is a two-lane, divided roadway. No parking is permitted on either side of the roadway. The posted speed limit is 40 mph.

- **Village Center Drive** is a north-south, four-lane divided roadway located west of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 40 mph.
- **Paseo de las Palomas** is an east-west four-lane divided roadway located southwest of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 40 mph.
- **San Antonio Road** is a north-south two-lane commuter roadway located directly west of the Project Site. North of Aspen Way, parking is permitted on both sides of the roadway. South of Aspen Way, parking is permitted on the east side of the roadway and restricted on the west side of the roadway. The posted speed limit is 25 mph.
- **Yorba Ranch Road** is primarily a north-south, four-lane divided roadway located south of the Project Site. North of Yorba Linda Boulevard, the roadway is two-lane undivided. Parking is not permitted on either side of the roadway. South of Yorba Linda Boulevard, the posted speed limit is 35 mph.
- **Stonehaven Drive** is a two-lane undivided local roadway located south of the Project Site. Parking is permitted on both sides of the roadway within the vicinity of the Project. The posted speed limit is 35 mph. Stonehaven Drive changes to Via del Agua as the road curves to the southwest.
- **Via del Agua** is a two-lane undivided local roadway located south of the Project Site with parking permitted on both sides of the roadway. Via del Agua changes to Stonehaven Drive as the road curves west. The posted speed limit is 35 mph.
- **La Palma Avenue** is an east-west, four-lane divided roadway located south of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 45 mph.
- **Savi Ranch Parkway** is an east-west, four-lane divided roadway located south of the Project Site with no parking permitted on either side of the roadway. The posted speed limit is 35 mph.

3. Existing Traffic Volumes

The 15 key study intersections identified for evaluation of existing and future traffic operating conditions were selected based on discussions with City staff and in consideration of the Orange County Congestion Management Program (CMP) requirements. It was determined that some portion of potential project-related traffic will pass through each of these intersections. Existing AM peak hour and PM peak hour traffic volumes for the 15 key study intersections were obtained from turning movement counts observed and recorded in the field. Appendix B of the TIA (Appendix O to this DEIR) contains detailed peak hour and daily traffic count sheets for the key intersections and roadway segments analyzed.

Exhibit 5-126 and Exhibit 5-127 depict the existing AM and PM peak hour traffic volumes at each key study intersection, respectively. Exhibit 5-127 also presents the existing average daily traffic volumes for the eight key roadway segments in the vicinity and closest to the Proposed Project.

4. Existing Intersection Conditions/Methodology

The Intersection Capacity Utilization (ICU) methodology for signalized intersections and the *Highway Capacity Manual* 2000 (HCM) (Chapter 17) methodology for unsignalized intersections were used to evaluate the existing AM and PM peak hour operating conditions for signalized intersections.

a. Intersection Capacity Utilization (ICU) Method of Analysis

The ICU method was used to evaluate existing AM and PM peak hour operating conditions in conformance with City and County CMP requirements. The ICU method is intended for signalized intersection analysis and estimates the volume-to-capacity (V/C) relationship based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. The ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per City requirements, the ICU calculations used a lane capacity of 1,700 vehicles per hour (vph), and a clearance adjustment factor of 0.05 was added to each LOS calculation. The clearance adjustment factor takes into account time that is lost during an all-red phase, as well as lost time at the startup of a green phase. The ICU calculations were performed using the more stringent lane capacity criteria of 1,600 vph for the one signalized intersection that is jointly shared by the City and unincorporated County of Orange (Kellogg Drive at Yorba Linda Boulevard).



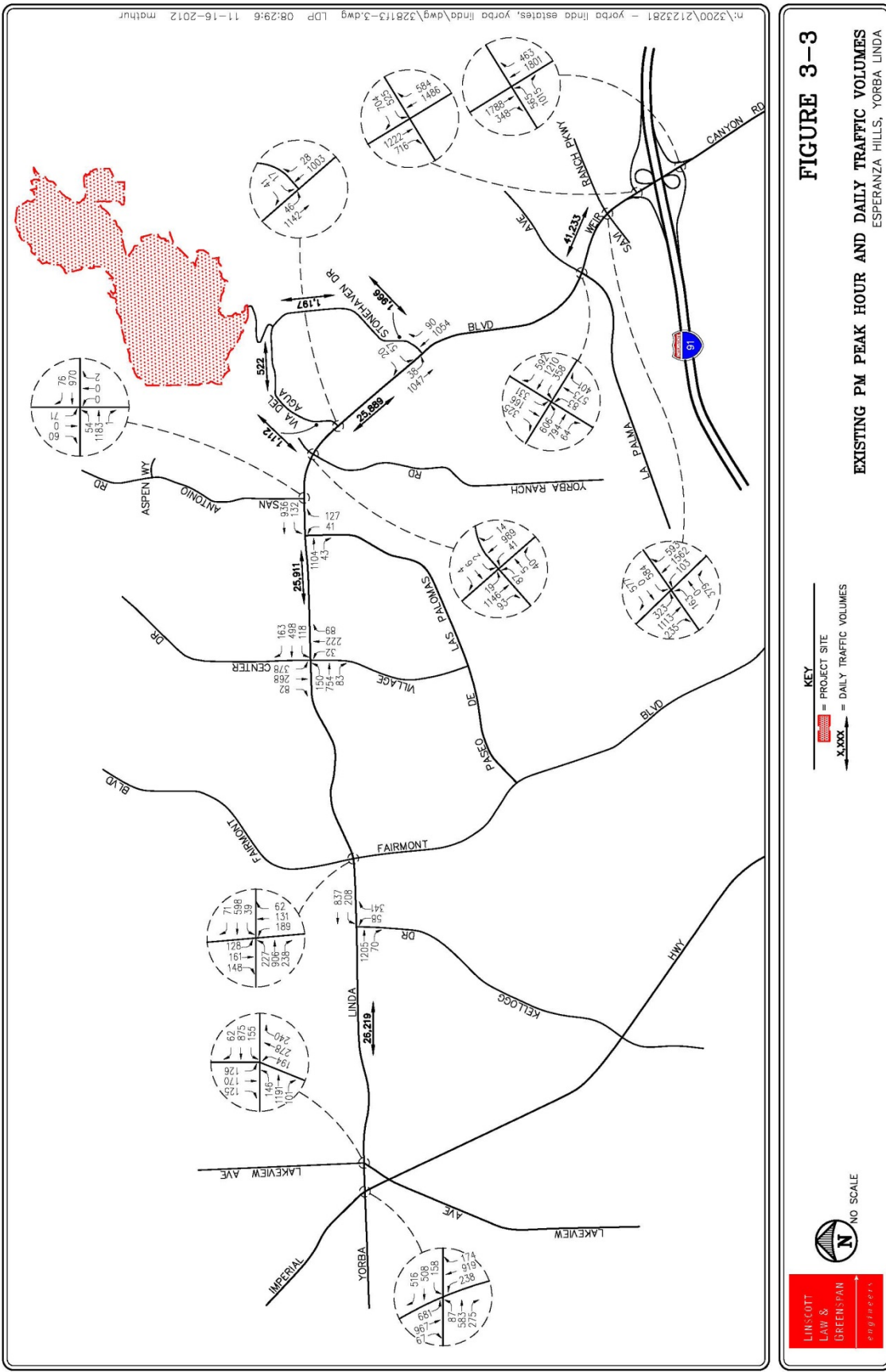


Exhibit 5-127– Existing PM Peak Hour and Daily Traffic Volumes

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance and is the sum of the critical V/C ratios at an intersection. It is not intended to indicate the LOS of each individual turning movement but rather the total volume. Table 5-14-1 shows the LOS criteria for signalized intersections.

Table 5-14-1 Level of Service Criteria for Signalized Intersections

Level of Service (LOS)	Intersection Capacity Utilization Value (Volume/Capacity)	Level of Service Description
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.601 – 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

b. Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)

The 2000 HCM methodology for stop-controlled intersections was utilized for the analysis of unsignalized intersections. The average control delay for each of the subject movements is estimated to determine the level of service for each movement. For all-way stop-controlled intersections, the overall average control delay measured in seconds per vehicle, and level of service, is then calculated for the entire intersection. For one-way and two-way stop-controlled intersections (minor street stop-controlled), the worst side street delay, measured in seconds per vehicle, is estimated and the level of service for that approach is determined. The HCM control delay value translates to an LOS estimate, which is a relative measure of the intersection performance. Table 5-14-2 shows the LOS categories and the corresponding HCM control delay value range.

Table 5-14-2 Level of Service Criteria for Unsignalized Intersections

Level of Service (LOS)	Highway Capacity Manual Delay Value (seconds per vehicle)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

Source: *Highway Capacity Manual 2000*, Chapter 17 (Unsignalized Intersections)

c. Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)

The LOS for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions – in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road.

The HCM quantifies only the portion of total delay attributed to the control facility. This is called control delay and includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. Table 5-14-3 defines the six qualitative categories of LOS along with the corresponding HCM control delay value range for signalized intersections.

Table 5-14-3 Level of Service Criteria for Signalized Intersections (HCM Methodology)

Level of Service (LOS)	Control Delay per Vehicle (seconds per vehicle)	Level of Service Description
A	≤10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and ≤20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and ≤35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and ≤55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and ≤80.0	Very long traffic delays This level is considered by many agencies (i.e. SANBAG) to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	≥80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

Source: *Highway Capacity Manual 2000*, Chapter 16 (Signalized Intersections)

d. State of California (Caltrans) Methodology

Existing and projected AM and PM peak hour operating conditions at the three state-controlled study intersections in the study have been evaluated using the HCM 2000 operations method of analysis in conformance with the current Caltrans “Guide for the Preparation of Traffic Impact Studies.” The state-controlled locations include the following intersections:

2. Imperial Highway at Yorba Linda Boulevard
14. Weir Canyon Road at SR-91 WB Ramps
15. Weir Canyon Road at SR-91 EB Ramps

Caltrans “endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities,” but does not require that LOS D be maintained. Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. LOS D is the threshold, or target level of service standard applied to the TIA and was utilized to assess the project impacts at the intersections identified above. This analysis applies equally to both access options presented herein.

e. Level of Service (LOS) Criteria

The County’s General Plan Transportation Element identifies LOS D as the threshold for intersections under the sole control of the County. LOS D is the threshold and minimum acceptable condition that should be maintained during the peak commute hours according to the City and pursuant to its General Plan, page C-8.

f. Traffic Impact Analysis Methodology

Following are scenarios for which V/C calculations have been performed at the 15 key study intersections for existing plus project, near-term (2020), and long-term (2035) traffic conditions:

- Scenario A - Existing traffic conditions
- Scenario B - Existing plus project traffic conditions
- Scenario C - Scenario B above with improvements, if necessary
- Scenario D - Near-term (2020) cumulative traffic conditions
- Scenario E - Near-term (2020) cumulative plus project traffic conditions
- Scenario F - Scenario E above with improvements, if necessary
- Scenario G - Long-term (2035) future traffic conditions
- Scenario H - Long-term (2035) future traffic conditions plus project traffic
- Scenario I - Scenario H above with improvements, if necessary

5. Existing Level of Service Results

The existing peak hour service level calculations for the key study intersections are summarized in Table 5-14-4 below. The summary is based on existing traffic volumes and current street geometrics. As shown, only 1 of the 15 key study intersections currently operates at an unacceptable LOS during the AM and PM peak hours. The location operating at an adverse LOS is Yorba Linda Boulevard at Via del Agua (intersection #10 in the following table) showing an LOS F for the AM peak and LOS D for the PM peak hours.

Table 5-14-4 Existing Intersection Peak Hour Levels of Service Summary

Key Intersection	Time Period	Control Type	ICU/Delay (seconds/vehicle)	LOS
1. Stonehaven Drive at Project Access (proposed intersection)	AM	One-Way	--	--
	PM	Stop	--	--
2. Imperial Highway at Yorba Linda Boulevard	AM	8Ø Traffic	0.649	B
	PM	Signal	0.726	C
3. Lakeview Avenue at Yorba Linda Boulevard	AM	6Ø Traffic	0.551	A
	PM	Signal	0.577	A
4. Kellogg Drive at Yorba Linda Boulevard	AM	3Ø Traffic	0.426	A
	PM	Signal	0.594	A
5. Fairmont Boulevard at Yorba Linda Boulevard	AM	8Ø Traffic	0.574	A
	PM	Signal	0.465	A
6. Village Center Drive at Yorba Linda Boulevard	AM	8Ø Traffic	0.454	A
	PM	Signal	0.518	A
7. Paseo De Las Palomas at Yorba Linda Boulevard	AM	3Ø Traffic	0.420	A
	PM	Signal	0.527	A
8. San Antonio Road at Yorba Linda Boulevard	AM	4Ø Traffic	0.469	A
	PM	Signal	0.441	A
9. Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard	AM	5Ø Traffic	0.424	A
	PM	Signal	0.468	A
10. Yorba Linda Boulevard at Via del Agua	AM	One-Way	58.0	F
	PM	Stop	31.8	D
11. Yorba Linda Boulevard at Stonehaven Drive	AM	3Ø Traffic	0.519	A
	PM	Signal	0.442	A
12. Yorba Linda Boulevard at La Palma Avenue	AM	8Ø Traffic	0.739	C
	PM	Signal	0.745	C
13. Yorba Linda Boulevard at Savi Ranch Parkway	AM	8Ø Traffic	0.466	A
	PM	Signal	0.769	C
14. Weir Canyon Road at SR-91 WB Ramps	AM	2Ø Traffic	0.472	A
	PM	Signal	0.582	A
15. Weir Canyon Road at SR-91 EB Ramps	AM	2Ø Traffic	0.552	A
	PM	Signal	0.710	C

Notes: Ø = Phase; LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

Bold Delay/LOS values indicate unacceptable service levels based on LOS Criteria identified in the Traffic Impact Analysis.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections.

6. Existing Public Transit Service

The Orange County Transportation Authority (OCTA) has regularly scheduled bus service available on Yorba Linda Boulevard (Route 26) and Imperial Highway (Route 20).

5.14.2 Thresholds of Significance

The state encourages local agencies to adopt their own thresholds, but it is not required. The County of Orange does not have adopted thresholds of significance for transportation and traffic. Therefore, for purposes of this analysis, the applicable thresholds listed in the CEQA Guidelines will be used. Appendix G of the CEQA Guidelines states that the project would have a potential significant impact with respect to transportation and traffic if it would:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths and mass transit
- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways
- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks
- d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)
- e) Result in inadequate emergency access
- f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities or otherwise decrease the performance or safety of such facilities

The County has established a threshold of LOS D for intersections in sole control of the County. Caltrans endeavors to maintain a threshold between LOS C and LOS D on state highways.

Pursuant to its General Plan, page C-8, the City has established LOS D (ICU = 0.801 - 0.900) as the minimum acceptable condition that should be maintained during the peak commute hours for all key study intersections. Impacts to local and regional transportation systems are considered significant if:

The intersection operates at LOS E or F and the project increases traffic demand at the study intersection by 1% of capacity (ICU increase ≥ 0.010). At unsignalized intersections, a “significant” adverse traffic impact is defined as a

project that adds 1% or more traffic delay (seconds per vehicle) at an intersection operating at LOS E or F.

Congestion Management Program (CMP) Compliance Assessment

The TIA is consistent with the requirements and procedures outlined in the current Orange County Congestion Management Program (CMP). The CMP requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System. Per the CMP guidelines, this number is based on analysis of any impacts that will be 3.0% or more of the existing CMP highway system facilities' capacity.

The City does not have any CMP highway systems within the vicinity of the Proposed Project. Because the CMP is not applicable, the analysis concludes that the Proposed Project will not have any significant traffic impacts on the Congestion Management Program Highway System.

5.14.3 Project Impacts Prior to Mitigation

The TIA analyzed existing and future weekday daily AM peak hour and PM peak hour traffic conditions for a near-term (Year 2020) and long-term (Year 2035) traffic setting using two main access options. Near-term cumulative daily and peak hour traffic forecasts were projected by incorporating a 1% annual growth rate and the trip generation potential of 18 related projects (Table 5-9-21, Cumulative Projects List (page 5-456) that are expected to be built and occupied by Year 2020. Long-term daily and peak hour traffic forecasts were projected based on modeled traffic projections prepared by the OCTA using the OCTAM3.4 Year 2035 Traffic Analysis Model.

1. Traffic Forecasting Methodology

A multi-step process was utilized to estimate the traffic impact characteristics of the project as proposed.

- Step 1 - Traffic Generation estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.
- Step 2 - Traffic Distribution identifies the origins and destinations of inbound and outbound project traffic. Origins and destinations are typically based on demographics and existing/expected future travel patterns.
- Step 3 - Traffic Assignment involves the allocation of project traffic to Study Area streets and intersections, is typically based on minimizing travel time. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the Study Area.

Once the forecasting process is complete and traffic assignments are developed, the project impact is isolated by comparing operational (LOS) conditions at key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the impacts identified.

2. Project Traffic Characteristics

a. Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the Project Site. The 8th Edition of *Trip Generation* published by the Institute of Transportation Engineers (ITE) was used to determine generation equations and/or rates used in the forecasting procedure. As shown in Table 5-14-5, the Proposed Project and eventual potential development of the Bridal Hills, LLC property are expected to generate approximately 3,617 daily trips, with 284 trips (72 inbound, 212 outbound) in the AM peak hour and 382 trips (242 inbound, 140 outbound) in the PM peak hour on a typical weekday.

Table 5-14-5 Project Traffic Generation Forecast

Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Factors							
Single-family housing (trip ends per dwelling unit)	9.57	0.19	0.56	0.75	0.64	0.37	1.01
Proposed Project Trip Generation							
Residential (378 dwelling units)	3,617	72	212	284	242	140	382

Source: *Trip Generation*, 8th Edition, Institute of Transportation Engineers (ITE)

b. Future Traffic Conditions

Background traffic growth estimates have been calculated using an ambient traffic growth factor that is intended to include unknown and future related projects in the Study Area, as well as to account for regular growth in traffic volumes due to development outside the Study Area. Future growth in traffic volumes was calculated at 1.0% per year. When applied to Year 2012 existing traffic volumes, this factor results in an 8.0% growth in existing volumes to the near-term horizon Year 2020. This growth factor was included as a conservative measure even though no other developable parcels would be accessed through the Proposed Project that are expected to increase traffic in the future.

The status of other known development projects within a two-mile radius of the Proposed Project was included in order to realistically estimate future on-street conditions prior to development of the Proposed Project. These off-site areas included potential development in cities of Yorba Linda, Anaheim, Brea, Placentia, and Orange, and unincorporated Orange County. Eighteen potential related projects were identified, 17 of which are expected to be built and occupied by Year 2020. Of those, 16 projects are in the City of Yorba Linda and 1 project is in the City of Brea.

Exhibit 5-128 illustrates the location of each project. The AM and PM peak hour traffic volumes for the related projects in Year 2020 are shown in Exhibit 5-129 and Exhibit 5-130, respectively.

Table 5-14-6 below provides a brief description of each of the 18 related projects and identifies the occupancy percentage for each.

Table 5-14-6 Description of Related Projects

No.	Related Project	Land Use	Occupancy Percentage	
			Year 2020	Year 2035
City of Yorba Linda Development				
1	North Yorba Linda Estates	364 single-family residential dwelling units 110 condos/townhomes	100% 100%	100% 100%
2	Cielo Vista (Yorba Linda Sphere of Influence)	112 single-family residential dwelling units	100%	100%
3	Hover/Bastanchury Holding Co.	48 single-family residential dwelling units	100%	100%
4	Yorba Linda Town Center	32 single-family residential dwelling units 119 condos/townhomes 1,200-seat performing arts center 24,000-square-foot library 5,200 square feet of general office uses 61,600 square feet of commercial retail uses 16,400 square feet of restaurant uses	100% 100% 100% 100% 100% 100% 100%	100% 100% 100% 100% 100% 100% 100%
5	Oakcrest Terrace	69 apartments	100%	100%
6	Canal Annex – Savi Ranch	84 apartments	100%	100%
7	Nixon Archive Site	59 single-family residential dwelling units	100%	100%
8	SWC Bastanchury/Lakeview	180 apartment units 109 single-family residential dwelling units	100% 100%	100% 100%
9	Friends Christian High School	1,200 students	100%	100%
10	Prospect (Greenhouse)	55 single-family residential dwelling units	100%	100%
11	Wabash & Rose	17 single-family residential dwelling units	100%	100%
12	Yorba Linda/Prospect	122 apartment units	100%	100%
13	Postal Annex SE Lemon & Eureka	5 single-family residential dwelling units	100%	100%
14	4622 Plumosa	10 apartment units	100%	100%
15	Lakeview & Mariposa	149 apartment units	100%	100%
16	Palisades at Vista del Verde	143 condos/townhomes	100%	100%
City of Anaheim				
17	Mountain Park	1,675 single-family residential dwelling units 825 condos/townhomes 3,000-square-foot convenience market 800-student elementary school 15 acres of park	0% 0% 0% 0% 0%	100% 100% 100% 100% 100%
City of Brea Development				
18	La Floresta Development	398 medium-density residential dwelling units 787 high-density residential dwelling units 150 mixed-use residential dwelling units 156,800 square feet of mixed-use commercial 18-hole golf course 20,000-square-foot community center 5.30-acre public facility (active adult) 75.60 acres of natural open space	100% 100% 100% 100% 100% 100% 100% 100%	100% 100% 100% 100% 100% 100% 100% 100%

Source: City of Yorba Linda, City of Anaheim, City of Brea, City of Placentia, City of Orange, and unincorporated County of Orange planning staff

