APPENDIX G

Traffic Impact Analysis

LINSCOTT LAW & GREENSPAN
engineers

TRAFFIC IMPACT ANALYSIS FOR THE

ADDENDUM TO THE CITY OF LAGUNA HILLS GENERAL PLAN PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE FIVE LAGUNAS PROJECT

Laguna Hills, California
November 13, 2015

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ADDENDUM TO THE CITY OF LAGUNA HILLS GENERAL PLAN PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE FIVE LAGUNAS PROJECT

LAGUNA HILLS, CALIFORNIA
NOVEMBER 13, 2015

1.0 INTRODUCTION

This Traffic Impact Analysis was conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine and evaluate the potential traffic impacts associated with the Five Lagunas Project ("Project"), which consists of the redevelopment of the existing Laguna Hills Mall, including the incorporation of a residential component. The findings from this traffic study will be incorporated into the Addendum to the City of Laguna Hills ("City") General Plan Program Environmental Impact Report ("Program EIR") prepared for the Project.

This report presents an inventory of existing characteristics and traffic volumes at key locations within the study area, forecasts vehicular traffic anticipated to be generated by the Project, and evaluates potential impacts of these project-generated trips on the surrounding street system. Additionally, site access/internal circulation aspects, and freeway mainline segments, were evaluated.

2.0 PROJECT SCOPE

2.1 Project Description

The Project includes the redevelopment of the existing mall through the partial demolition and reconstruction of the southern portion of the central mall building (the location of the Sears store), the construction of new commercial spaces on development pads in the out lots, and development of high-density multi-family dwelling units, as further described below:

- 834,706 SF GLA of shopping center/mall uses, consisting of:
  - 570,180 SF GLA of retail
  - 115,354 SF GLA of restaurants
  - 40,102 SF GLA for a health club
  - 109,070 SF GLA for a 2,068-seat cinema
- 45,890 SF GFA of medical office (presumed as medical office, but could be retail)
- 988 DU of apartments, of which 63 units are studios, 493 units are one-bedroom, 407 units are two-bedroom, and 25 units are three-bedroom

The existing mall includes 869,352 entitled SF GLA of shopping center/mall uses consisting of:

- 777,391 SF GLA of retail
- 78,795 SF GLA of restaurants
- 13,166 SF GLA for a 1,020-seat cinema

As with any regional shopping center, the mall experiences periodic transitions in tenants and occupancy. Historically, and including between the years 2008 and 2014, the mall's occupancy has remained at a level consistent with that of a fully-occupied shopping center for purposes of ITE trip generation rate projections and site selection (page 17, *Trip Generation Handbook*, *Second Edition*, ITE, June 2004). The former Sears space, which is designated for partial demolition and reconstruction in the first phase (Phase 1A) of the Project anticipated to commence in January 2016, was vacated in August 2014. Since that time, the space has been used by temporary seasonal retailers, and not leased to a new anchor tenant, due to the impending demolition and reconstruction. Additional space was vacated by the movie theater, food court, and small shops, and with the Sears space, totaled approximately 309,000 SF GLA.

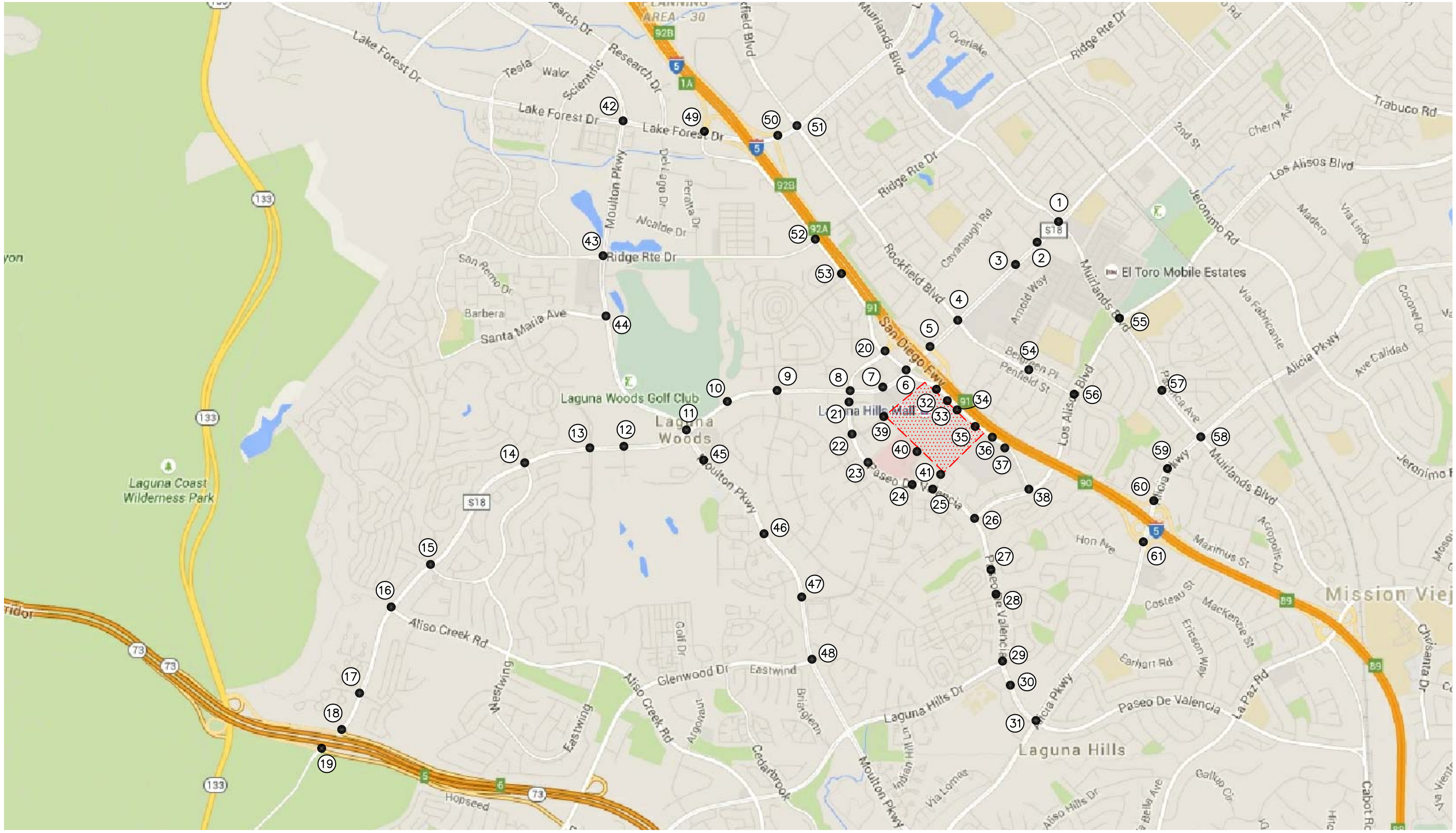
As the above-described space was not occupied on the dates that traffic counts were conducted for this study (i.e., weekday AM and PM peak period counts in May 2015 while school was still in session, and Saturday midday peak period counts in June 2015), and to account for trips corresponding with the mall's entitled and historically occupied square footage, trip generation for the 309,000 SF GLA was estimated based on the application of ITE rates/equations, and resulting trips were then assigned and added to the raw traffic counts collected at study intersections.