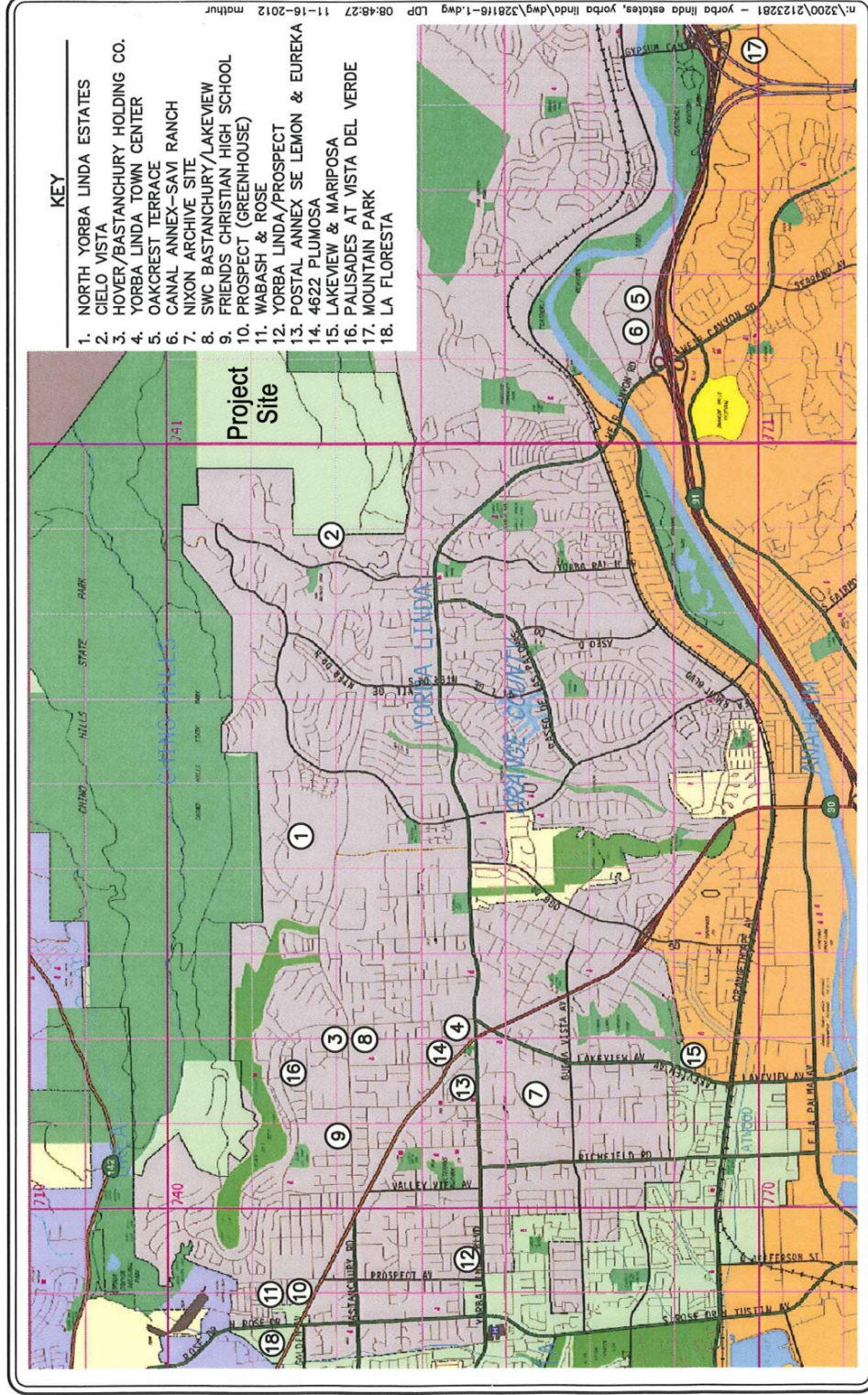


Exhibit 5-128 – Location of Related Projects

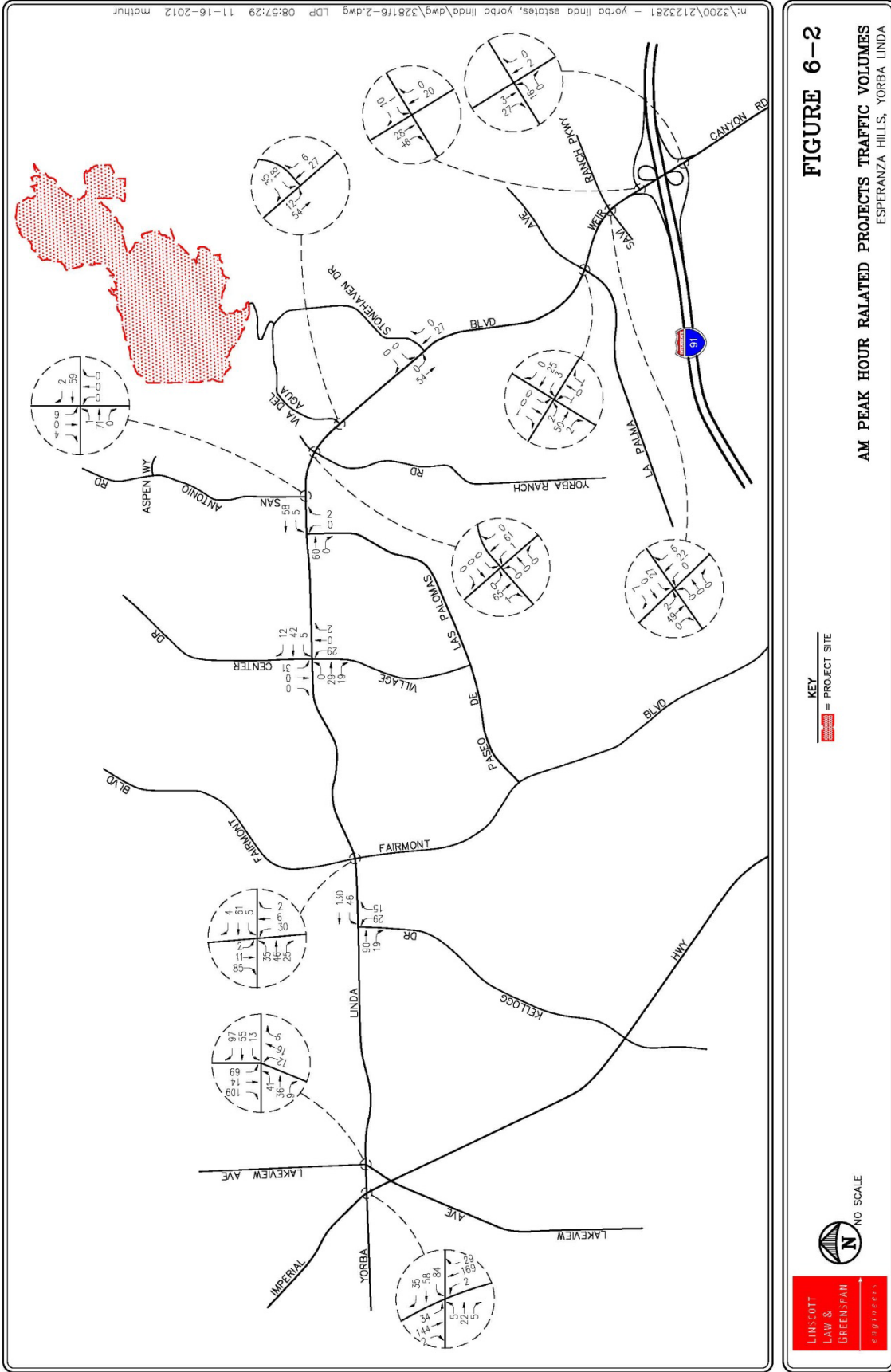


Exhibit 5-129 – AM Peak Hour Related Projects Traffic Volumes

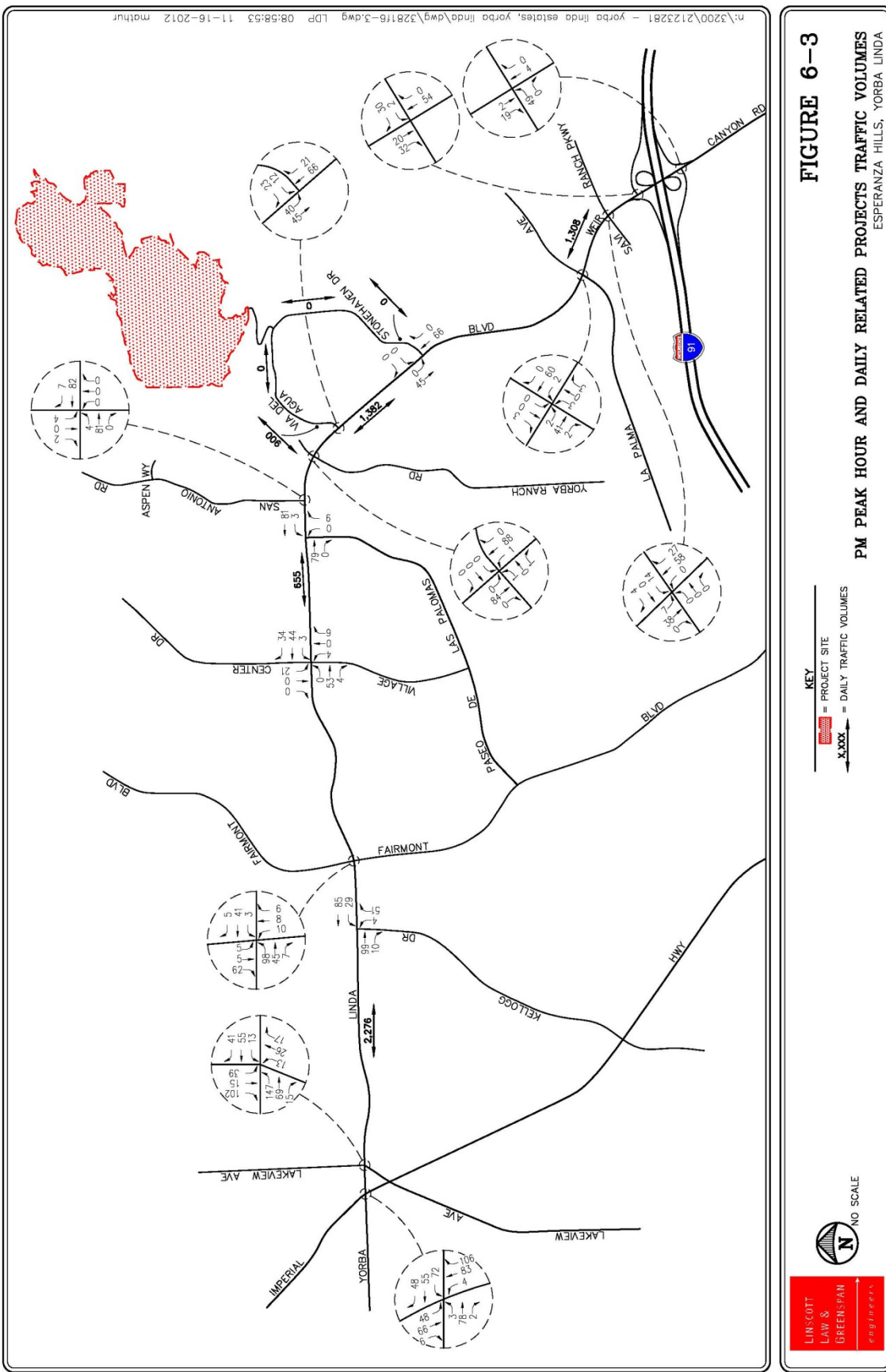


Exhibit 5-130 – PM Peak Hour and Daily Related Projects Traffic Volumes

c. Year 2035 Traffic Conditions

Background traffic volume forecasts were obtained using the OCTAM3.4 Year 2035 traffic model provided by the OCTA. The AM and PM peak period traffic volumes were provided by the OCTA for the existing base year (2010) and for the buildout year (2035). The AM peak period covers a three-hour morning commute period and the PM peak period covers a four-hour afternoon commute period. Copies of the model post-processing worksheets are contained in Appendix D of the TIA (Appendix O to this DEIR).

3. Existing and Projected Traffic - Caltrans Methodology

a. Existing Plus Project Traffic Conditions

Existing plus project peak hour HCM LOS results at the three state-controlled study intersections with the Study Area are summarized in Table 5-14-7. As shown, Column 1 represents existing traffic conditions, Column 2 shows Existing plus Proposed Project traffic, and Column 3 shows whether the traffic associated with the Proposed Project will have a significant impact based on the LOS standards defined herein.

Table 5-14-7 Existing Plus Project Peak Hour Intersection Capacity Analysis - Caltrans

Key Intersection	Time Period	Existing Traffic Conditions (1)		Existing Plus Project Traffic Conditions (2)		Significant Impact (3)
		Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No
2. Imperial Highway at Yorba Linda Boulevard	AM	39.1	D	39.2	D	No
	PM	42.4	D	42.9	D	No
14. Weir Canyon Road at SR-91 WB Ramps	AM	15.1	B	15.2	B	No
	PM	17.4	B	17.7	B	No
15. Weir Canyon Road at SR-91 EB Ramps	AM	17.1	B	17.1	B	No
	PM	21.5	C	21.6	C	No

Note: s/v = seconds per vehicle

The table indicates that all of the state-controlled study intersections currently operate at acceptable Levels of Service during the AM and PM peak hours. The intersections will not be significantly impacted by development of the Proposed Project and are forecast to continue to operate at the currently adequate service levels (i.e., LOS D or better) with the addition of Proposed Project-generated traffic to existing traffic.

b. Year 2020 Traffic Conditions

Table 5-14-8 depicts the Peak Hour Intersection Capacity Analysis and summarizes the Year 2020 peak hour HCM level of service results at the state-controlled intersections within the Study Area. Column 1 presents a summary of existing traffic conditions; Column 2 shows Year 2020 cumulative traffic

conditions without project generated traffic; Column 3 presents future forecast traffic conditions with the addition of Proposed Project-related traffic and Column 4 indicates whether the traffic associated with the Proposed Project will have a significant impact based on the LOS standards herein.

The table indicates that cumulative traffic conditions with the addition of ambient traffic growth and related projects (Column 2) will not adversely impact the three intersections which are forecast to operate at LOS D or better during AM and PM peak hours.

Columns 3 and 4 show that traffic associated with the Proposed Project will not significantly impact the three intersections which are forecast to continue to operate at LOS D or better in Year 2020.

Table 5-14-8 Year 2020 Peak Hour Intersection Capacity Analysis

Key Intersection		Time Period	Existing Traffic Conditions (1)		Year 2020 Cumulative Traffic Conditions (2)		Year 2020 Cumulative Plus Project Traffic Conditions (3)		Significant Impact (4)
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No
2.	Imperial Highway at Yorba Linda Boulevard	AM	39.1	D	46.0	D	46.2	D	No
		PM	42.4	D	51.2	D	52.5	D	No
14.	Weir Canyon Road at SR-91 WB Ramps	AM	15.1	B	15.5	B	15.7	B	No
		PM	17.4	B	18.3	B	18.6	B	No
15.	Weir Canyon Road at SR-91 EB Ramps	AM	17.1	B	17.7	B	17.8	B	No
		PM	21.5	C	23.6	C	23.8	C	No

Note: s/v = seconds per vehicle

c. Year 2035 Traffic Conditions

The peak hour level of service at the state-controlled study intersections in Year 2035 is summarized in Table 5-14-9 below, which is formatted with the same column structure as Table 5-14-8 above for Year 2020. As shown in Column 2, the projected long-term scenario without Proposed Project traffic will not adversely impact the three study intersections which are forecast to operate at LOS D or better during the AM and PM peak hours.

Columns 3 and 4 indicate that traffic associated with the Proposed Project will not significantly impact the three state-controlled intersections which are forecast to continue to operate at LOS D or better in Year 2035.

The Caltrans level of service calculation worksheets are included in Appendix F of the TIA (Appendix O to this DEIR).

Table 5-14-9 Year 2035 Peak Hour Intersection Capacity Analysis - Caltrans

Key Intersection	Time Period	Existing Traffic Conditions (1)		Year 2035 Cumulative Traffic Conditions (2)		Year 2035 Cumulative Plus Project Traffic Conditions (3)		Significant Impact (4)
		Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No
2. Imperial Highway at Yorba Linda Boulevard	AM	39.1	D	52.1	D	52.3	D	No
	PM	42.4	D	54.1	D	54.7	D	No
14. Weir Canyon Road at SR-91 WB Ramps	AM	15.1	B	15.9	B	16.0	B	No
	PM	17.4	B	19.4	B	19.8	B	No
15. Weir Canyon Road at SR-91 EB Ramps	AM	17.1	B	18.8	B	18.8	B	No
	PM	21.5	C	45.0	B	46.2	D	No

Note: s/v = seconds per vehicle

4. Option 1 Project Analysis

Option 1 provides primary access to the site via a main access roadway connected to Stonehaven Drive approximately 325 feet east of Devonport Circle. Emergency fire access under Option 1 will be provided via Via del Agua approximately 130 feet northeast of Via de la Roca, which currently services the surrounding hillside area. The key study intersections are identical for Option 1 and Option 2, except for intersection No. 1, which is the driveway intersection for each option.

a. Project Traffic Distribution and Assignment - Option 1

Traffic distribution patterns for Option 1 of the project are depicted in Exhibit 5-131. The following considerations were used to distribute and assign traffic both entering and exiting the site:

- The site's proximity to local and major traffic carriers (e.g., Via del Agua, Stonehaven Drive, Yorba Linda Boulevard);
- Expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals;
- Ingress/egress availability at the Project Site;
- Select zone analysis based on the OCTAM3.4 Traffic Analysis Model; and
- Input from City of Yorba Linda staff.

The AM and PM peak hour project traffic volumes associated with Option 1 are presented in Exhibit 5-132 and Exhibit 5-133, respectively.

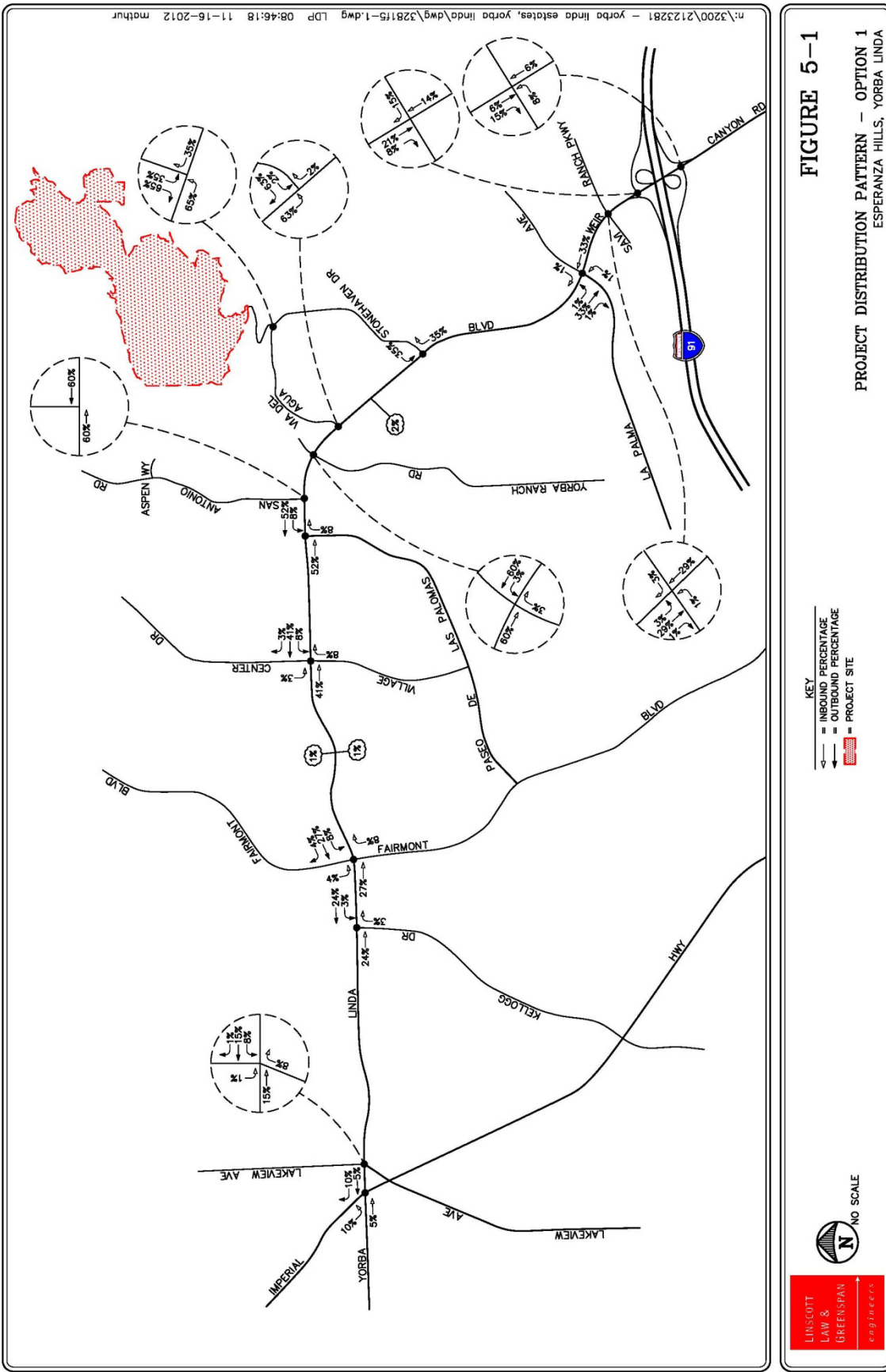


Exhibit 5-131 – Project Distribution Pattern, Option 1

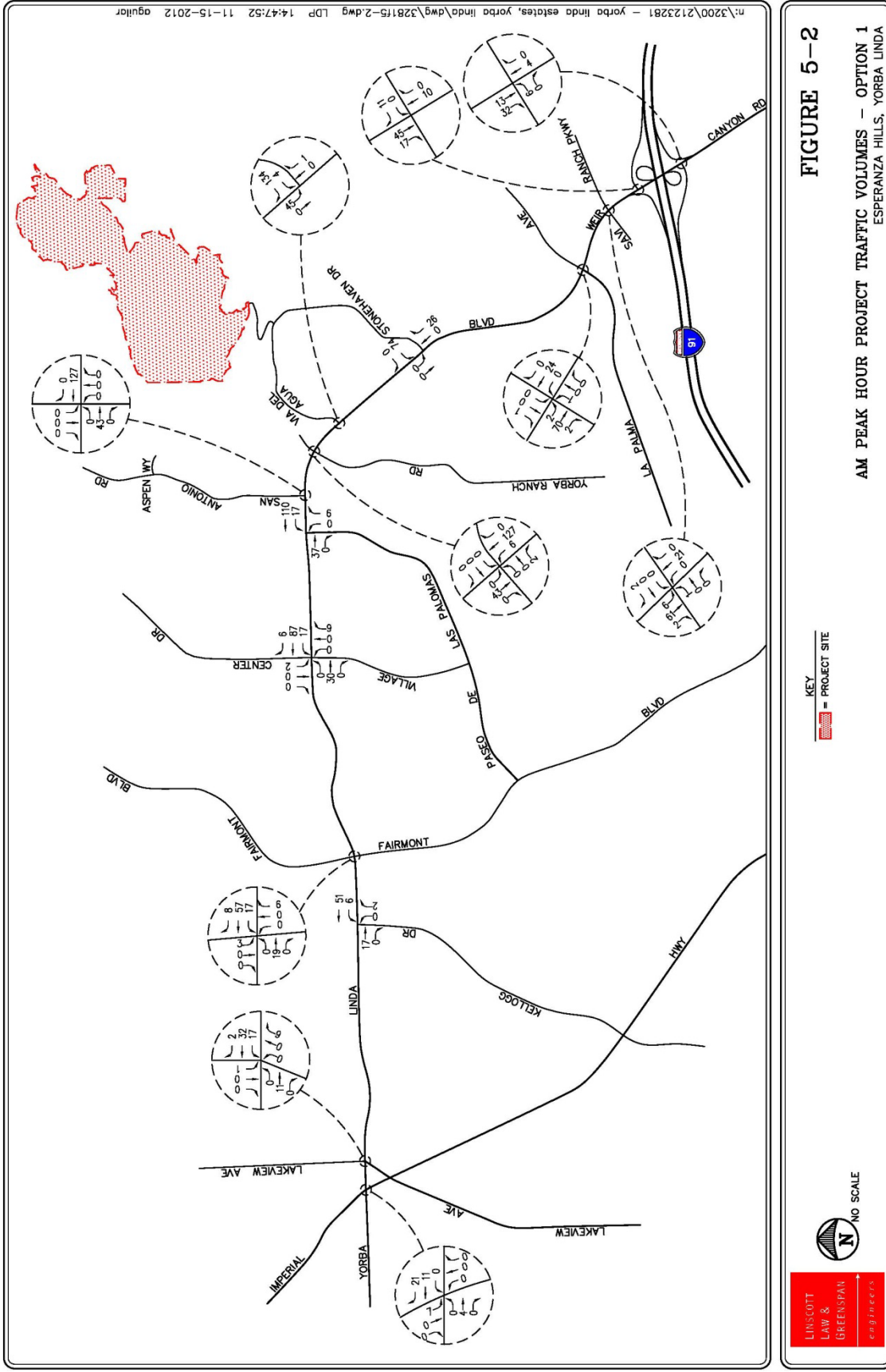


Exhibit 5-132 – AM Peak Hour Project Traffic Volumes, Option 1

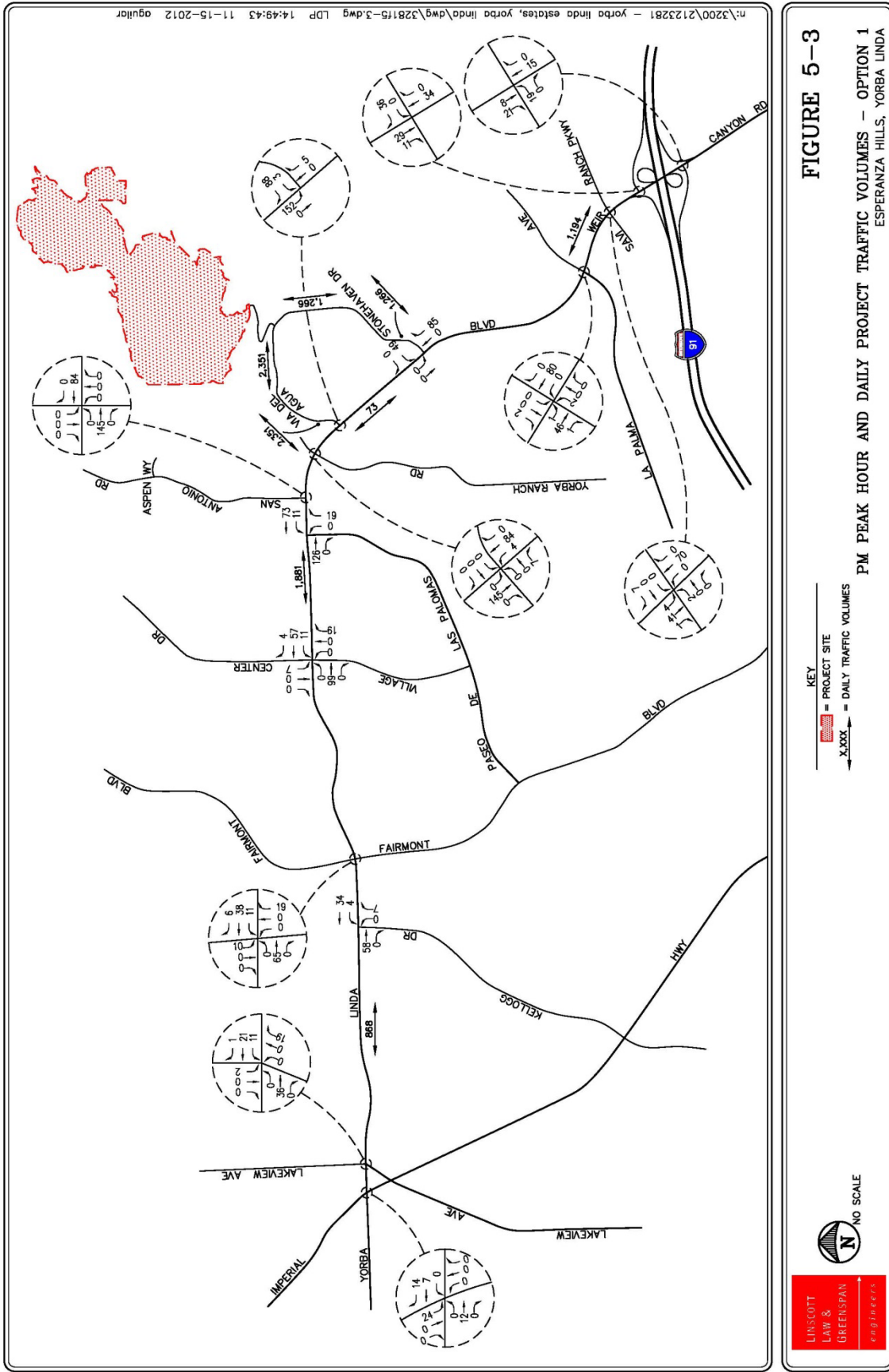


Exhibit 5-133 – PM Peak Hour and Daily Project Traffic Volumes, Option 1

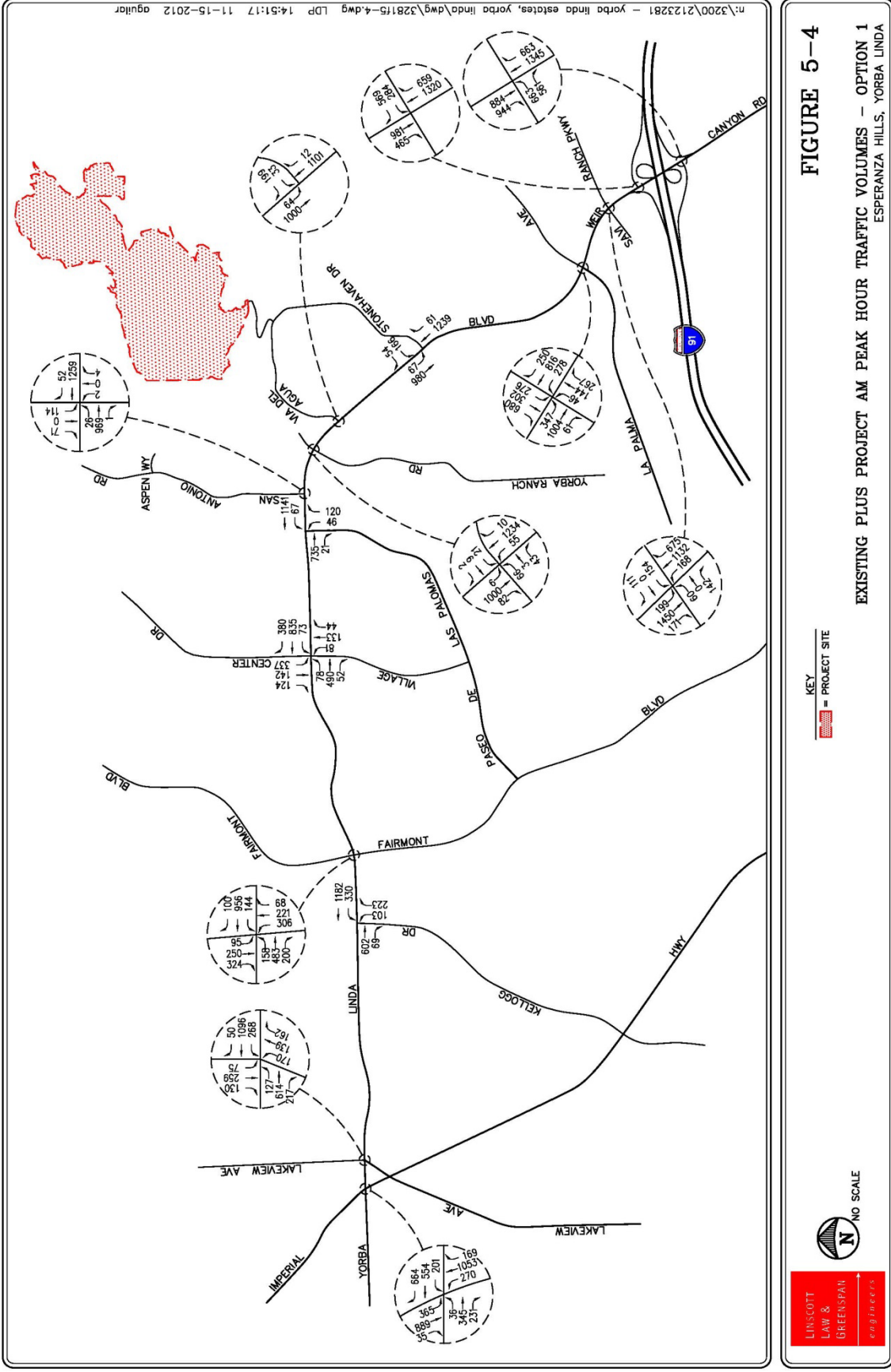
b. Existing Plus Project Traffic Conditions

The existing plus project traffic conditions were generated based on existing conditions and the estimated project traffic and were prepared pursuant to the California Environmental Quality Act (CEQA) Guidelines. CEQA requires that the potential project impacts be evaluated as the circulation system currently exists. Exhibit 5-134 and Exhibit 5-135 present projected AM and PM peak hour traffic volumes at the 15 key study intersections with the addition of project trips to existing traffic under Option 1.

c. Year 2020 and Year 2035 Traffic Volumes

Cumulative traffic volumes (existing traffic + ambient growth + related projects) for AM and PM peak hours at the 15 key study intersections for Year 2020 are presented in Exhibit 5-136 and Exhibit 5-137. Year 2020 forecast AM and PM peak hour traffic volumes including trips generated under Option 1 of the Proposed Project are illustrated in Exhibit 5-138 and Exhibit 5-139.

Cumulative traffic volumes at the 15 key study intersections for AM and PM peak hours in Year 2035 are presented in Exhibit 5-140 and Exhibit 5-141, respectively. Exhibit 5-142 and Exhibit 5-143 illustrate Year 2035 forecast AM and PM peak hour traffic volumes including trips generated under Option 1 of the Proposed Project.



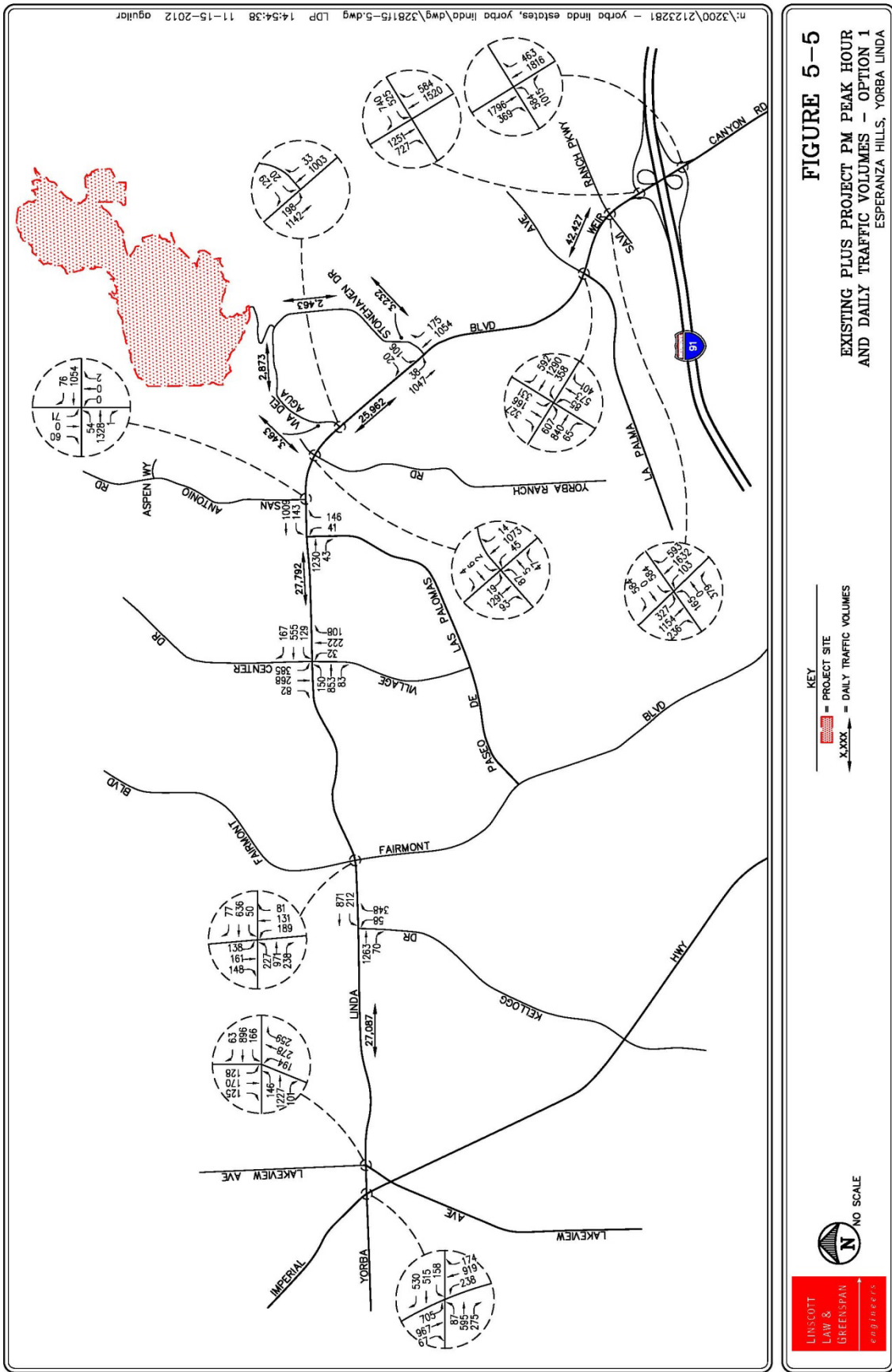
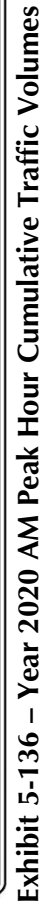


Exhibit 5-135 – Existing Plus Project PM Peak Hour and Daily Traffic Volumes, Option 1



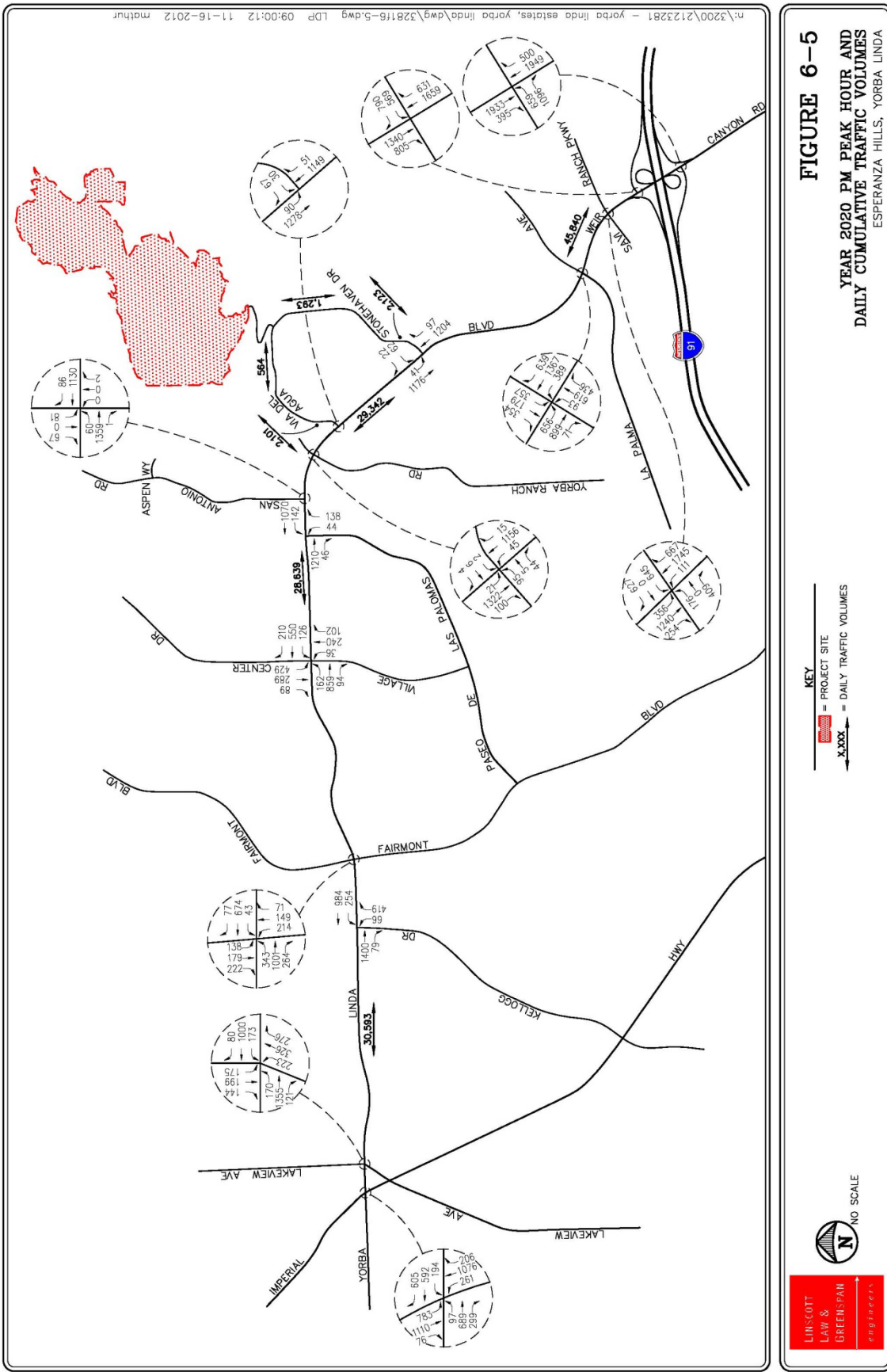
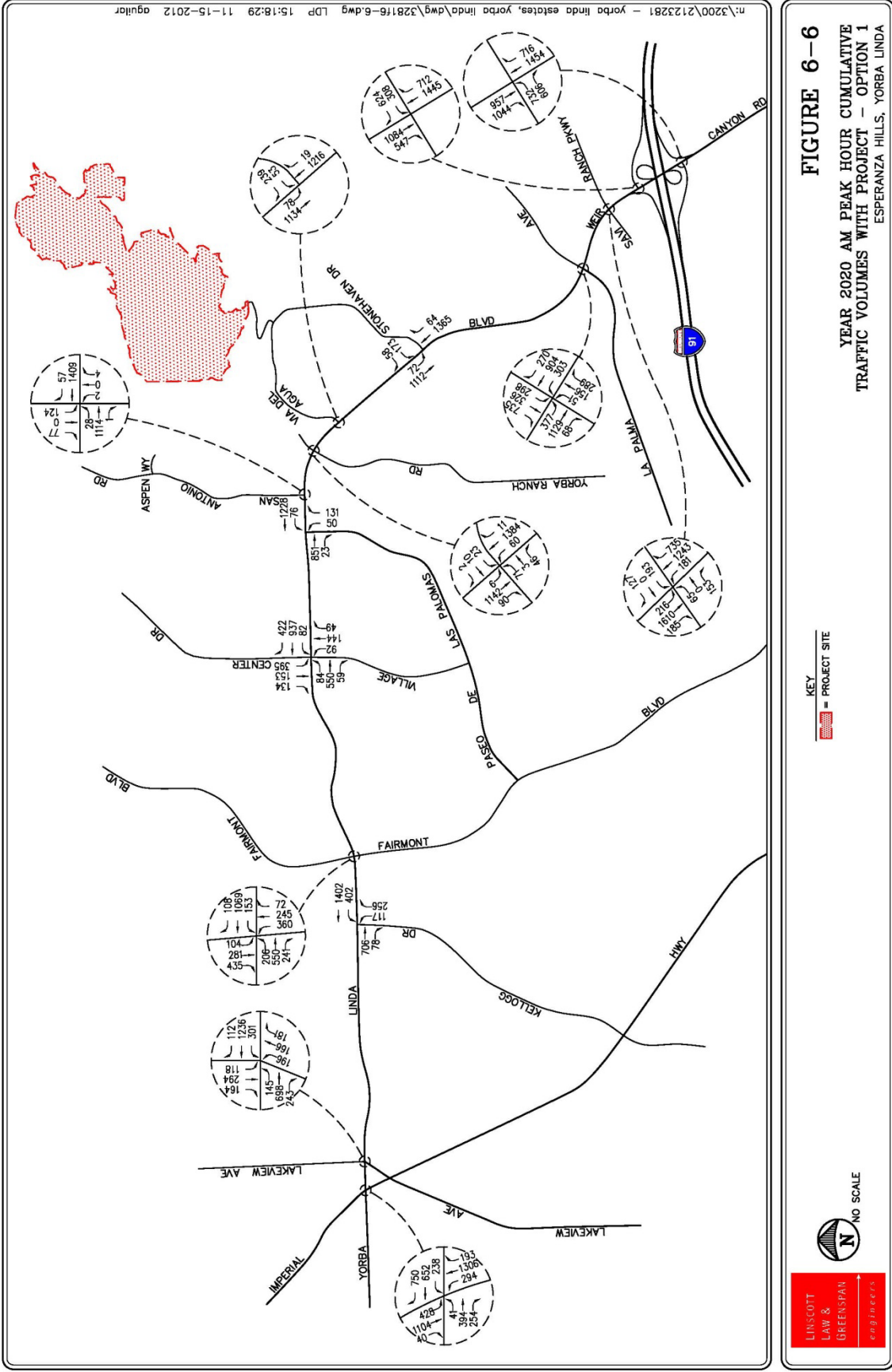


Exhibit 5-137 – Year 2020 PM Peak Hour and Daily Cumulative Traffic Volumes



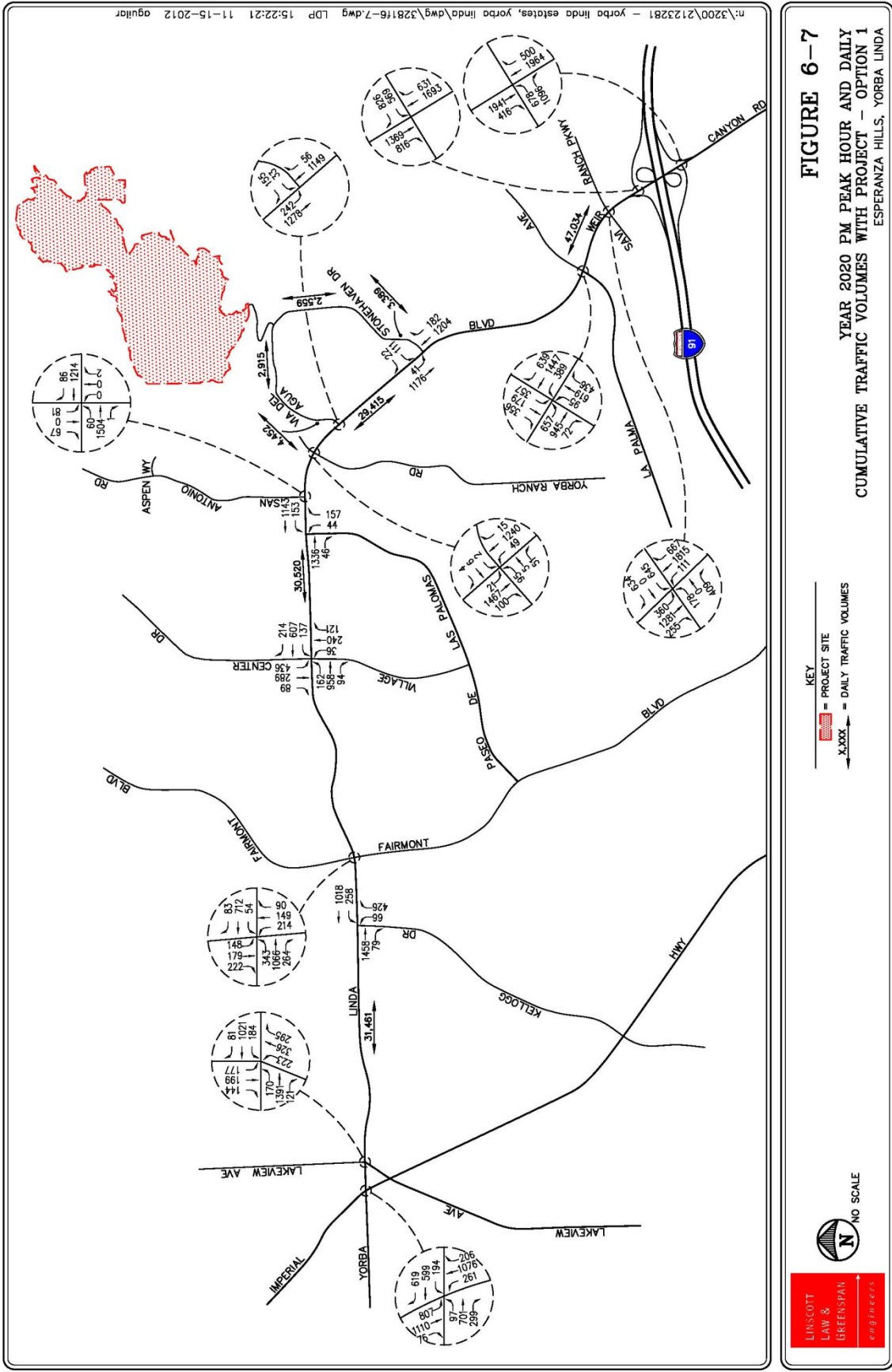


Exhibit 5-139 – Year 2020 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 1

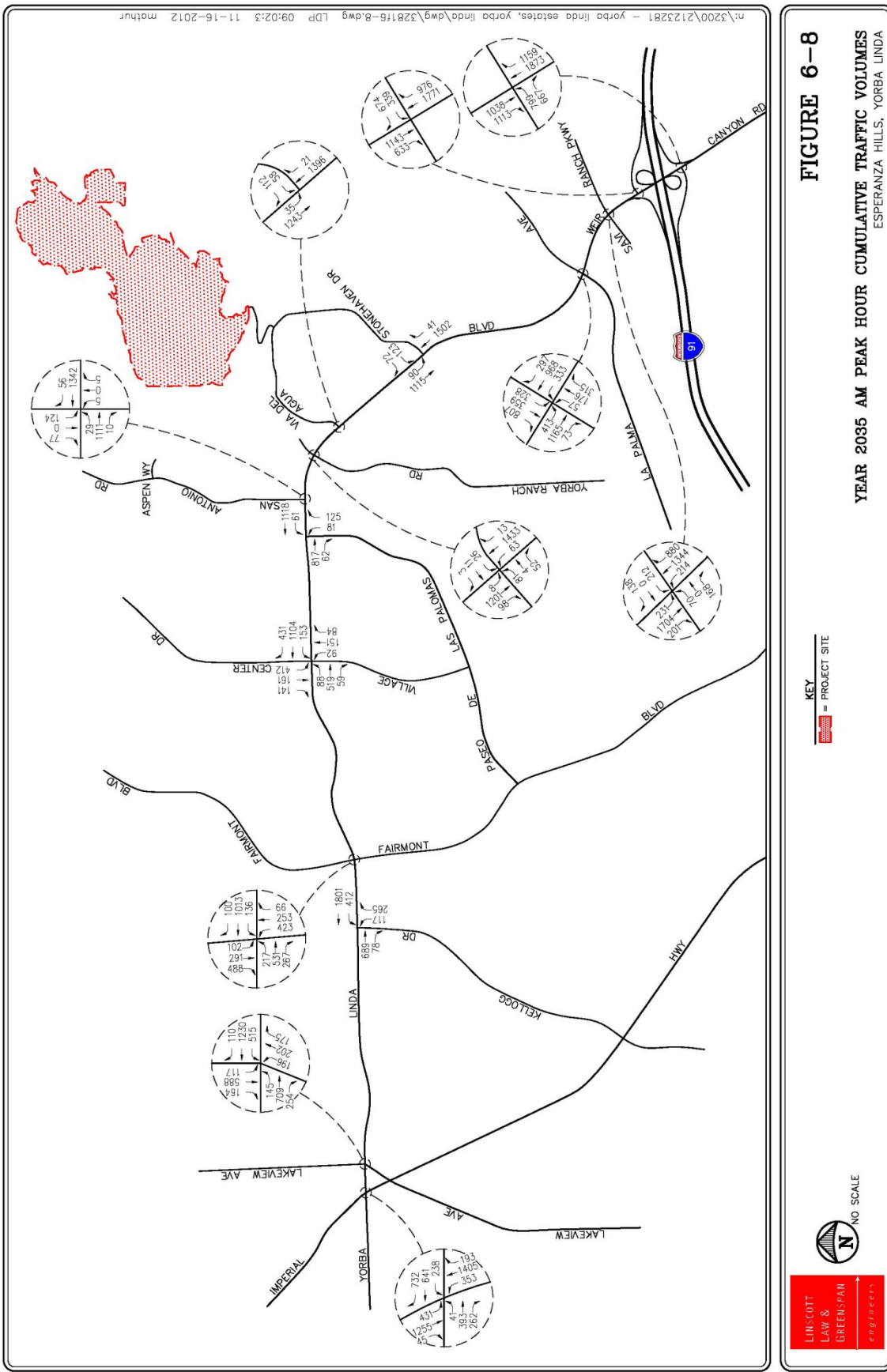


Exhibit 5-140 – Year 2035 AM Peak Hour Cumulative Traffic Volumes

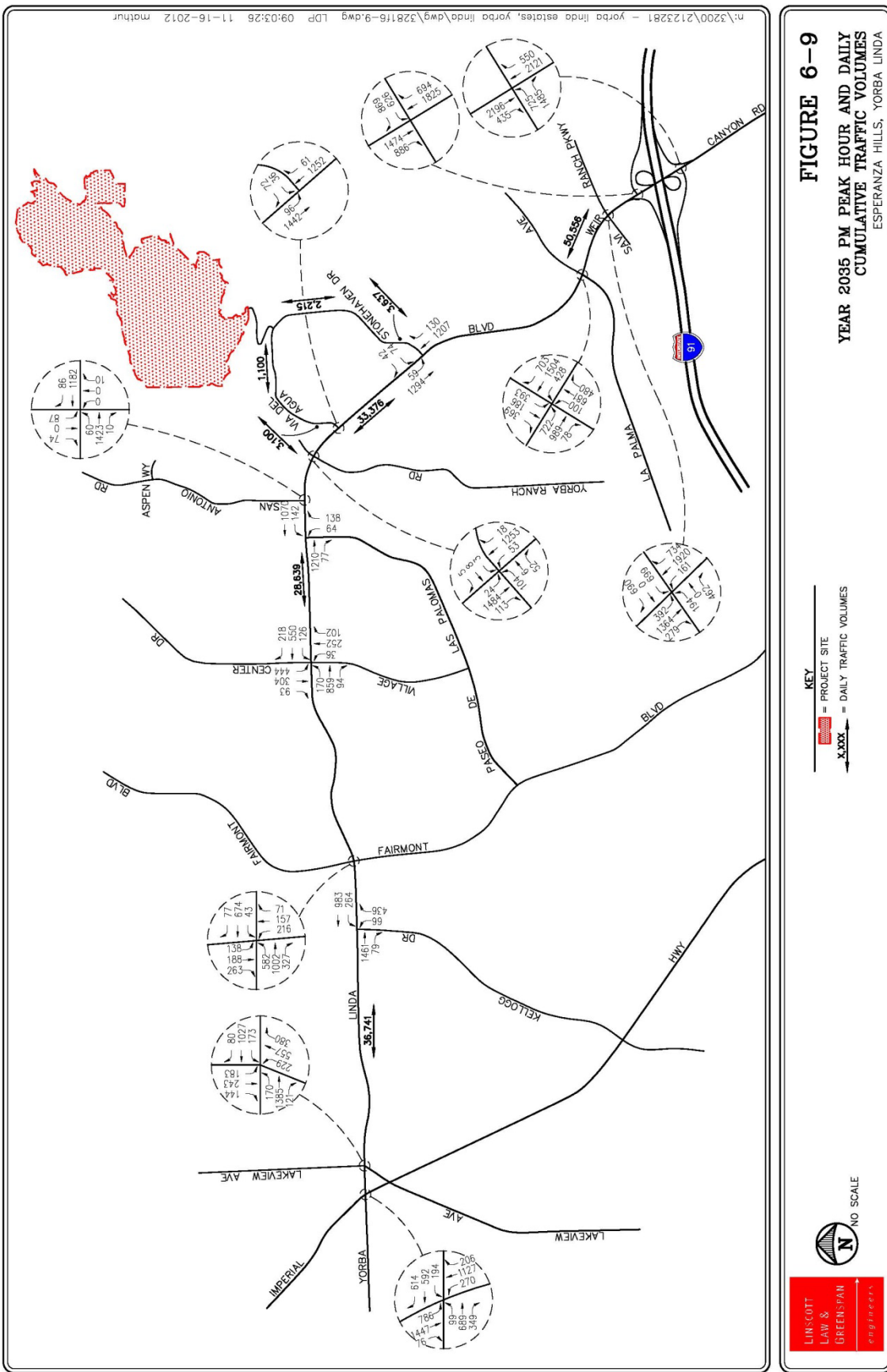


Exhibit 5-141 – Year 2035 PM Peak Hour and Daily Cumulative Traffic Volumes





d. Peak Hour Intersection Capacity Analysis

1) Existing Plus Option 1 Project Traffic Conditions

The peak hour LOS at the 15 key study intersections for existing plus Option 1 traffic conditions are shown on Table 5-14-10. Column 1 presents a summary of existing AM and PM peak hour traffic conditions. Column 2 lists existing plus Option 1 traffic conditions. Column 3 shows the increase in ICU value and/or HCM value due to the added peak hour Option 1 project trips. This column also indicates whether the traffic associated with Option 1 will have a significant impact based on the LOS standards and significant impact criteria identified in the report. Column 4 presents the resulting LOS with the inclusion of recommended traffic improvements, if any, to achieve an acceptable level of service.

As shown in Columns 2 and 3 of the table, the traffic associated with the proposed Option 1 will adversely impact 1 of the 15 key study intersections. The remaining 14 intersections are forecast to operate at an acceptable LOS during AM and PM peak hours. The impacted intersection is Yorba Linda Boulevard at Via del Agua, which is forecast to operate at LOS F for the AM and PM peak hours. Project implementation will exacerbate the LOS F AM peak hour operations and will degrade the LOS D PM operations to LOS F. With the recommended installation of a three-phase traffic signal at this intersection, operations will be returned to acceptable levels of service (i.e., LOS B during the AM peak hour and LOS A during the PM peak hour). Calculations for Option 1 ICU/LOS and HCM/LOS are included in Appendix C to the TIA (Appendix O in this DEIR).

2) Year 2020 Traffic Conditions Without Option 1

The peak hour LOS at the 15 key study intersections for Year 2020 are depicted in Table 5-14-11. Column 1 presents a summary of existing AM and PM peak hour conditions. Column 2 lists projected cumulative traffic conditions (existing plus ambient plus related projects traffic) without Option 1 project traffic. Column 3 presents forecast Year 2020 near-term traffic conditions with the addition of Option 1 traffic. Column 4 shows the increase in ICU value and/or HCM value due to the added peak hour project traffic and indicates whether traffic associated with Option 1 will have a significant impact based on LOS standards and significant impact criteria identified in the report. Column 5 presents the resulting LOS with the inclusion of recommended traffic improvements, if any, to achieve an acceptable level of service.

Table 5-14-10 Existing Plus Project Intersection Peak Hour Levels of Service Summary, Option 1

Key Intersection	Time Period	Existing Traffic Conditions (1)		Existing Plus Option 1 Project Traffic Conditions (2)		Significant Impact (3)		Existing Plus Option 1 Project With Mitigation (4)	
		ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	Yes/No	ICU/ Delay(s/v)	LOS
1	Project Access at Stonehaven Drive	--	--	10.3	B	--	No	--	--
		--	--	10.7	B	--	No	--	--
2	Imperial Highway at Yorba Linda Boulevard	0.649	B	0.651	B	0.002	No	--	--
		0.726	C	0.735	B	0.009	No	--	--
3	Lakeview Avenue at Yorba Linda Boulevard	0.551	A	0.562	C	0.011	No	--	--
		0.577	A	0.591	A	0.014	No	--	--
4	Kellogg Drive at Yorba Linda Boulevard	0.426	A	0.436	A	0.010	No	--	--
		0.594	A	0.611	A	0.017	No	--	--
5	Fairmont Boulevard at Yorba Linda Boulevard	0.574	A	0.587	B	0.013	No	--	--
		0.465	A	0.474	A	0.009	No	--	--
6	Village Center Drive at Yorba Linda Boulevard	0.454	A	0.480	A	0.026	No	--	--
		0.518	A	0.555	A	0.037	No	--	--
7	Paseo De Las Palomas at Yorba Linda Boulevard	0.420	A	0.456	A	0.036	No	--	--
		0.527	A	0.582	A	0.055	No	--	--
8	San Antonio Road at Yorba Linda Boulevard	0.469	A	0.506	A	0.037	No	--	--
		0.441	A	0.484	A	0.043	No	--	--
9	Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard	0.424	A	0.462	A	0.038	No	--	--
		0.468	A	0.513	A	0.045	No	--	--
10	Yorba Linda Boulevard at Via del Agua	58.0	F	158.0	F	100.0	Yes	0.602*	B
		31.8	D	72.4	F	40.6	Yes	0.566	A
11	Yorba Linda Boulevard at Stonehaven Drive	0.519	A	0.569	A	0.050	No	--	--
		0.442	A	0.496	A	0.054	No	--	--
12	Yorba Linda Boulevard at La Palma Avenue	0.739	C	0.754	C	0.015	No	--	--
		0.745	C	0.747	C	0.002	No	--	--
13	Yorba Linda Boulevard at Savi Ranch Parkway	0.466	A	0.478	A	0.012	No	--	--
		0.769	C	0.785	C	0.016	No	--	--
14	Weir Canyon Road at SR-91 WB Ramps	0.472	A	0.476	A	0.004	No	--	--
		0.582	A	0.596	A	0.014	No	--	--
15	Weir Canyon Road at SR-91 EB Ramps	0.552	A	0.554	A	0.002	No	--	--
		0.710	C	0.720	C	0.010	No	--	--

*Mitigation consists of installation of a three phase traffic signal

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

Bold LOS values indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

Table 5-14-11 Year 2020 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary, Option 1

Key Intersection	Time Period	Existing Traffic Conditions (1)		Year 2020 Cumulative Traffic Conditions (2)		Year 2020 Cumulative Plus Option 1 Project Traffic Conditions (3)		Significant Impact (4)		Year 2020 Cumulative Plus Option 1 Project With Mitigation (5)	
		ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	Yes/No	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS
1 Project Access at Stonehaven Drive	AM PM	-- --	-- --	-- --	-- --	10.4 10.8	B B	-- --	No No	-- --	-- --
2 Imperial Highway at Yorba Linda Boulevard	AM PM	0.649 0.726	B C	0.757 0.840	C D	0.759 0.849	C D	0.002 0.009	No No	-- --	-- --
3 Lakeview Avenue at Yorba Linda Boulevard	AM PM	0.551 0.577	A A	0.622 0.651	B B	0.633 0.665	B B	0.011 0.014	No No	-- --	-- --
4 Kellogg Drive at Yorba Linda Boulevard	AM PM	0.426 0.594	A A	0.492 0.699	A B	0.499 0.717	A C	0.007 0.018	No No	-- --	-- --
5 Fairmont Boulevard at Yorba Linda Boulevard	AM PM	0.574 0.465	A A	0.660 0.567	B A	0.673 0.576	B A	0.013 0.009	No No	-- --	-- --
6 Village Center Drive at Yorba Linda Boulevard	AM PM	0.454 0.518	A A	0.507 0.574	A A	0.534 0.611	A B	0.027 0.037	No No	-- --	-- --
7 Paseo De Las Palomas at Yorba Linda Boulevard	AM PM	0.420 0.527	A A	0.452 0.571	A A	0.488 0.625	A B	0.036 0.054	No No	-- --	-- --
8 San Antonio Road at Yorba Linda Boulevard	AM PM	0.469 0.441	A A	0.520 0.499	A A	0.557 0.541	A A	0.037 0.042	No No	-- --	-- --
9 Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard	AM PM	0.424 0.468	A A	0.472 0.527	A A	0.509 0.572	A A	0.037 0.045	No No	-- --	-- --
10 Yorba Linda Boulevard at Via del Agua	AM PM	58.0 31.8	F D	0.518* 0.498	A A	0.625 0.641	B B	0.107 0.143	No No	-- --	-- --
11 Yorba Linda Boulevard at Stonehaven Drive	AM PM	0.519 0.442	A A	0.564 0.493	A A	0.614 0.547	B A	0.050 0.054	No No	-- --	-- --
12 Yorba Linda Boulevard at La Palma Avenue	AM PM	0.739 0.745	C C	0.806 0.798	D C	0.821 0.814	D D	0.015 0.016	No No	-- --	-- --
13 Yorba Linda Boulevard at Savi Ranch Parkway	AM PM	0.466 0.769	A C	0.517 0.846	A D	0.529 0.862	A D	0.012 0.016	No No	-- --	-- --
14 Weir Canyon Road at SR-91 WB Ramps	AM PM	0.472 0.582	A A	0.512 0.642	A B	0.517 0.655	A B	0.005 0.013	No No	-- --	-- --
15 Weir Canyon Road at SR-91 EB Ramps	AM PM	0.552 0.710	A C	0.595 0.773	A C	0.597 0.783	A C	0.002 0.010	No No	-- --	-- --

*Assumes installation of a traffic signal prior to Year 2020

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

Bold LOS values indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

As shown in Column 2, Year 2020 projected traffic without Option 1 will not adversely impact any of the key study intersections. It should be noted that the intersection of Yorba Linda Boulevard at Via del Agua is anticipated to be converted from a one-way stop to a three-phase traffic signal prior to Year 2020 in conjunction with the proposed Cielo Vista project. The TIA assumes installation of this improvement under Year 2020 cumulative traffic conditions. This analysis assumes that the signal will be installed in association with the Cielo Vista project and that, depending on the access option selected, the Proposed Project will contribute a fair share contribution to the installation of the traffic signal. This improvement is in the City of Yorba Linda. The County cannot compel the City to install the signal, but the Proposed Project will require a contribution as indicated in the mitigation measures included herein.

3) Year 2020 Cumulative Plus Option 1 Project Conditions

Columns 3 and 4 indicate that traffic associated with Option 1 will not adversely impact any of the key study intersections, which will continue to operate at an acceptable LOS with the addition of project-generated traffic.

4) Year 2035 Cumulative Traffic Conditions

Table 5-14-12 summarizes the peak hour LOS at the 15 key intersections for Year 2035 using the same columnar formatting as the Year 2020 (Table 5-14-11 above). As shown in Column 2, two key study intersections are forecast to operate at an unacceptable LOS during PM peak hours under projected long-term without project conditions. The locations projected to operate at an adverse LOS are:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

It should be noted that the intersections of Imperial Highway at Yorba Linda Boulevard and Lakeview Avenue at Yorba Linda Boulevard are anticipated to have committed improvements in place prior to Year 2035. The installation of these improvements was assumed in this analysis.

5) Year 2035 Plus Option 1 Project Traffic Conditions

Columns 3 and 4 of Table 5-14-12 indicate that two key study intersections are forecast to operate at an unacceptable LOS during the PM peak hours under Year 2035 traffic conditions with the addition of Option 1 project traffic. The locations projected to operate at an adverse LOS are:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

Table 5-14-12 Year 2035 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary, Option 1

Key Intersection	Time Period	Existing Traffic Conditions		Year 2035 Cumulative Traffic Conditions		Year 2035 Cumulative Plus Option 1 Project Traffic Conditions		Significant Impact		Year 2035 Cumulative Plus Option 1 Project With Mitigation	
		ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	Yes/No	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS
1. Project Access at Stonehaven Drive	AM PM	-- --	-- --	-- --	-- --	10.4 10.8	B B	-- --	No No	-- --	-- --
2. Imperial Highway at Yorba Linda Boulevard	AM PM	0.649 0.726	B C	0.737 ^a 0.805	C D	0.737 0.813	C D	0.000 0.008	No No	-- --	-- --
3. Lakeview Avenue at Yorba Linda Boulevard	AM PM	0.551 0.577	A A	0.709 ^b 0.684	C B	0.716 0.702	C C	0.007 0.018	No No	-- --	-- --
4. Kellogg Drive at Yorba Linda Boulevard	AM PM	0.426 0.594	A A	0.591 0.726	A C	0.603 0.744	B C	0.012 0.018	No No	-- --	-- --
5. Fairmont Boulevard at Yorba Linda Boulevard	AM PM	0.574 0.465	A A	0.691 0.714	B C	0.704 0.722	C C	0.013 0.008	No No	-- --	-- --
6. Village Center Drive at Yorba Linda Boulevard	AM PM	0.454 0.518	A A	0.597 0.581	A A	0.627 0.619	B B	0.030 0.038	No No	-- --	-- --
7. Paseo De Las Palomas at Yorba Linda Boulevard	AM PM	0.420 0.527	A A	0.452 0.571	A A	0.488 0.625	A B	0.036 0.054	No No	-- --	-- --
8. San Antonio Road at Yorba Linda Boulevard	AM PM	0.469 0.441	A A	0.541 0.526	A A	0.577 0.568	A A	0.036 0.042	No No	-- --	-- --
9. Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard	AM PM	0.424 0.468	A A	0.532 0.586	A A	0.570 0.632	A B	0.038 0.046	No No	-- --	-- --
10. Yorba Linda Boulevard at Via del Agua	AM PM	58.0 31.8	F D	0.581 ^c 0.538	A A	0.689 0.681	B B	0.108 0.143	No No	-- --	-- --
11. Yorba Linda Boulevard at Stonehaven Drive	AM PM	0.519 0.442	A A	0.629 0.521	B A	0.680 0.575	B A	0.051 0.054	No No	-- --	-- --
12. Yorba Linda Boulevard at La Palma Avenue	AM PM	0.739 0.745	C C	0.882 0.876	D D	0.897 0.889	D D	0.015 0.013	No No	-- --	-- --
13. Yorba Linda Boulevard at Savi Ranch Parkway	AM PM	0.466 0.769	A C	0.572 0.904	A E	0.584 0.920	A E	0.012 0.016	No Yes	0.564 ^d 0.851	A D
14. Weir Canyon Road at SR-91 WB Ramps	AM PM	0.472 0.582	A A	0.596 0.701	A C	0.601 0.715	B C	0.005 0.014	No No	-- --	-- --
15. Weir Canyon Road at SR-91 EB Ramps	AM PM	0.552 0.710	A C	0.705 0.917	C E	0.707 0.919	C E	0.002 0.002	No No	-- --	-- --

a Committed improvements consist of 1 additional westbound left-turn lane and 1 additional westbound through lane; b Committed improvements consist of 1 additional westbound left-turn lane and 1 additional eastbound left-turn lane; c Assumes installation of a three phase traffic signal prior to Year 2020; d Mitigation consists of widening and restriping to provide three westbound left-turn lanes along Savi Ranch Parkway.

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

Bold LOS values indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

Although the intersection of Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E during the PM peak hours with the addition of Option 1 project traffic, the project is expected to add less than 0.010 to the ICU value, and thus is not impacted significantly based on the significance criterion of 0.01 or greater. The intersection of Yorba Linda Boulevard at Savi Ranch Parkway will continue to operate at LOS E during the peak hour, and will be exacerbated by the addition of project-related traffic, which is considered a significant adverse impact.

e. Area-Wide Improvements - Option 1

The TIA recommends/identifies improvement measures changing the intersection geometry to increase capacity at intersections where unacceptable operating conditions are projected. These improvements involve roadway widening and/or re-striping to reconfigure (add lanes) to specific approaches of key intersections, as outlined below. The improvements are expected to:

- Mitigate the impact of existing traffic, project traffic and future non-project (ambient traffic growth and cumulative project) traffic and
- Improve Levels of Service to an acceptable range and/or to pre-project conditions.

1) Existing Plus Option 1 Traffic Conditions

The following improvement has been identified to mitigate the Existing Plus Option 1 Traffic impact identified in Table 5-14-10, Existing Plus Project Intersection Peak Hour Levels of Service Summary, Option 1 (page 5-580 above). It should be noted that although this improvement has been identified as mitigation, it is considered a planned improvement to be constructed prior to year 2020 in conjunction with the proposed Cielo Vista project.

- Yorba Linda Boulevard at Via del Agua: Install a three-phase signal

2) Year 2020 Plus Option 1 Traffic Conditions

As shown in Table 5-14-11, Year 2020 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary, Option 1 (page 5-581), proposed Option 1 traffic will not significantly impact any of the 15 key study intersections for Year 2020. Therefore, no improvements are required. As noted, the installation of a three-phase signal at Yorba Linda Boulevard at Via del Agua was assumed for construction prior to Year 2020, and the Proposed Project will contribute a fair share portion of the cost of improvement.

3) Year 2035 Plus Option 1 Project Traffic Conditions

Intersection capacity analyses results shown in Table 5-14-12, Year 2035 Cumulative Plus Project Intersection Peak Hour Levels of Service

Summary, Option 1 (page 5-583) indicate that the Option 1 project traffic will cumulatively impact one of the 15 key study intersections in Year 2035. The improvement listed below has been identified to mitigate the Year 2035 cumulative traffic impacts. The Proposed Project will be required to pay a fair-share contribution toward the construction costs to implement the following mitigation measure:

- Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

f. Project-Related Fair-Share Contribution - Option 1

One of the 15 key study intersections will be cumulatively impacted under Year 2035 conditions - the intersection of Yorba Linda Boulevard at Savi Ranch Parkway. The project will be required to pay a proportional/fair-share of the improvement costs. Table 5-14-13 presents the Option 1 fair-share contribution, which totals 9% of the cost of improvement identified above based on greatest peak hour impact at the intersection.

Table 5-14-13 Year 2035 Project Fair Share Contribution - Intersection Improvement, Option 1

	Key Intersections	Impacted Time Period	Existing Traffic (1)	Option 1 Project Only Traffic (2)	Year 2035 Cumulative Plus Option 1 Project Traffic (3)	Net Option 1 Project Percent Increase (4)
13.	Yorba Linda Boulevard at Savi Ranch Parkway	PM	5,632	125	7,020	9.0%

Notes: Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

In addition, under Option 2 the Proposed Project shall provide a fair share fee towards installation of a traffic signal at Yorba Linda Boulevard and Via del Agua. Table 5-14-14 below shows the required contribution portion.

Table 5-14-14 Year 2020 Project Fair Share Contribution – Traffic Signal, Option 1

	Key Intersections	Impacted Time Period	Existing Traffic (1)	Option 1 Project Only Traffic (2)	Year 2020 Cumulative Plus Option 1 Project Traffic (3)	Net Option 1 Project Percent Increase (4)
With Cielo Vista as Part of Cumulative Base						
10.	Yorba Linda Boulevard at	AM	2,225	184	2,739	35.8%
	Via del Agua	PM	2,277	248	2,913	39.0%
Without Cielo Vista as Part of Cumulative Base						
10.	Yorba Linda Boulevard at	AM	2,225	184	2,661	42.2%
	Via del Agua	PM	2,227	248	2,808	46.7%

Notes: Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

g. Site Access and Circulation

As noted, Option 1 access is via a main access roadway connected to Stonehaven Drive approximately 325 feet east of Devonport Circle. Exhibit 5-144 – Internal Daily Traffic Volumes and Recommended Traffic Control Plan, Option 1, illustrates the internal street system, including the estimated daily traffic volumes. As shown, Esperanza Hills Parkway is the sole daily entry/exit to the Project Site. The two-lane section of Esperanza Hills Parkway north of Stonehaven Drive and the gated entrance is expected to carry a maximum of 3,617 ADT if the Bridal Hills, LLC property is eventually developed with 38 additional units. The criteria for a two-lane undivided roadway such as Esperanza Hills Parkway is LOS A (6,250 vehicles per day). Therefore, the proposed roadway has adequate capacity to accommodate the anticipated traffic volume and will operate at LOS A.

Beyond the entry gate, Esperanza Hills Parkway splits into Esperanza Hills Parkway which serves the development to the northeast and “G” Street which serves the development to the southeast. This segment of Esperanza Hills Parkway, a four-lane roadway, is expected to carry a maximum of 2,167 daily trips. Past the roundabout, the roadway narrows to two lanes and is expected to carry approximately 1,450 daily trips. The remaining roadways within the project are expected to carry much less than the recommended local street criterion of 1,500 ADT. Therefore, motorists are expected to enter/exit their driveways comfortably and safely without undue congestion.

The recommended traffic control plan for the project is also presented in Exhibit 5-144. Stop signs, bars, and pavement messages are recommended at the appropriate intersection approaches as well as No Parking zones along the four lane sections of Esperanza Hills Parkway and “G” Street as shown on the exhibit.

1) Via del Agua and Stonehaven Drive Assessment - Option 1

Via del Agua and Stonehaven Drive are classified as two-lane undivided Local roadways with an LOS E capacity of 6,250 vehicles per day. Via del Agua is expected to carry a maximum of 5,451 daily trips for Year 2035 with Project traffic conditions, thereby operating with the Residential Collector ADT LOS D criterion of 5,625 vehicles per day.

Stonehaven Drive is expected to carry a maximum of 4,903 vehicles per day under Year 2035 conditions. As a Residential Collector two-lane undivided roadway, the Stonehaven Drive ADT LOS C criterion is 5,000 vehicles per day. Near the project access, Stonehaven Drive is expected to carry a maximum of 3,451 vehicles per day, which is within the Residential Collector two-lane undivided roadway ADT LOS A criterion of 3,750 vehicles per day.

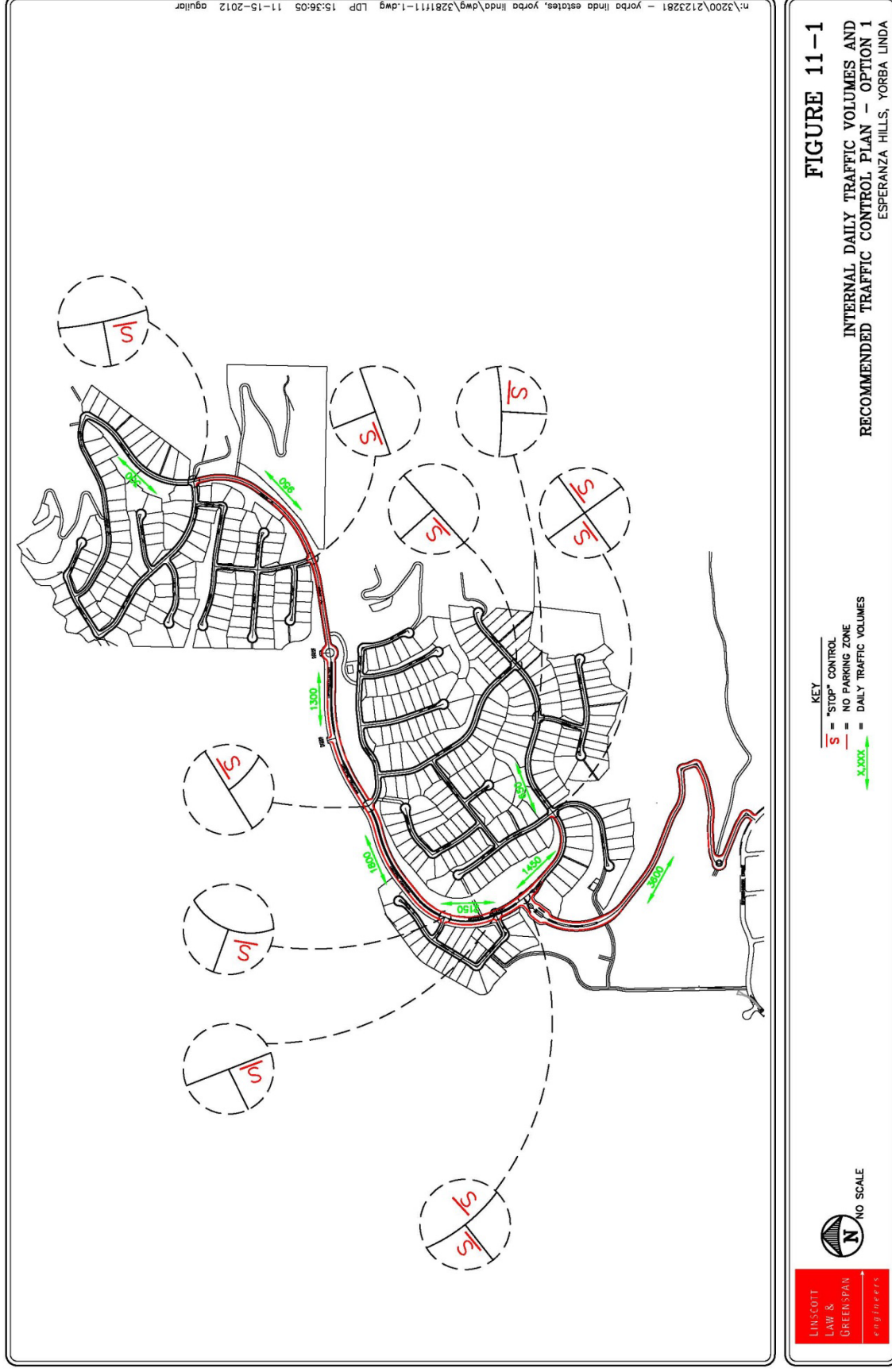


Exhibit 5-144 – Internal Daily Traffic Volumes and Recommended Traffic Control Plan, Option 1

2) Emergency Access - Option 1

The Emergency Access Plan for Option 1 is depicted on Exhibit 5-145 and illustrates emergency ingress/egress routes and lane geometry/cross-sections for project roadways. As shown, emergency access is proposed via Esperanza Hills Parkway as well as an emergency only access roadway provided off Via del Agua approximately 130 feet northeast of Via de la Roca.

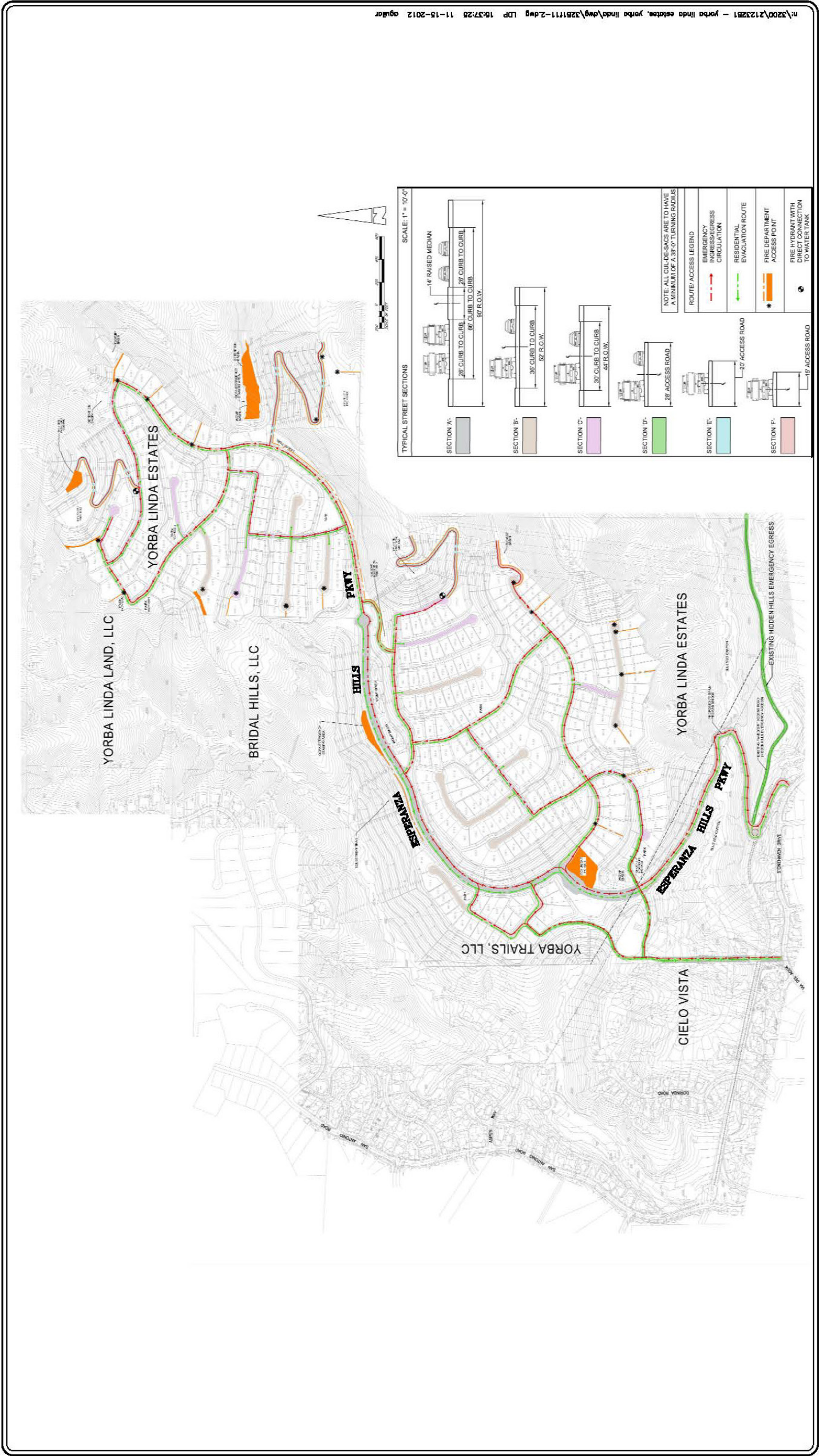
The four-lane portion of Esperanza Hills Parkway between the gated entry and the proposed roundabout has been designed with a curb-to-curb width of 66 feet to accommodate two lanes of travel within two 26-foot travel ways and a 14-foot median. This recommended Emergency Access Plan, which has been approved by the OCFA, calls for emergency vehicles to travel on one side and residents on the other. Two-way travel would remain along the remaining project roadways during an emergency evacuation.

OCFA Station 32 is located on the south side of Yorba Linda Boulevard south of San Antonio Road, within three miles of the farthest residential lot. Internal roadways have been designed with adequate width to accommodate emergency vehicles.

3) Queuing Assessment - Option 1

A queuing analysis was conducted for the existing southbound left-turn lane along Yorba Linda Boulevard at Via del Agua using the HCM Operations Methodology. This methodology calculates the 85th percentile queue length, referred to as the design value queue length. Table 5-14-15 summarizes the conditions using existing traffic, existing plus Option 1 traffic, 2020 cumulative traffic, 2020 cumulative plus Option 1 traffic, 2035 cumulative traffic and 2035 cumulative plus Option 1 project traffic.

As shown in the table, the Proposed Project is expected to increase the 85th percentile queue length beyond the existing storage length of 100 feet. The southbound left-turn pocket will require up to 286 feet of storage to fully accommodate this queue. This increase in needed storage can be accommodated as the left-turn pocket has the capability to be extended northerly. The Concept Channelization Plan for the extension of the existing southbound left-turn pocket is presented in Exhibit 5-146. As shown, the existing landscape median requires widening/ modification to provide the increased storage length. Appendix E in the TIA (Appendix O to this DEIR) includes the queuing calculation worksheets for the southbound left-turn lane along Yorba Linda Boulevard at Via del Agua.



NO SCALE

SOURCE: KWC ENGINEERS

FIGURE 11-2

EMERGENCY ACCESS PLAN – OPTION 1
ESPERANZA HILLS, YORBA LINDA

Exhibit 5-145 – Emergency Access Plan, Option 1

Table 5-14-15 Eastbound Left-Turn Queue Analysis along Yorba Linda Boulevard at Via del Agua – Option 1

Key Intersection	Time Period	Provided Storage	Existing Traffic Conditions (1)		Existing Plus Project Option 1 Traffic Conditions (2)		Year 2020 Cumulative Project Traffic Conditions (3)		Year 2020 Cumulative Plus Project Option 1 Traffic Conditions (4)		Year 2025 Cumulative Project Traffic Conditions (5)		Year 2025 Cumulative Plus Project Option 1 Traffic Conditions (6)	
			Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No
10. Yorba Linda Blvd at Via del Agua	AM	100'	44'	Yes	110'	No	66'	Yes	110'	No	66'	Yes	132'	No
	PM	100'	88'	Yes	264'	No	132'	No	286'	No	154'	No	286'	No

Queue analysis reports 85th Percentile results utilizing HCM 2000 methodology

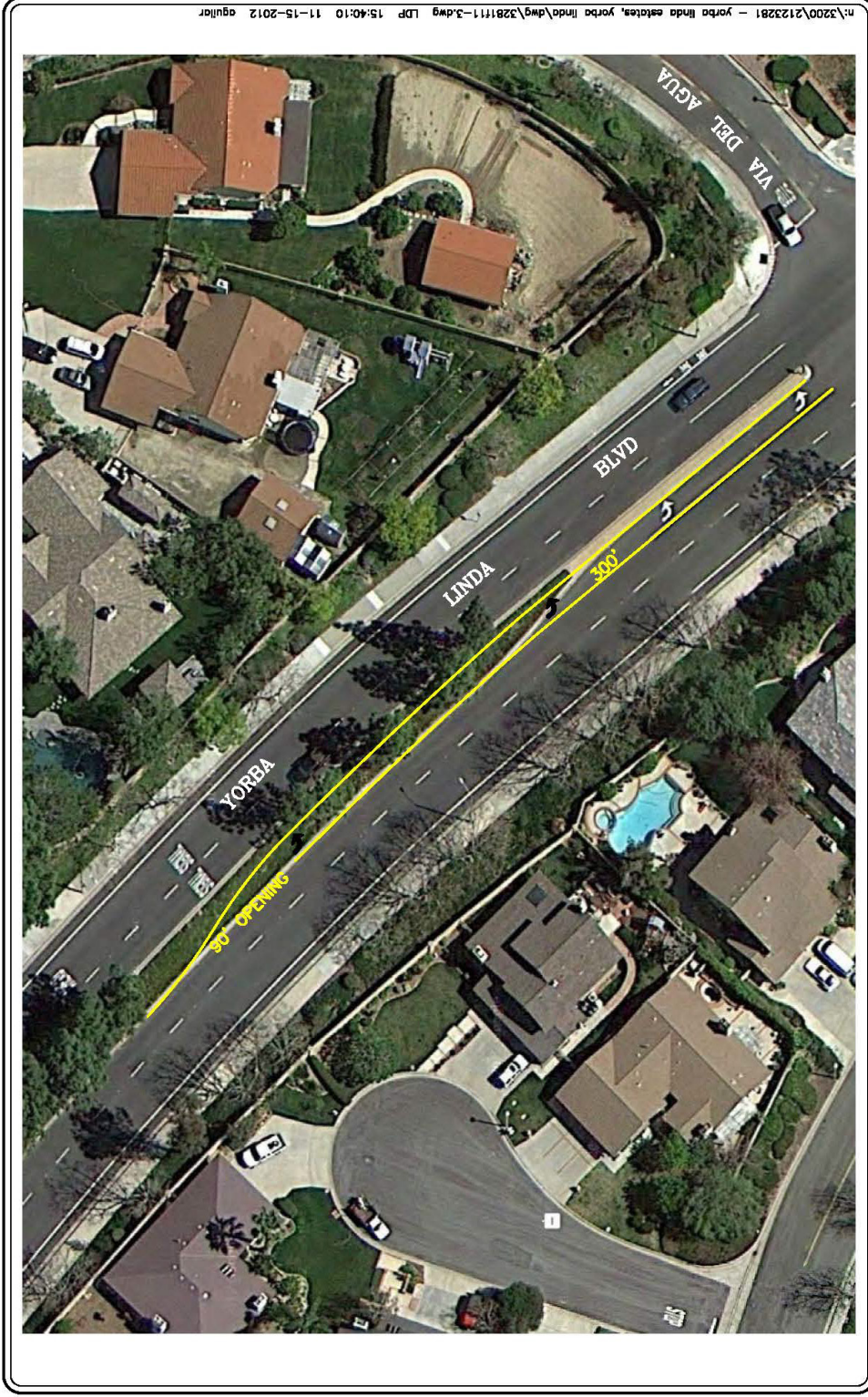


FIGURE 11-3
CONCEPT CHANNELIZATION PLAN
YORBA LINDA BLVD AT VIA DEL AGUA – OPTION 1
ESPERANZA HILLS, YORBA LINDA

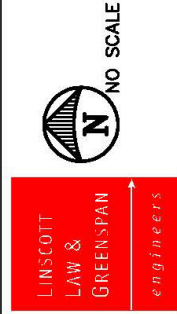


Exhibit 5-146 – Concept Channelization Plan – Yorba Linda at Via del Agua, Option 1

5. Option 2 Project Analysis

Option 2 access to the site will be provided via an extension of the existing terminus of Aspen Way, which will traverse through the southerly edge of a future potential residential development (Cielo Vista) located immediately west of the Project Site. Emergency fire access will be provided via Stonehaven Drive approximately 325 feet east of Devonport Circle, which currently services the surrounding hillside area, and will connect to the southernmost internal street system within the Project Site. Exhibit 5-147 depicts the Option 2 Project Site plan.

a. Project Traffic Distribution and Assignment

The trip generation of the Proposed Project totals 3,617 daily trips with 284 trips (72 inbound, 212 outbound) produced in the AM peak hour and 382 trips (242 inbound, 140 outbound) produced in the PM peak hour on a typical weekday. Trip distribution is depicted on Exhibit 5-148. This exhibit also presents daily Option 2 project traffic volumes. The associated AM and PM peak hour traffic volumes are shown in Exhibit 5-149 and Exhibit 5-150, respectively. These volumes reflect the traffic distribution characteristics shown in Exhibit 5-148.

b. Existing Plus Project Traffic Conditions

The AM and PM peak hour traffic volumes with trips generated by Option 2 are shown in Exhibit 5-151 and Exhibit 5-152. Table 5-14-16 summarizes the peak hour LOS at the 15 key study intersections. Columns 2 and 3 indicate that traffic associated with the proposed Option 2 will adversely impact one of the key study intersections as follows:

Intersection	AM Peak Hour ICU/HCM	PM Peak Hour ICU/HCM
Yorba Linda Boulevard at Via del Agua	69.8 seconds per vehicle LOS F	38.7 seconds per vehicle LOS E

The remaining 14 intersections are forecast to operate at adequate service levels or better during the AM and PM peak hours with the development of the Proposed Project and the addition of Project generated traffic to existing traffic. Appendix G in the TIA includes the existing plus Option 2 ICU/LOS and HCM/LOS calculations for all 15 key study intersections.

c. Year 2020 Plus Option 2 Traffic Volumes

Year 2020 forecast AM and PM peak hour traffic volumes are illustrated on Exhibit 5-153 and Exhibit 5-154. Exhibit 5-154 also presents Year 2020 daily cumulative plus Option 2 traffic volumes. Table 5-14-17 summarizes the peak hour LOS at the 15 key study intersections for Year 2020. Columns 3 and 4 of the table show that traffic associated with the Option 2 will not adversely impact any of the 15 intersections, all of which are forecast to continue to operate at an acceptable LOS.

d. Year 2035 Plus Option 2 Traffic Volumes

Year 2035 forecast AM and PM peak hour traffic volumes are illustrated on Exhibit 5-155 and Exhibit 5-156, respectively. Exhibit 5-156 also presents Year 2035 daily cumulative plus Project Option 2 traffic volumes. Columns 3 and 4 of Table 5-14-18 indicate that two key study intersections are forecast to operate at an unacceptable LOS during the PM peak hours under Year 2035 conditions with Option 2 traffic. The locations are as follows:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

Note that although the intersection of Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E during the PM peak hours, the proposed Option 2 Project is expected to add less than 0.010 to the ICU value and thus is not considered to be significantly impacted. However, the intersection of Yorba Linda Boulevard at Savi Ranch Parkway will continue to operate at LOS E, which is considered a significant impact. The remaining 13 intersections are forecast to operate at an acceptable LOS during the AM and PM peak hours in Year 2035.

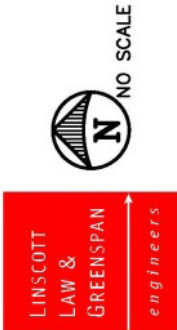
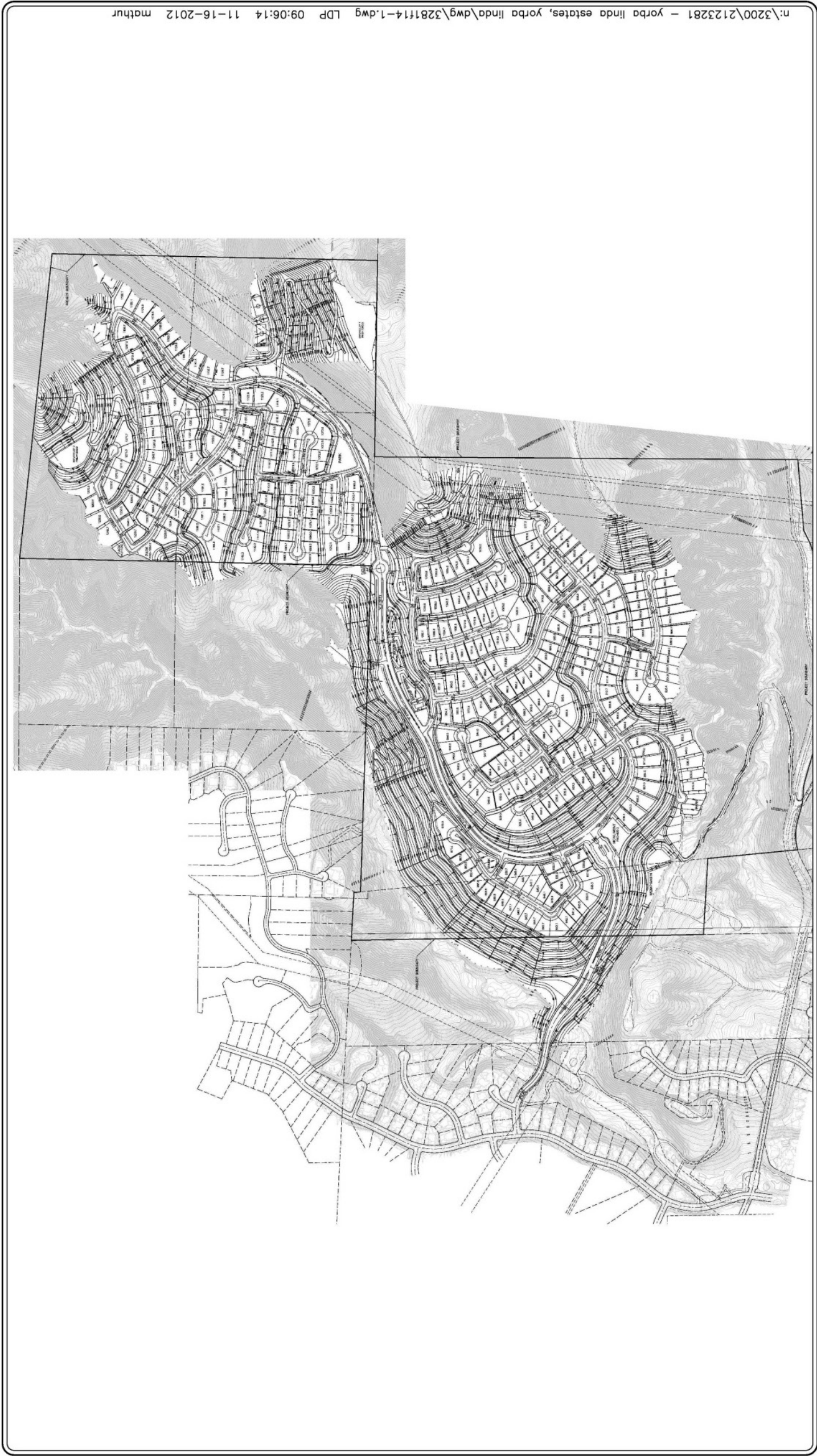


FIGURE 14-1

PROPOSED SITE PLAN – OPTION 2
ESPERANZA HILLS, YORBA LINDA

Exhibit 5-147– Proposed Site Plan, Option 2

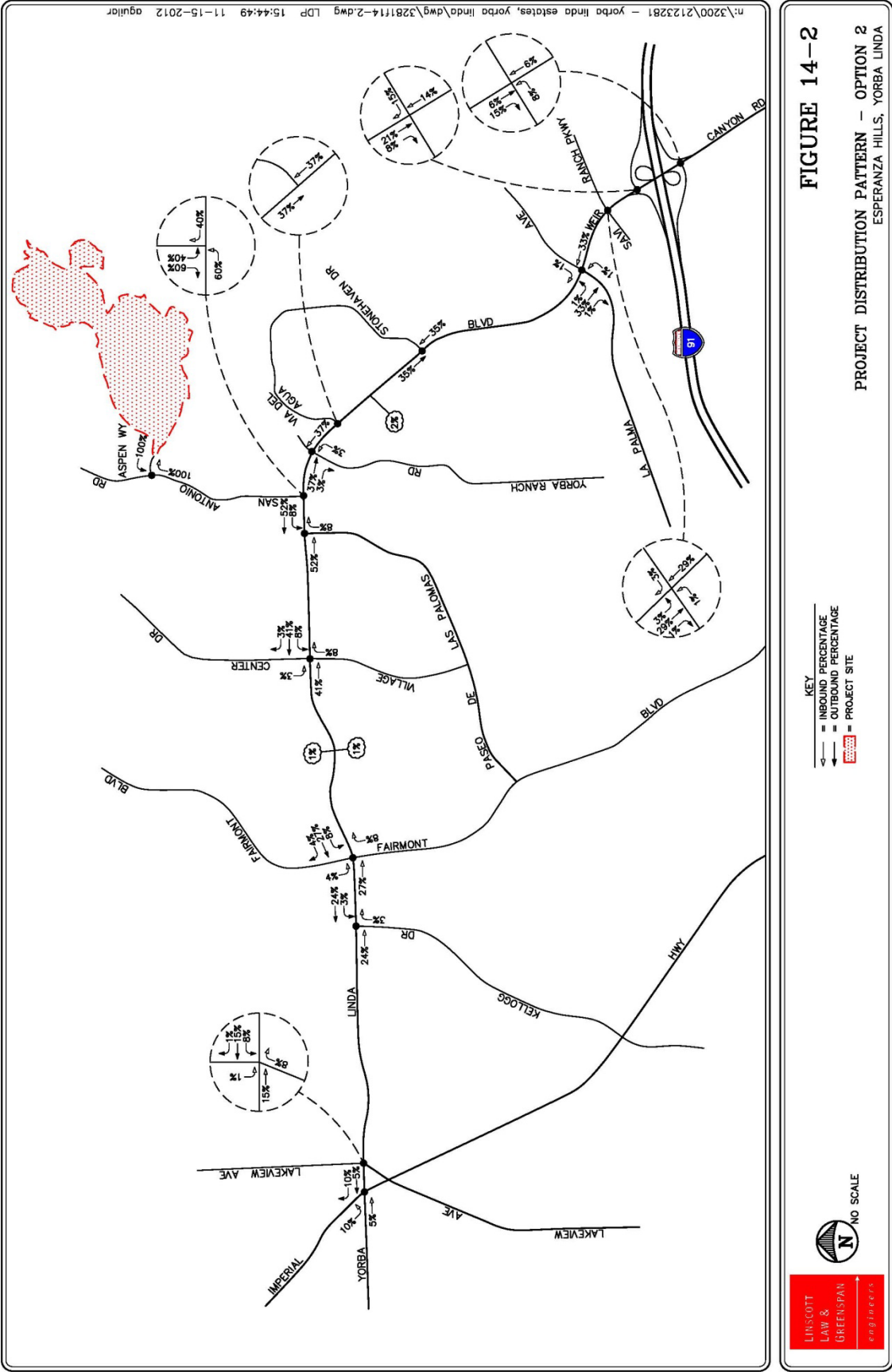


Exhibit 5-148 – Project Distribution Pattern, Option 2

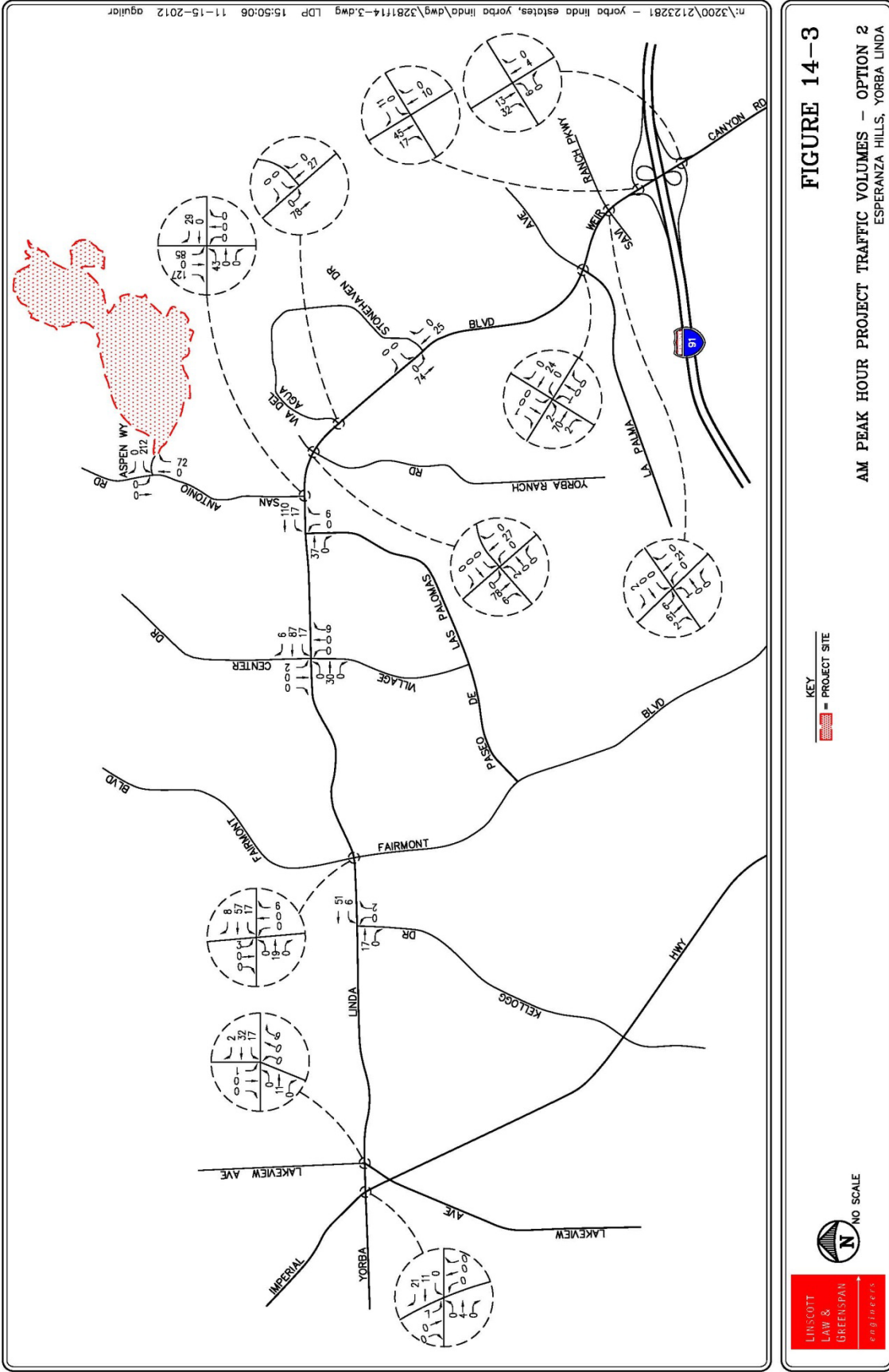


Exhibit 5-149 – AM Peak Hour Project Traffic Volumes, Option 2

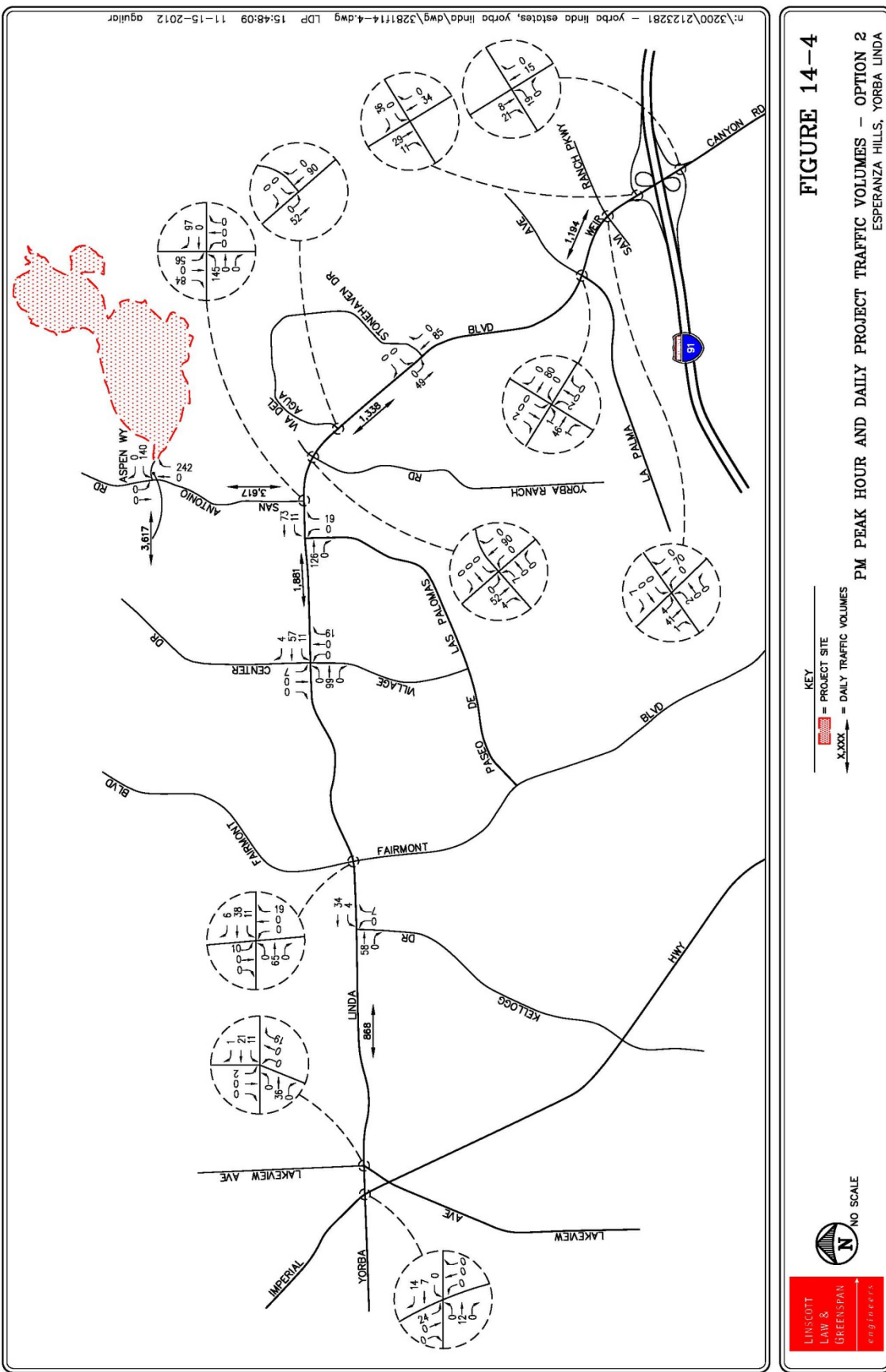
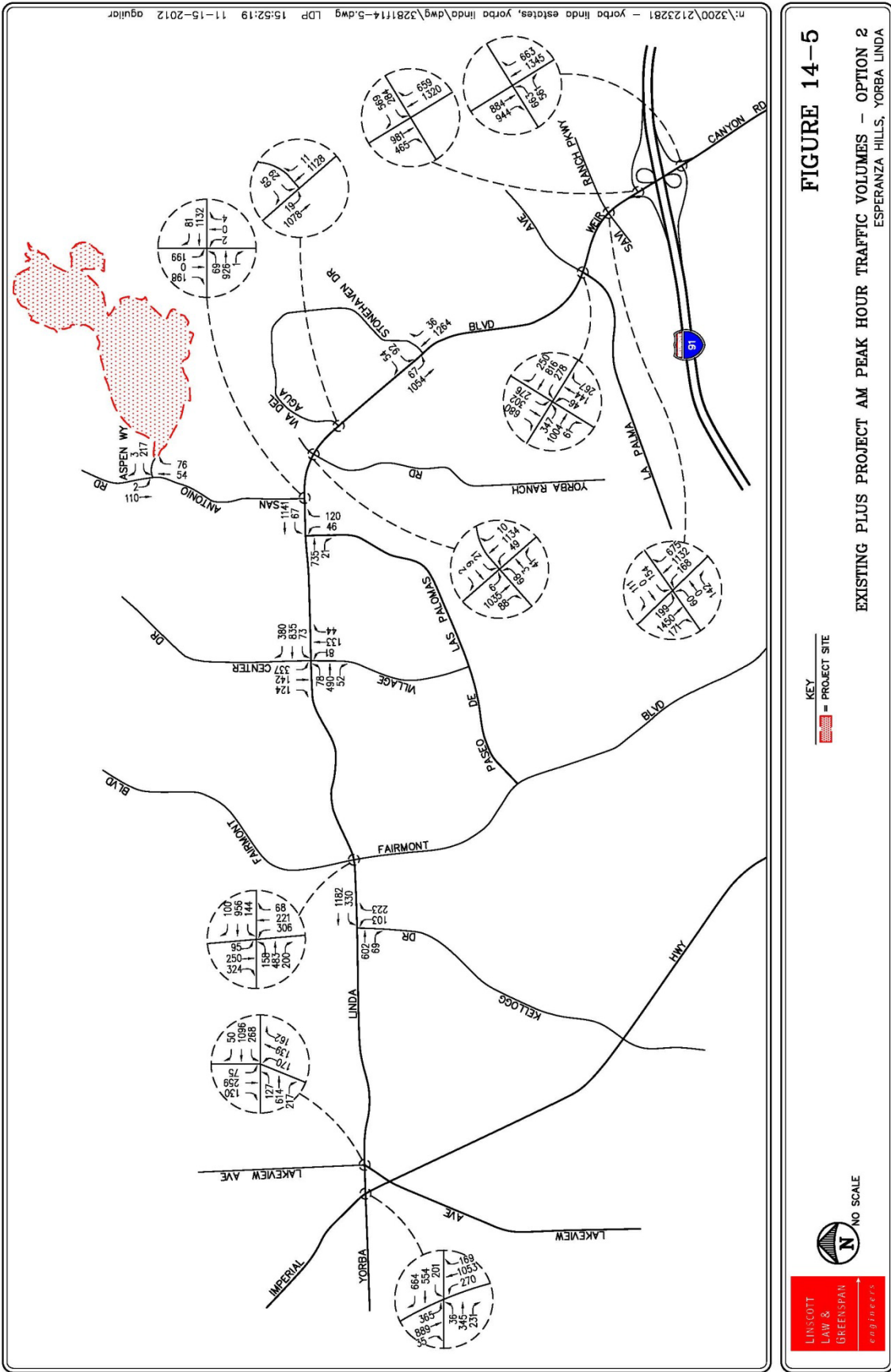


Exhibit 5-150 – PM Peak Hour and Daily Project Traffic Volumes, Option 2



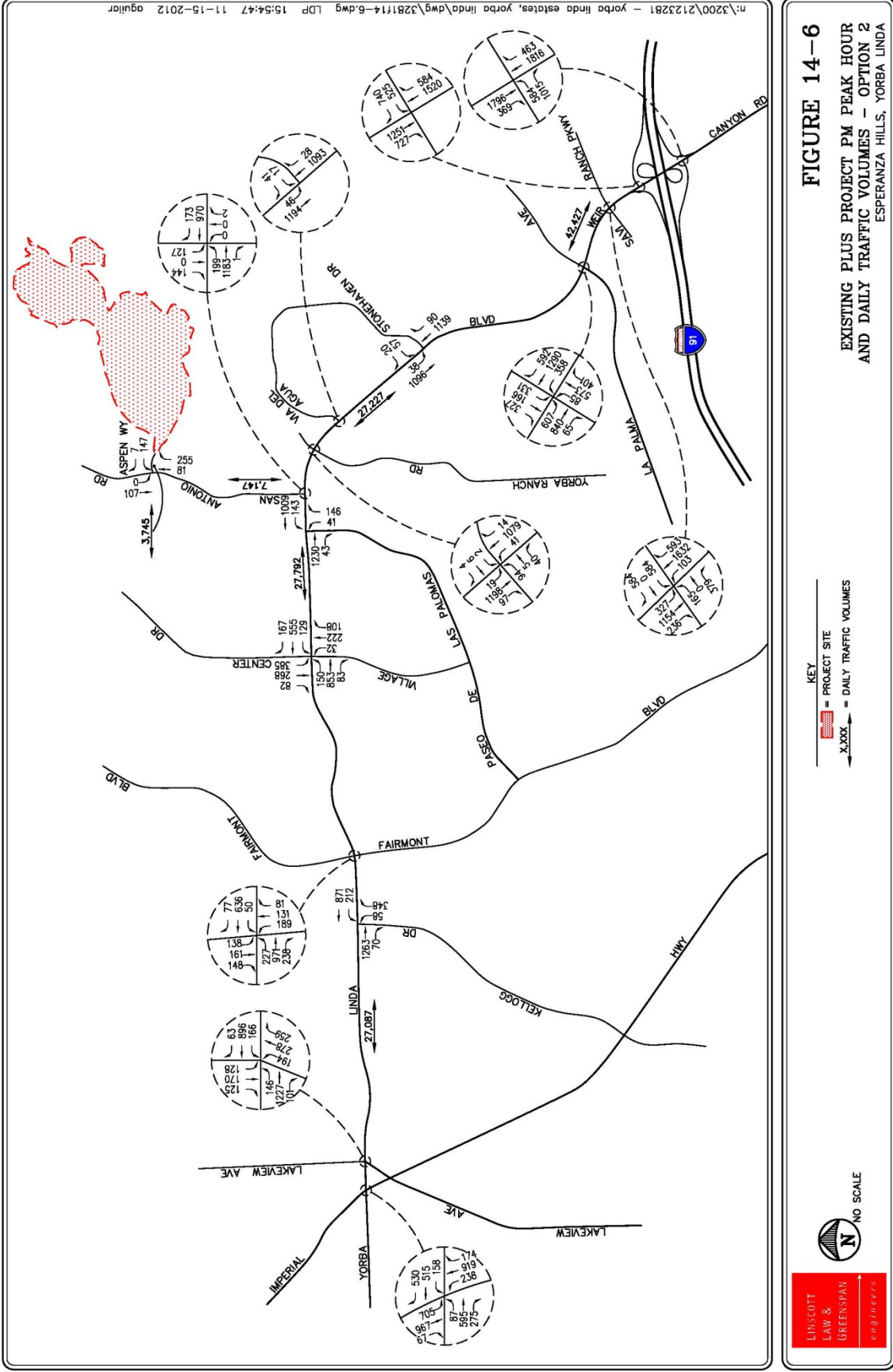


Exhibit 5-152 – Existing Plus Project PM Peak Hour and Daily Project Traffic Volumes, Option 2

Table 5-14-16 Existing Plus Project Intersection Peak Hour Levels of Service Summary, Option 2

Key Intersection	Time Period	Existing Traffic Conditions (1)		Existing Plus Option 1 Project Traffic Conditions (2)		Significant Impact (3)		Existing Plus Option 1 Project With Mitigation (4)	
		ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	Yes/No	ICU/ Delay(s/v)	LOS
1. San Antonio Road at Aspen Way	AM	8.2	A	11.2 s/v	B	3.0	No	--	--
	PM	8.2	A	10.8 s/v	B	2.6	No	--	--
2. Imperial Highway at Yorba Linda Boulevard	AM	0.649	B	0.651	B	0.002	No	--	--
	PM	0.726	C	0.735	C	0.009	No	--	--
3. Lakeview Avenue at Yorba Linda Boulevard	AM	0.551	A	0.562	A	0.011	No	--	--
	PM	0.577	A	0.591	A	0.014	No	--	--
4. Kellogg Drive at Yorba Linda Boulevard	AM	0.426	A	0.436	A	0.010	No	--	--
	PM	0.594	A	0.611	B	0.017	No	--	--
5. Fairmont Boulevard at Yorba Linda Boulevard	AM	0.574	A	0.587	A	0.013	No	--	--
	PM	0.465	A	0.474	A	0.009	No	--	--
6. Village Center Drive at Yorba Linda Boulevard	AM	0.454	A	0.480	A	0.026	No	--	--
	PM	0.518	A	0.555	A	0.037	No	--	--
7. Paseo De Las Palomas at Yorba Linda Boulevard	AM	0.420	A	0.456	A	0.036	No	--	--
	PM	0.527	A	0.582	A	0.055	No	--	--
8. San Antonio Road at Yorba Linda Boulevard	AM	0.469	A	0.544	A	0.075	No	--	--
	PM	0.441	A	0.538	A	0.097	No	--	--
9. Yorba Ranch Rd/Dorinda Rd at Yorba Linda Boulevard	AM	0.424	A	0.434	A	0.010	No	--	--
	PM	0.468	A	0.488	A	0.020	No	--	--
10. Yorba Linda Boulevard at Via del Agua	AM	58.0	F	69.8	F	11.8	Yes	0.448*	A
	PM	31.8	D	38.7	E	6.9	Yes	0.433	A
11. Yorba Linda Boulevard at Stonehaven Drive	AM	0.519	A	0.526	A	0.007	No	--	--
	PM	0.442	A	0.467	A	0.025	No	--	--
12. Yorba Linda Boulevard at La Palma Avenue	AM	0.739	C	0.754	C	0.015	No	--	--
	PM	0.745	C	0.747	C	0.002	No	--	--
13. Yorba Linda Boulevard at Savi Ranch Parkway	AM	0.466	A	0.478	A	0.012	No	--	--
	PM	0.769	C	0.785	C	0.016	No	--	--
14. Weir Canyon Road at SR-91 WB Ramps	AM	0.472	A	0.476	A	0.004	No	--	--
	PM	0.582	A	0.596	A	0.014	No	--	--
15. Weir Canyon Road at SR-91 EB Ramps	AM	0.552	A	0.554	A	0.002	No	--	--
	PM	0.710	C	0.720	C	0.010	No	--	--

*Mitigation consists of installation of a three-phase traffic signal

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

Bold LOS values indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections



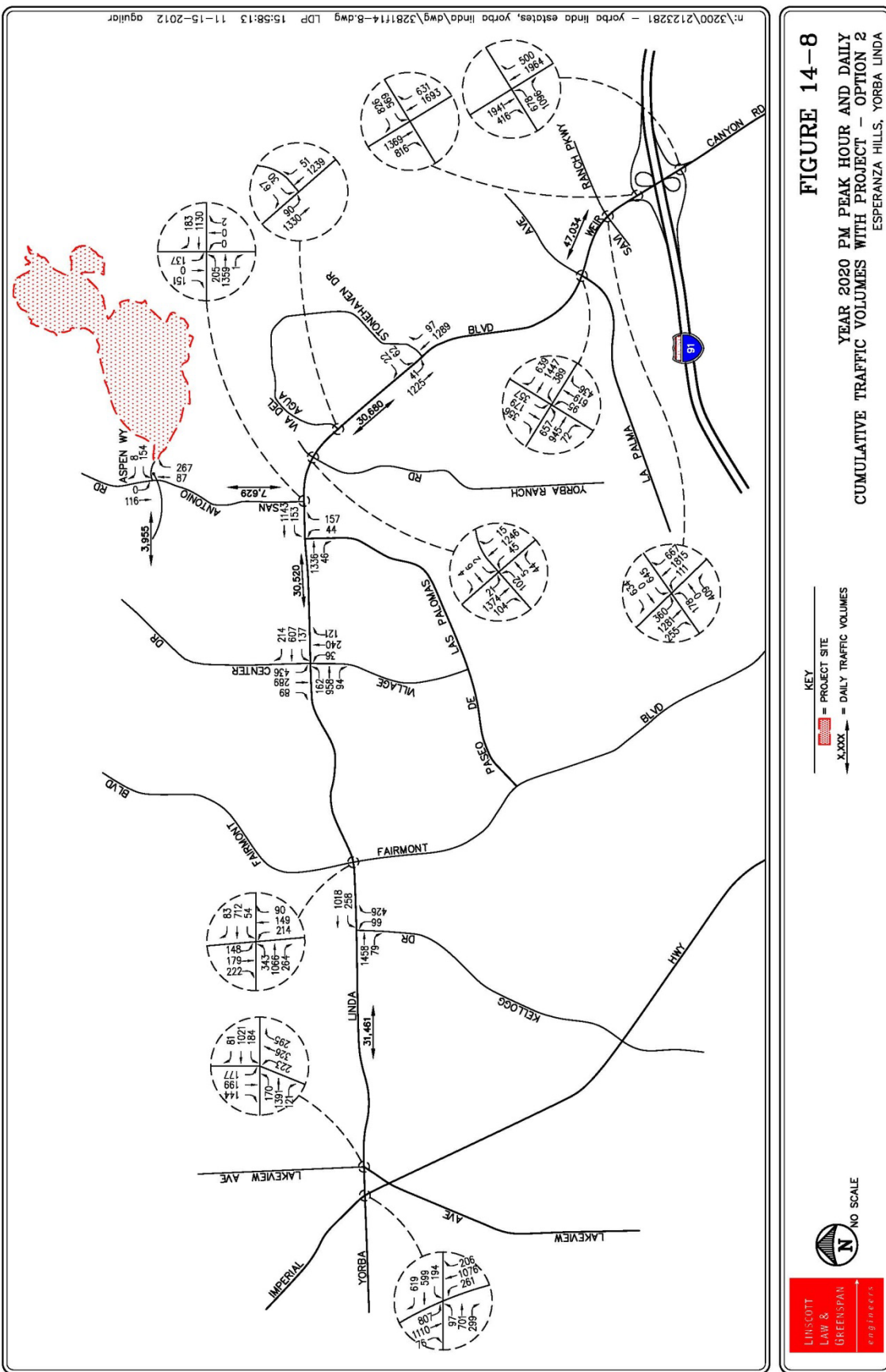


Exhibit 5-154 – Year 2020 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 2

Table 5-14-17 Year 2020 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary – Option 2

Key Intersection	Time Period	Existing Traffic Conditions (1)		Year 2020 Cumulative Traffic Conditions (2)		Year 2020 Cumulative Plus Option 2 Project Traffic Conditions (3)		Significant Impact (4)		Year 2020 Cumulative Plus Option 2 Project With Mitigation (5)	
		ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	Yes/No	ICU/ Delay(s/v)	LOS
1. San Antonio Road at Aspen Way	AM PM	8.2 8.2	A A	8.3 8.3	A A	11.6 11.2	B B	3.3 2.9	No No	-- --	-- --
2. Imperial Highway at Yorba Linda Boulevard	AM PM	0.649 0.726	B C	0.757 0.840	C D	0.759 0.849	C D	0.002 0.009	No No	-- --	-- --
3. Lakeview Avenue at Yorba Linda Boulevard	AM PM	0.551 0.577	A A	0.622 0.651	B B	0.633 0.665	B B	0.011 0.014	No No	-- --	-- --
4. Kellogg Drive at Yorba Linda Boulevard	AM PM	0.426 0.594	A A	0.492 0.699	A B	0.499 0.717	A C	0.007 0.018	No No	-- --	-- --
5. Fairmont Boulevard at Yorba Linda Boulevard	AM PM	0.574 0.465	A A	0.660 0.567	B A	0.673 0.576	B A	0.013 0.009	No No	-- --	-- --
6. Village Center Drive at Yorba Linda Boulevard	AM PM	0.454 0.518	A A	0.507 0.574	A A	0.534 0.611	A B	0.027 0.037	No No	-- --	-- --
7. Paseo De Las Palomas at Yorba Linda Boulevard	AM PM	0.420 0.527	A A	0.452 0.571	A A	0.488 0.625	A B	0.036 0.054	No No	-- --	-- --
8. San Antonio Road at Yorba Linda Boulevard	AM PM	0.469 0.441	A A	0.520 0.499	A A	0.595 0.593	A A	0.075 0.094	No No	-- --	-- --
9. Yorba Ranch Rd at Yorba Linda Boulevard	AM PM	0.424 0.468	A A	0.472 0.527	A A	0.478 0.546	A A	0.006 0.019	No No	-- --	-- --
10. Yorba Linda Boulevard at Via del Agua	AM PM	58.0 31.8	F D	0.518* 0.498	A A	0.526 0.524	A A	0.008 0.026	No No	-- --	-- --
11. Yorba Linda Boulevard at Stonehaven Drive	AM PM	0.519 0.442	A A	0.564 0.493	A A	0.571 0.518	A A	0.007 0.025	No No	-- --	-- --
12. Yorba Linda Boulevard at La Palma Avenue	AM PM	0.739 0.745	C C	0.806 0.798	D C	0.821 0.814	D D	0.015 0.016	No No	-- --	-- --
13. Yorba Linda Boulevard at Savi Ranch Parkway	AM PM	0.466 0.769	A C	0.517 0.846	A D	0.529 0.862	A D	0.012 0.016	No No	-- --	-- --
14. Weir Canyon Road at SR-91 WB Ramps	AM PM	0.472 0.582	A A	0.512 0.642	A B	0.517 0.655	A B	0.005 0.013	No No	-- --	-- --
15. Weir Canyon Road at SR-91 EB Ramps	AM PM	0.552 0.710	A C	0.595 0.773	A C	0.597 0.783	A C	0.002 0.010	No No	-- --	-- --

*Assumes installation of a traffic signal prior to Year 2020

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions.

Bold LOS values indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix C in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

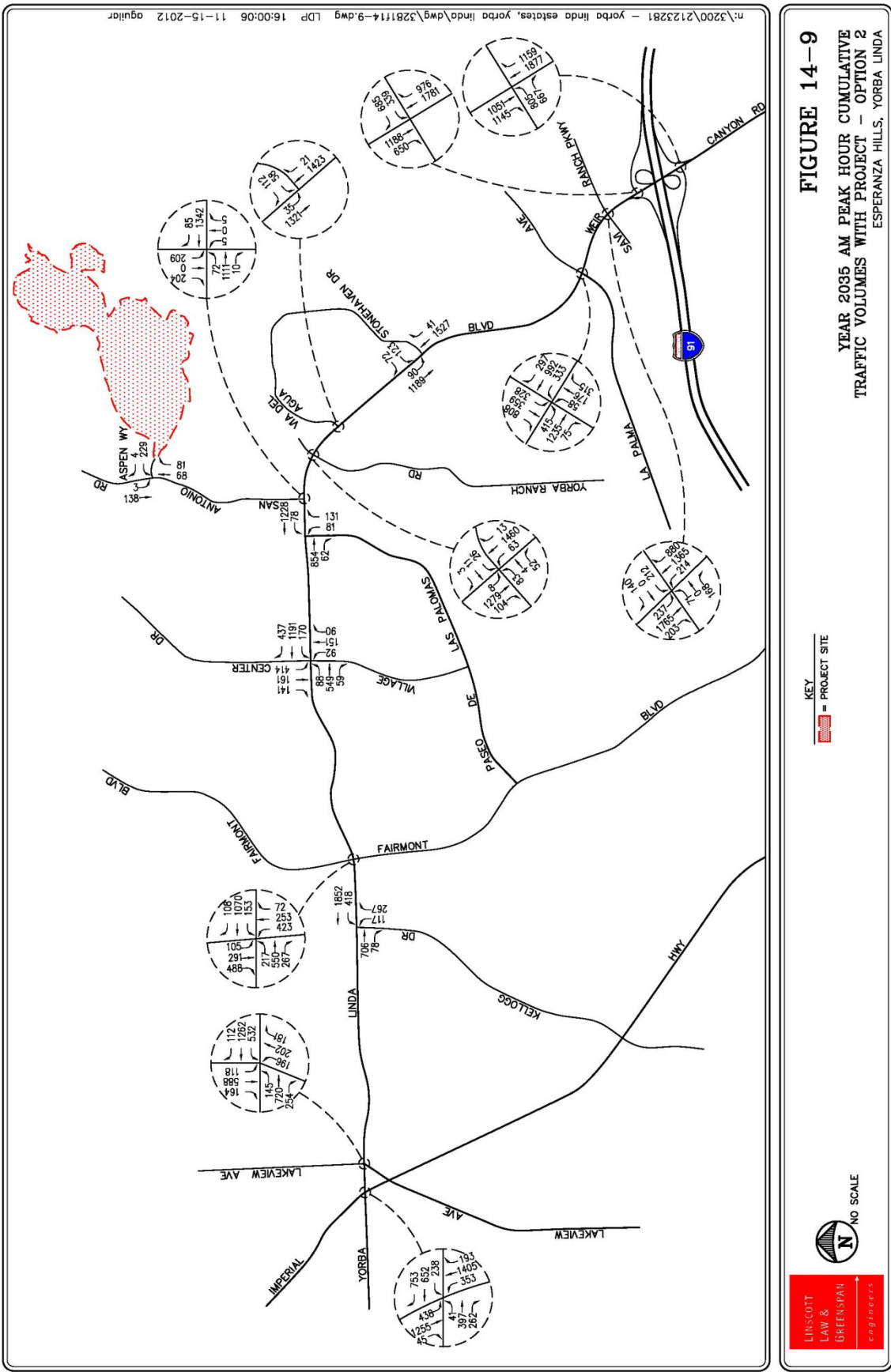


Exhibit 5-155 – Year 2035 AM Peak Hour Cumulative Traffic Volumes with Project, Option 2

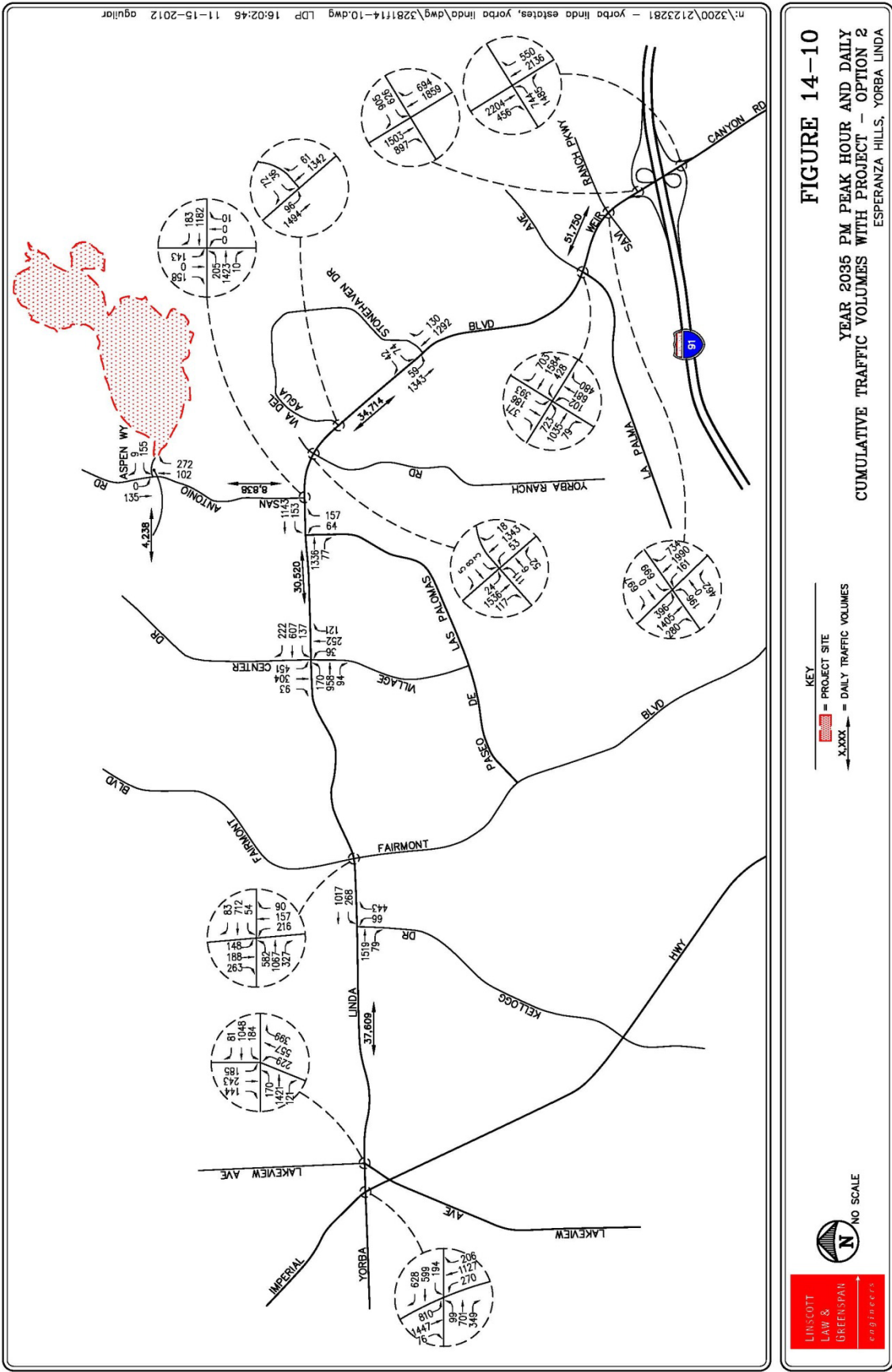


Exhibit 5-156 – Year 2035 PM Peak Hour and Daily Cumulative Traffic Volumes with Project, Option 2

Table 5-14-18 Year 2035 Cumulative Plus Project Intersection Peak Hour Levels of Service Summary – Option 2

Key Intersection	Time Period	Existing Traffic Conditions (1)		Year 2035 Cumulative Traffic Conditions (2)		Year 2035 Cumulative Plus Option 2 Project Traffic Conditions (3)		Significant Impact (4)		Year 2035 Cumulative Plus Option 2 Project With Mitigation (5)	
		ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	LOS	ICU/ Delay(s/v)	Yes/No	ICU/ Delay(s/v)	LOS
1. San Antonio Road at Aspen Way	AM	8.2	A	8.5	A	12.0	B	3.5	No	--	--
	PM	8.2	A	8.5	A	11.5	B	3.0	No	--	--
2. Imperial Highway at Yorba Linda Boulevard	AM	0.649	B	0.737 ^a	C	0.737	C	0.000	No	--	--
	PM	0.726	C	0.805	D	0.813	D	0.008	No	--	--
3. Lakeview Avenue at Yorba Linda Boulevard	AM	0.551	A	0.709 ^b	C	0.716	C	0.007	No	--	--
	PM	0.577	A	0.684	B	0.702	C	0.018	No	--	--
4. Kellogg Drive at Yorba Linda Boulevard	AM	0.426	A	0.591	A	0.603	B	0.012	No	--	--
	PM	0.594	A	0.726	C	0.744	C	0.018	No	--	--
5. Fairmont Boulevard at Yorba Linda Boulevard	AM	0.574	A	0.691	B	0.704	C	0.013	No	--	--
	PM	0.465	A	0.714	C	0.722	C	0.008	No	--	--
6. Village Center Drive at Yorba Linda Boulevard	AM	0.454	A	0.597	A	0.627	B	0.030	No	--	--
	PM	0.518	A	0.581	A	0.619	B	0.038	No	--	--
7. Paseo De Las Palomas at Yorba Linda Boulevard	AM	0.420	A	0.452	A	0.488	A	0.036	No	--	--
	PM	0.527	A	0.571	A	0.625	B	0.054	No	--	--
8. San Antonio Road at Yorba Linda Boulevard	AM	0.469	A	0.541	A	0.616	B	0.075	No	--	--
	PM	0.441	A	0.526	A	0.617	B	0.091	No	--	--
9. Yorba Ranch Rd at Yorba Linda Boulevard	AM	0.424	A	0.532	A	0.541	A	0.009	No	--	--
	PM	0.468	A	0.586	A	0.606	B	0.020	No	--	--
10. Yorba Linda Boulevard at Via del Agua	AM	58.0	F	0.581 ^c	A	0.589	A	0.008	No	--	--
	PM	31.8	D	0.538	A	0.565	A	0.027	No	--	--
11. Yorba Linda Boulevard at Stonehaven Drive	AM	0.519	A	0.629	B	0.636	B	0.007	No	--	--
	PM	0.442	A	0.521	A	0.546	A	0.025	No	--	--
12. Yorba Linda Boulevard at La Palma Avenue	AM	0.739	C	0.882	D	0.897	D	0.015	No	--	--
	PM	0.745	C	0.876	D	0.889	D	0.013	No	--	--
13. Yorba Linda Boulevard at Savi Ranch Parkway	AM	0.466	A	0.572	A	0.584	A	0.012	No	0.564 ^d	A
	PM	0.769	C	0.904	E	0.920	E	0.016	Yes	0.851	D
14. Weir Canyon Road at SR-91 WB Ramps	AM	0.472	A	0.596	A	0.601	B	0.005	No	--	--
	PM	0.582	A	0.701	C	0.715	C	0.014	No	--	--
15. Weir Canyon Road at SR-91 EB Ramps	AM	0.552	A	0.705	C	0.707	C	0.002	No	--	--
	PM	0.710	C	0.917	E	0.919	E	0.002	No	--	--

a Committed improvements consist of 1 additional westbound left-turn lane and 1 additional westbound through lane.; b Committed improvements consist of 1 additional westbound left-turn lane and 1 additional eastbound left-turn lane; c Assumes installation of a three phase traffic signal prior to Year 2020; d Mitigation consists of widening and restriping to provide three westbound left-turn lanes along Savi Ranch Parkway.

Notes: s/v = seconds per vehicle (delay); LOS = Level of Service, refer to Table 5-14-1 and Table 5-14-2 above for the LOS definitions

Bold LOS values indicate unacceptable service levels based on LOS Criteria identified in this report.

Appendix G in the Traffic Impact Analysis (Appendix O in this DEIR) contains the ICU/LOS and Delay/LOS calculation worksheets for all study intersections

e. Area-Wide Improvements - Option 2

The TIA recommends/identifies improvement measures changing the intersection geometry to increase capacity at intersections where unacceptable operating conditions are projected. These improvements involve roadway widening and/or re-striping to reconfigure (add lanes) to specific approaches of key intersections. The improvements are expected to:

- Mitigate the impact of existing traffic, project traffic and future non-Project (ambient traffic growth and cumulative project) traffic and
- Improve Levels of Service to an acceptable range (i.e., LOS D or better) and/or to pre-Project conditions.

1) Existing Plus Option 2

Table 5-14-16 (page 5-602) intersection capacity analyses have shown that the proposed Option 2 Project will worsen the already adverse service level at one of the 15 key study intersections under the “Existing Plus Project” traffic scenario. In order to mitigate the traffic impact, the following improvement has been identified as mitigation and is considered a planned improvement that will be constructed prior to year 2020 in conjunction with the proposed Cielo Vista project.

- Yorba Linda Boulevard at Via del Agua: install a three-phase traffic signal

2) Year 2020 Plus Option 2

The intersection capacity analyses (Table 5-14-17, page 5-603) have shown that the proposed Option 2 Project will not significantly impact any of the 15 key study intersections under the “Year 2020 Plus Project” traffic scenario. Therefore, no improvements are required. Installation of a three phase signal at Yorba Linda Boulevard at Via del Agua was assumed to be constructed prior to Year 2020 in conjunction with the proposed Cielo Vista project.

3) Year 2035 Plus Option 2 Project Traffic Conditions

The intersection capacity analyses (Table 5-14-18, page 5-606) have shown that the Option 2 Project will cumulatively impact one of the 15 key study intersections under the “Year 2035 Plus Project” traffic scenario. Exhibit 5-157 details the recommended and planned improvements. Recommended mitigation for the Year 2035 cumulative impacts is as follows:

- Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

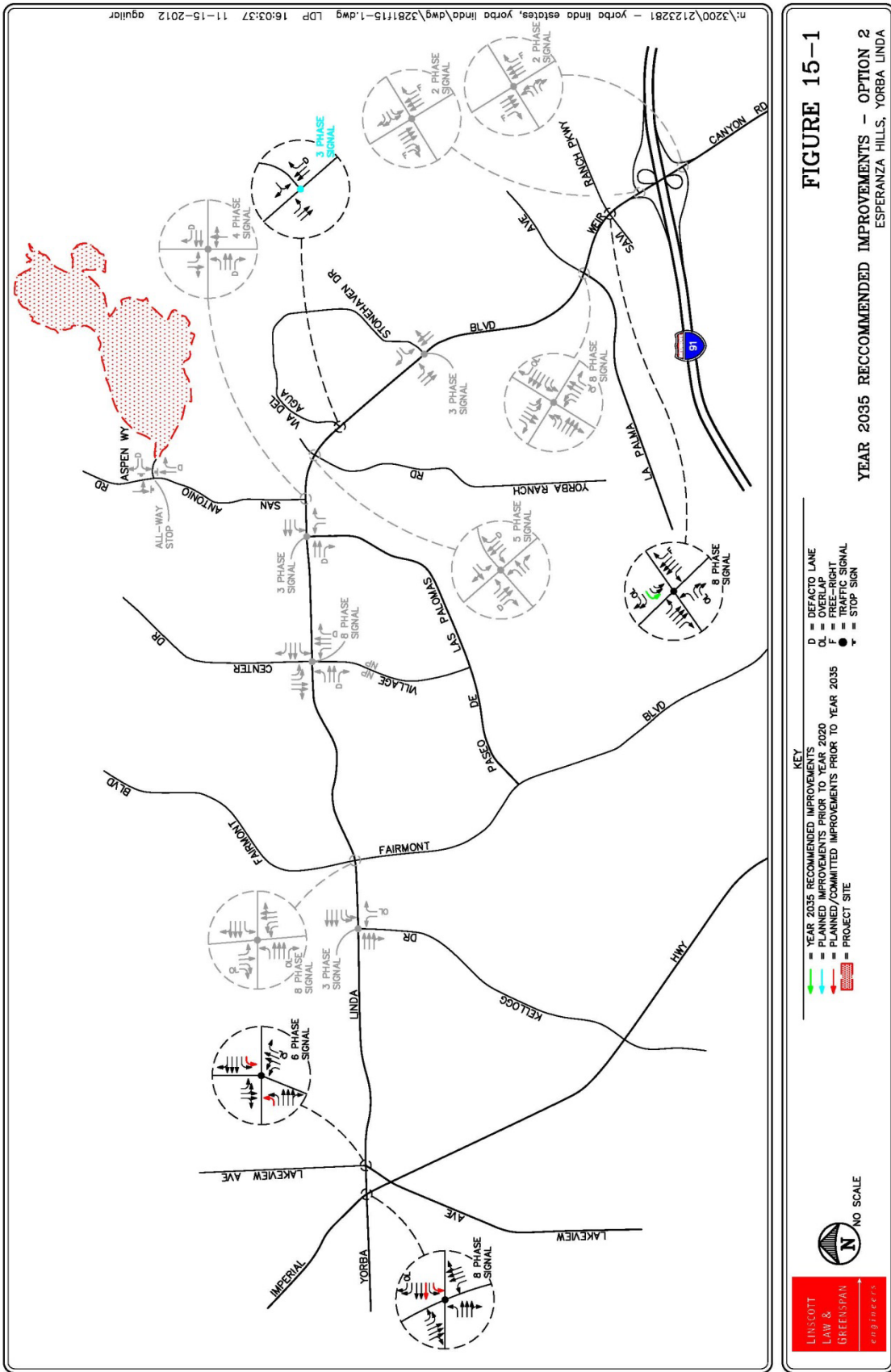


Exhibit 5-157 – Year 2035 Recommended Improvements, Option 2

4) Project-Related Fair Share Contribution

Table 5-14-18 (page 5-606) shows that the Option 2 Project will cumulatively impact one of the 15 key study intersections under Year 2035 conditions. The Proposed Project can be expected to pay a “fair-share” of the cumulative improvement costs at intersections which will operate at adverse service levels. Table 5-14-19 below presents the Project’s fair-share contribution, which totals 9% based on greatest peak hour impact at the intersection.

Table 5-14-19 Year 2035 Project Fair Share Contribution – Option 2

Key Intersections		Impacted Time Period	Existing Traffic (1)	Option 2 Project Only Traffic (2)	Year 2035 Cumulative Plus Option 2 Project Traffic (3)	Net Option 2 Project Percent Increase (4)
13	Yorba Linda Boulevard at Savi Ranch Parkway	PM	5,632	125	7,020	9.0%

Notes: Net Project Percent Increase (4) = [Column (2)] / [Column (3) – Column (1)]

5) Site Access and Circulation

Access to the Project Site for Option 2 will be provided via an extension of the existing Aspen Way which will traverse through the southerly edge of the potential Cielo Vista residential project immediately west of the Proposed Project. The proposed Cielo Vista project will utilize the Aspen Way extension roadway that will connect to the Option 2 Project for approximately 18 dwelling units.

a) Internal Circulation - Option 2

The proposed internal street system is depicted on Exhibit 5-158, which shows the estimated daily volumes and recommended traffic controls. Aspen Way is depicted as the sole daily entry/exit for the Project Site. Aspen Way will consist of a two lane roadway with parking on both sides from San Antonio Road to approximately 1,100 feet east. Continuing easterly from 1,100 feet, the roadway geometry expands from two lanes to four lanes to the Project’s gated entry. The two lane section of Aspen Way is expected to carry a maximum of 4,238 ADT. This volume is within the Residential Collector two-lane undivided roadway ADT LOS B criterion of 4,375 vehicles per day.

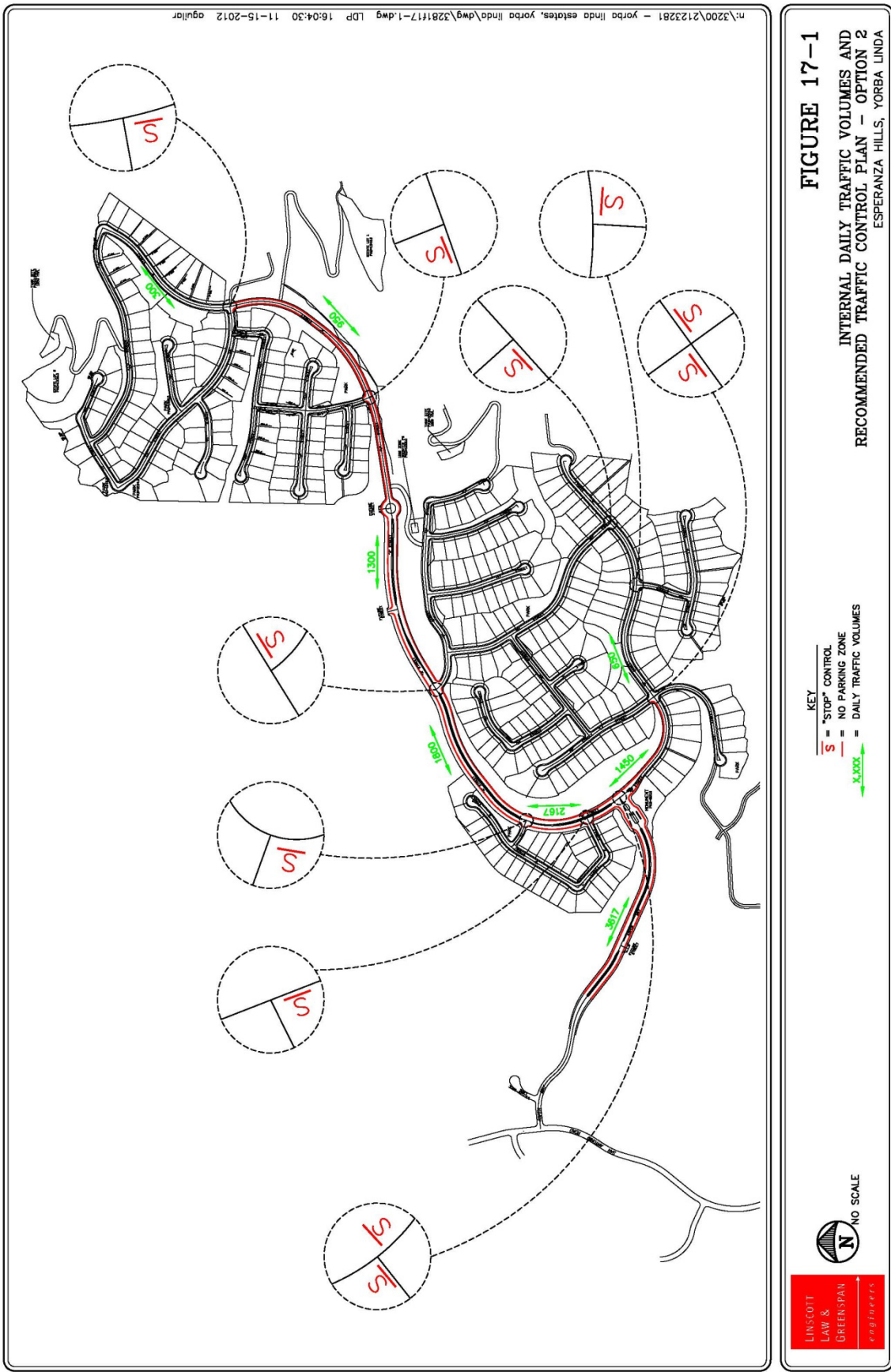


Exhibit 5-158 – Internal Daily Traffic Volumes and Recommended Traffic Control Plan, Option 2

After the gated entry, the internal circulation network splits into “A Street”, which services the development to the northeast and “G Street”, which services the development to the southeast. “A Street”, a four-lane roadway from the gated entry to the roundabout, is expected to carry no more than 2,167 daily trips. Continuing northeasterly from the roundabout, the roadway narrows to two lanes, which segment is expected to carry no more than 950 daily trips. “G Street” is proposed as a two lane roadway and is expected to carry no more than 1,450 daily trips. The remaining roadways within the development, which are local residential streets with driveway access, are expected to carry much less than the recommended local street criterion of 1,500 ADT. Motorists are expected to enter/exit their driveways comfortably and safely without undue congestion.

The street system exhibit also presents the recommended traffic control plan for the Project based on an evaluation of the internal circulation design. Stop signs, bars and pavement messages are recommended at the appropriate intersection approaches. The exhibit also shows recommended “No Parking” zones along the four-lane section of the Aspen Way extension, “A Street” and “G Street.”

b) San Antonio Road Assessment - Option 2

San Antonio Road is classified as a Local roadway which functions as a Commuter roadway with an LOS E capacity of 12,500 vehicles per day. This roadway segment is forecast to carry a maximum of 8,838 daily trips under the Year 2035 with Option 2 conditions, which is well within the Collector two-lane undivided roadway ADT LOS C criterion of 10,000 vehicles per day.

c) Emergency Access - Option 2

The emergency access plan for Option 2 is depicted on Exhibit 5-159 showing the emergency ingress/egress routes and lane geometry/cross-sections of the Proposed Project roadways. As shown, emergency access is proposed via the extension of Aspen Way and the existing emergency access roadway located off Stonehaven Drive, which will connect to the southernmost internal roadway. The four-lane section of the Aspen Way extension has been designed with a curb-to-curb width of 66 feet to accommodate two lanes of travel within two 26-foot travel ways and a 14-foot median. The proposed Emergency Access Plan, which has been approved by the OCFA, calls for emergency vehicles traveling would travel on one side and residents on the other side of the roadway. The remaining Project roadways would remain with two way travel during an emergency evacuation. All internal roadways have been designed with adequate width to accommodate emergency vehicles.

As noted in the Option 1 analysis, OCFA Station 32 is located on the south side of Yorba Linda Boulevard south of San Antonio Road. The Station is within three miles of the farthest residential lot.

d) Queuing Assessment - Option 2

A queuing analysis was conducted for the existing eastbound left-turn lane along Yorba Linda Boulevard at San Antonio Road using the HCM Operations Methodology. This methodology calculates the 85th percentile queue length, also referred to as the design value queue length.

Table 5-14-20 summarizes AM and PM hour queue length (feet) generated by the eastbound left-turn movement along Yorba Linda Boulevard at San Antonio Road. The table shows that the Option 2 Project is expected to increase the 85th percentile queue length beyond the existing storage length of 95 feet. The left-turn pocket has the capability to be extended westerly towards the intersection of Via Piedra by approximately 180 feet. If fully extended, the length of the left-turn pocket would be approximately 275 feet including the transition. As shown on Exhibit 5-160 – Concept Channelization Plan – Yorba Linda Boulevard at San Antonio Road, Option 2, based on the proximity of Via Piedra to San Antonio, the maximum pocket length that can be achieved is 275 feet. The remaining 11 feet needed to achieve the 286-foot length shown in Table 5-14-20 can be accommodated within the transition area of the turn pocket. The table shows that this pocket extension could effectively accommodate the expected queue for Year 2035 Cumulative plus Option 2 Project traffic conditions.

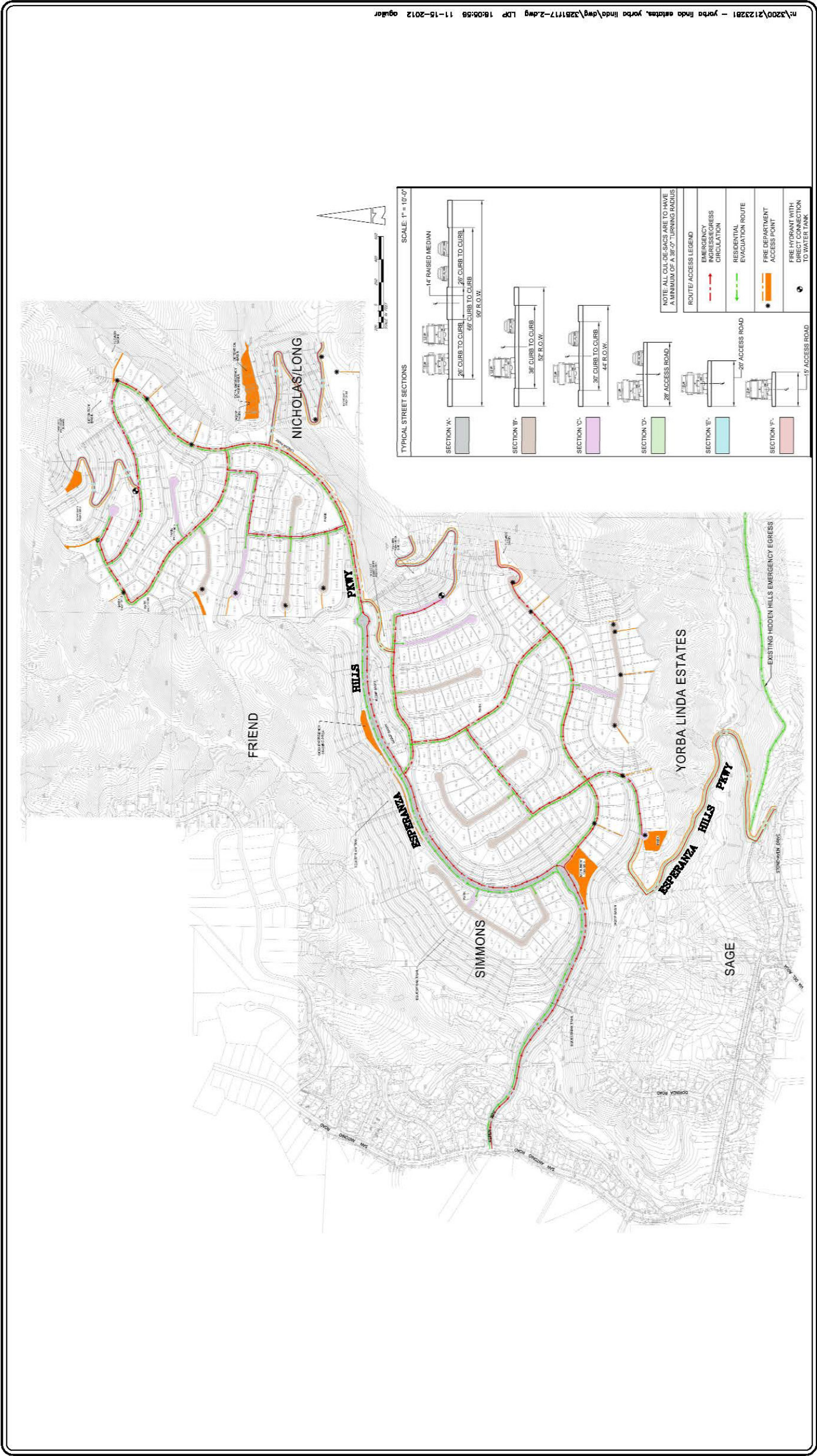


Exhibit 5-159 – Emergency Access Plan, Option 2

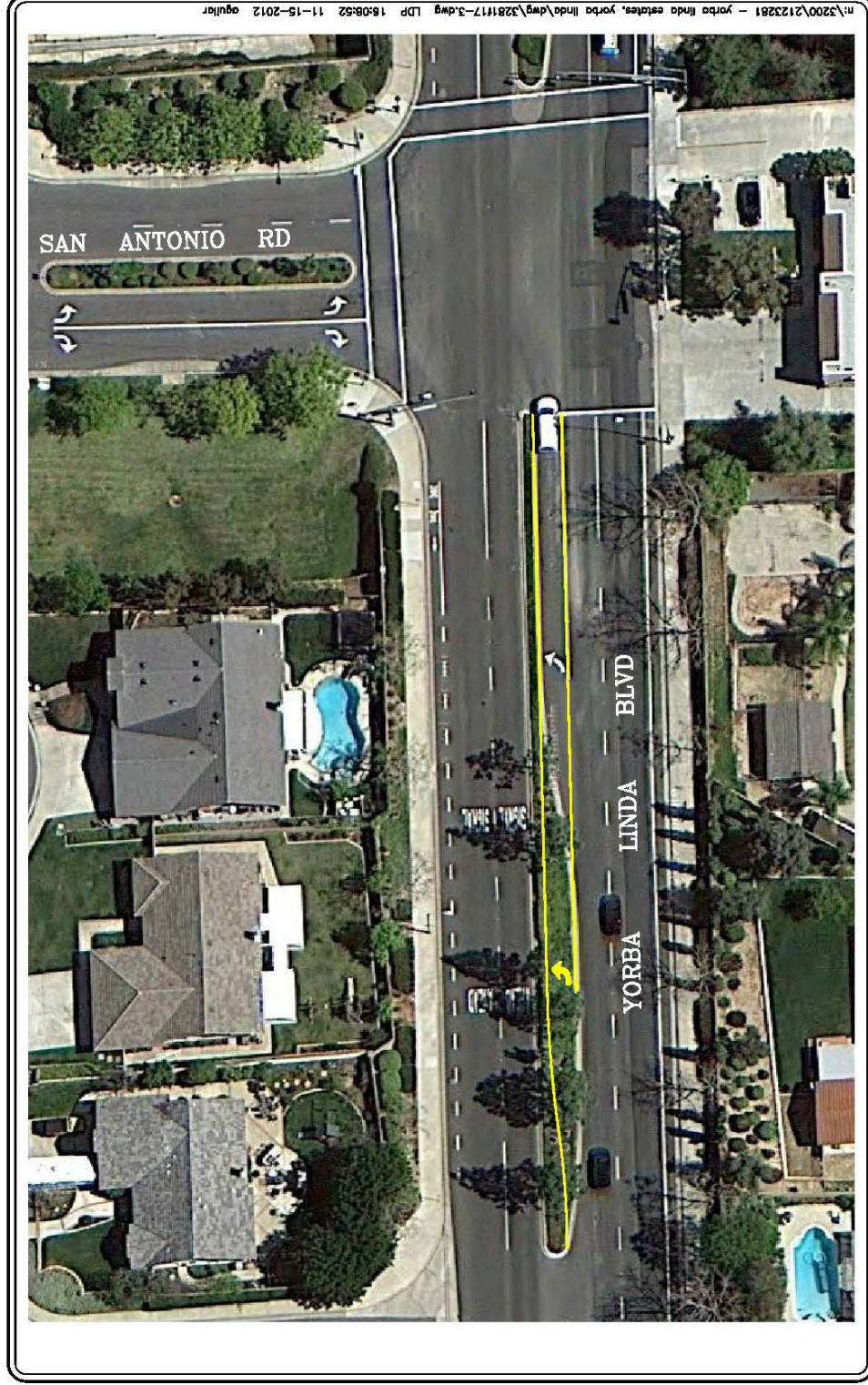


FIGURE 17-3
CONCEPT CHANNELIZATION PLAN
YORBA LINDA BLVD @ SAN ANTONIO RD – OPTION 2
ESPERANZA HILLS, YORBA LINDA

 **SCALE: 1"=50'**

Exhibit 5-160 – Concept Channelization Plan – Yorba Linda Boulevard at San Antonio Road, Option 2

Table 5-14-20 Eastbound Left-Turn Queue Analysis along Yorba Linda Boulevard at San Antonio Road – Option 2

Key Intersection	Time Period	Provided Storage	Existing Traffic Conditions (1)		Existing Plus Project Option 2 Traffic Conditions (2)		Year 2020 Cumulative Project Traffic Conditions (3)		Year 2035 Cumulative Plus Project Option 2 Traffic Conditions (4)	
			Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No	Queue Length (feet)	Adequate Storage Yes/No
8. Eastbound left turn along Yorba Linda Boulevard at San Antonio Rd.	AM	95'	44'	Yes	88'	Yes	88'	Yes	88'	Yes
	PM	95'	88'	Yes	264'	No	286'	No	286'	No

Queue analysis reports 85th Percentile results utilizing HCM 2000 methodology

5.14.4 Mitigation Measures

The results of the traffic analysis indicate that currently only one of the 15 key study intersections operates at an unacceptable level of service during the AM and PM peak hours (Yorba Linda Boulevard at Via del Agua).

1. Option 1 Project

Traffic associated with the proposed Option 1 Project in Year 2020 will adversely impact the level of service at the same intersection as existing conditions (Yorba Linda Boulevard at Via del Agua). However, cumulative impacts for with and without project conditions in Year 2020 indicated that all 15 key study intersections will continue to operate at an acceptable LOS. The analysis assumes the installation of a three-phase signal at Yorba Linda Boulevard and Via del Agua in conjunction with the proposed Cielo Vista project. The TIA identifies the installation of the three-phase signal as mitigation even though the improvement is considered a planned improvement. However, the timing and/or certainty of the proposed Cielo Vista project cannot be confirmed at this time. Therefore, a fair share contribution is proposed under “With” and “Without” Cielo Vista conditions. No additional mitigation measures are proposed under Option 1 Project conditions for Year 2020.

- T-1 For Option 1, prior to issuance of building permits, the Project Applicant shall contribute to the installation of a three-phase traffic signal at the Yorba Linda Boulevard/Via del Agua intersection in the event the Cielo Vista project is not constructed. The Project Applicant’s fair share contribution shall be 39% with the proposed Cielo Vista project as part of the cumulative base traffic condition, and 46% without the Cielo Vista project. If the City does not implement the improvement, the impact will be significant and unavoidable.

Implementation of Mitigation Measure T-1 would reduce potential project-related impacts at this intersection to a less than significant level. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable. This mitigation does not apply to Option 2

Year 2035 without Project conditions for the 15 key study intersections show that two intersections are forecast to operate at an unacceptable level of service during the PM peak hours (Yorba Linda Boulevard at Savi Ranch Parkway and Weir Canyon Road at SR-91 EB Ramps). The analysis assumes that committed improvements will be in place at the intersections of Imperial Highway at Yorba Linda Boulevard and Lakeview Avenue at Yorba Linda Boulevard.

Year 2035 plus Option 1 Project traffic shows that two intersections are forecast to operate at an unacceptable level of service during PM peak hours (Yorba Linda Boulevard at Savi Ranch Parkway and Weir Canyon Road at SR-91 EB Ramps). The remaining 13 intersections are forecast to operate at acceptable levels of service during AM and PM peak hours. However, because the Option 1 Project is expected to

add less than 0.010 ICU value to Weir Canyon Road at SR-91 Ramps, the impact is not considered significant.

Cumulative impacts for Year 2035 Option 1 Project conditions show the Project will impact one of the 15 key study intersections (Yorba Linda Boulevard at Savi Ranch Parkway). The proposed Option 1 Project will be required to contribute a fair-share (9%) of the construction costs to implement intersection improvements per Mitigation Measure T-2 below.

- T-2 Prior to issuance of building permits, the Project Applicant shall pay a 9% fair-share contribution for the following improvement at Yorba Linda Boulevard at Savi Ranch Parkway: Widen and re-stripe the westbound approach to provide an additional (third) westbound left-turn lane.

Implementation of Mitigation Measure T-2 above will reduce impacts to the intersection resulting in an improvement from LOS E to LOS D. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable.

a. Internal Circulation

Analysis of the internal street system shows that all of the daily volumes are within the Residential Collector roadway criteria. No mitigation is required related to impacts on the internal streets.

b. Queuing Assessment

The queuing assessment has shown that the Project is expected to increase the 85th percentile queue length beyond the existing storage length of 100 feet along Yorba Linda Boulevard at Via del Agua. Therefore, the following mitigation measure is included.

- T-3 Prior to issuance of certificates of occupancy, Project Applicant shall pay a 9% fair-share contribution for the following improvement: extend the left-turn pocket along Yorba Linda Boulevard at Via del Agua from the existing 100 feet to 275 feet, with 11 feet in the transition area of the turn pocket to achieve 286 feet. However, the County cannot compel the City to implement such improvement. If the City does not implement the improvement, the impact will be significant and unavoidable.

2. Option 2 Project

Traffic associated with the proposed Option 2 Project will adversely impact one of the 15 key study intersections as follows:

- Yorba Linda Boulevard at Via del Agua - LOS F (AM Peak), LOS E (PM Peak)

Cumulative Year 2020 plus project impacts forecast that the Option 2 Project will not adversely impact any of the 15 key study intersections and all

intersections will continue to operate at an acceptable LOS with the addition of project generated traffic.

Cumulative Year 2035 plus project impacts indicated that two key study intersections are forecast to operate at an unacceptable level of service during the PM peak hours under Year 2035 traffic conditions. The remaining 13 intersections are forecast to operate at an acceptable LOS during AM and PM peak hours. The impacted intersections are as follows:

- Yorba Linda Boulevard at Savi Ranch Parkway (LOS E)
- Weir Canyon Road at SR-91 EB Ramps (LOS E)

While the Weir Canyon Road at SR-91 EB Ramps is forecast to operate at LOS E, the proposed Option 2 Project is expected to add less than 0.010 to the ICU value and, therefore, is not considered to be significantly impacted. Mitigation Measure T-2 above provides for the payment of a fair share contribution to widen and re-stripe the westbound approach at Yorba Linda Boulevard at Savi Ranch Road. Implementation of Mitigation Measure T-2 will reduce Year 2035 cumulative impacts; however impacts will remain significant with a forecast level of service (LOS) E.

a. Internal Circulation

Option 2 access will be via the Aspen Way extension roadway. Analysis shows that all Residential Collector streets and local residential streets with driveway access within the Option 2 site plan are expected to carry less than the recommended local street criteria for average daily traffic. The San Antonio Road segment proposed for Option 2 internal circulation is forecast to operate well within the Collector two-lane undivided roadway LOS criterion. No mitigation is required related to impacts on the internal street system.

b. Queuing Assessment

The queuing assessment for Option 2 shows that the project is expected to increase the 85th percentile queue length beyond the existing storage length of 95 feet of the eastbound left-turn lane along Yorba Linda Boulevard at San Antonio Road. Fully extending the left-turn pocket westerly towards the intersection of Via Piedra to 286 feet could effectively accommodate the expected queue for Year 2035 cumulative plus Option 2 traffic. This will be accomplished by extending the turn pocket 275 feet, with an additional 11 feet available in the transition area of the turn pocket, as described in Mitigation Measure T-3.

5.14.5 Level of Significance after Mitigation

1. Option 1 Project

a. Existing Plus Option 1 Traffic Conditions

The proposed Option 1 Project will significantly impact the intersection of Yorba Linda Boulevard at Via del Agua. This intersection currently operates at an adverse service level. Installation of a three phase traffic signal is a committed improvement in conjunction with the proposed Cielo Vista project, reducing impacts from the Proposed Project to a level of insignificance. However, the County cannot compel the City to implement the signal. Therefore, this would be considered a significant and unavoidable impact.

b. Year 2020 Cumulative Traffic Conditions Plus Option 1 Project

The Option 1 Project will not significantly impact any of the 15 key study intersections and no mitigation is required. The analysis assumes the installation of the three phase traffic signal at Yorba Linda Boulevard at Via del Agua.

c. Year 2035 Cumulative Traffic Conditions Plus Option 1 Project

Two key intersections are forecast to operate at an unacceptable level of service during the AM and/or PM peak hours.

- Yorba Linda Boulevard at Savi Ranch Parkway
- Weir Canyon Road at SR-91 EB Ramps

The proposed Option 1 Project is expected to add less than 0.010 to the ICU value at Weir Canyon Road/SR-91 EB Ramps and thus is not considered significant. Mitigation Measure T-2 will reduce impacts at the intersection of Yorba Linda Boulevard at Savi Ranch Parkway, thereby reducing the level of significance. With mitigation the existing LOS E will be reduced to an acceptable LOS D. If the City does not implement the improvement, the impact will be significant and unavoidable.

d. Queuing Assessment

The Option 1 Project is expected to increase the queue length beyond the existing storage length of 100 feet at the intersection of Yorba Linda Boulevard and Via del Agua. Implementation of Mitigation Measure T-3 will reduce impacts to a level of insignificance.

2. Option 2 Project

a. Existing Plus Option 2 Project

The Option 2 Project will significantly impact the level of service at the intersection of Yorba Linda Boulevard at Via del Agua. This intersection currently operates at an adverse service level. Installation of a three phase traffic

signal is a committed improvement in conjunction with the proposed Cielo Vista project, reducing impacts from the Proposed Project to a level of insignificance.

b. Year 2020 Cumulative Traffic Conditions Plus Option 2 Project

The proposed Option 2 Project will not significantly impact any of the 15 key study intersections. The analysis assumes the installation of a three phase traffic signal at Yorba Linda Boulevard at Via del Agua with the development of the proposed Cielo Vista project.

c. Year 2035 Cumulative Traffic Conditions Plus Option 2 Project

Two key study intersections are forecast to operate at an unacceptable level of service during the AM and/or PM peak hours:

- Yorba Linda Boulevard at Savi Ranch Parkway
- Weir Canyon Road at SR-91 EB Ramps

However, traffic at the intersection of Weir Canyon Road at SR-91 EB Ramps is expected to add less than 0.010 to the ICU value, and thus is not significant. Mitigation Measure T-2 (page 5-620 above) provides for the payment of a fair share contribution to widen and re-stripe the westbound approach at Yorba Linda Boulevard at Savi Ranch Road. Implementation of this Mitigation Measure will reduce Year 2035 cumulative impacts resulting in a change from LOS E to LOS D.

d. Fair Share Fees

The fair-share percentage at the impacted intersections for Option 1 and Option 2 totals 9%, as detailed in Mitigation Measures T-2 and T-3.

Existing Plus Option 1 Project and Existing Plus Option 2 traffic will significantly impact the intersection of Yorba Linda Boulevard at Via del Agua. Installation of a traffic signal, which is a planned improvement, will reduce the level of impact to less than significant.

Year 2020 Cumulative Plus Option 1 and Year 2020 Cumulative Plus Option 2 require no mitigation measures.

Year 2035 Cumulative Plus Option 1 and Year 2035 Cumulative Plus Option 2 have a mitigation (Mitigation Measure T-2, page 5-620 above) at the intersection of Yorba Linda Boulevard at Savi Ranch Parkway. Payment of a 9% fair-share fee to widen and re-stripe the westbound approach to provide an additional westbound left turn lane will reduce the impact to this intersection. The intersection is forecast to operate LOS D with proposed mitigation.

5.14.6 Cumulative Impacts

The Proposed Project, at Horizon Year 2035, is expected to contribute to roadway operation deficiencies at the intersection of Yorba Linda Boulevard at Savi Ranch Parkway under Option 1 and Option 2 traffic conditions when combined with projected development in the Project Area. Mitigation to achieve acceptable levels of service has been provided to lessen the adverse impact. The TIA considered the 18 identified related projects, and no cumulative impacts resulted from those developments.

The proposed Cielo Vista project will add 112 residential units to the surrounding area. A three-phase signal at Yorba Linda Boulevard and Via del Agua is considered a planned improvement with implementation of the proposed Cielo Vista project. Project-related fair share fees have been identified for installation of the signal both “With” and “Without” the proposed Cielo Vista project. Installation of the traffic signal will reduce cumulative impacts to a less than significant level. However, as discussed previously, the County cannot compel the City to install a signal. If the signal is not installed, the impact will be significant and unavoidable.

5.14.7 Unavoidable Adverse Impacts

Significant project-related operational and cumulative impacts will occur at the intersection of Yorba Linda Boulevard/Via del Agua and Yorba Linda Boulevard at Savi Ranch Parkway for Option 1 and Option 2 conditions. However, left-turn pocket lengthening improvements proposed for both intersections will mitigate the potentially significant cumulative adverse impacts. As noted, the County cannot compel the City to implement the proposed mitigation measures. While the measures are feasible and a standard practice, impacts at Yorba Linda Boulevard/Via del Agua and Yorba Linda Boulevard/Savi Ranch Parkway will be considered significant and unavoidable because of the uncertainty related to mitigation implementation.