The 68-acre project is located within the 240-acre Urban Village Specific Plan ("UVSP") area of the City of Laguna Hills. ***Figure 1A*** presents a vicinity map and study area. The Project site is bound by El Toro Road on the northwest, Avenida de la Carlota on the northeast, Calle de la Louisa on the southwest, and Calle de los Caballeros on the southeast.

The Oakbrook Village Shopping Center, Villa Valencia Health Center (a senior care facility), and the Laguna Hills Transportation Center (a public transit hub that serves 10 OCTA bus routes, paratransit service as part of OCTA's Senior Mobility Program, the Laguna Woods Village shuttle service, and provides 180 parking spaces in a park-and-ride lot), lie to the southeast of the Project site across Calle de los Caballeros. Saddleback Memorial Medical Center and several medical/general office buildings exist immediately to the southwest of the Project site across Calle de la Louisa. The Laguna Hills Civic Center, Laguna Hills Lodge, and various commercial uses lie to the northwest of the Project site across El Toro Road. Residential uses exist across Paseo de Valencia, Los Alisos Boulevard, and the I-5 Freeway.

2.2 Study Scope

The work scope for this traffic impact study, including the base assumptions, technical methodologies, and geographic coverage, were developed in conjunction with City staff, and are in accordance with the Orange County Congestion Management Program (CMP), the City's traffic study guidelines (dated August 31, 2010), and the California Environmental Quality Act (Cal. Pub. Resources Code, §§ 21000 et seq.). All intersections identified by the Cities of Lake Forest and Mission Viejo located within their respective jurisdictions (considered to be within the Project's influence area) were included in this study, in addition to CMP intersections, I-5 Freeway and SR-73/San Joaquin Hills Transportation Corridor ramp intersections, and I-5 Freeway mainline segments.



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N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1A

STUDY AREA

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

As illustrated on *Figure 1A* and ***Figure 1B***, a total of 61 key intersections were selected for detailed peak hour traffic impact/level of service analysis during the weekday AM and PM, and Saturday midday, peak hours under each of the four traffic scenarios described below. This is a conservative approach because only 12 out of the 61 intersections analyzed met the City's 50 peak-hour trip threshold for detailed traffic evaluation (shown in yellow on *Figure 1B*) as described in the traffic study guidelines. The 61 study intersections are located in Laguna Hills, Laguna Woods, Lake Forest, Mission Viejo, Aliso Viejo, and Laguna Beach. Five of the 61 intersections analyzed are CMP monitoring stations (encircled in blue on *Figure 1B*), and nine are freeway ramp intersections under Caltrans' jurisdiction (encircled in orange on *Figure 1B*).

Traffic impact analyses are typically focused on evaluating traffic operations during the morning and evening commute peak hours (7:00 to 9:00 AM, and 4:00 to 6:00 PM) on a typical weekday because these are generally when the busiest traffic conditions occur. As a conservative measure in assessing potential traffic impacts of the Project, Saturday midday conditions were also analyzed (with the peak expected to occur between 12:00 PM and 2:00 PM).

Figure 2 presents the proposed site plan, and shows all project driveways (and their intersection with adjoining public streets have all been included in the list of 61 study intersections, with the exception of two future, limited/delivery access driveways along Avenida de la Carlota that were presumed not to serve a measurable number of Project trips in this study), internal circulation system, parking lots and structures, and project components (commercial and residential). *Figure 2* also depicts the proximity of the Project site to the I-5 Freeway via the I-5 Freeway/El Toro Road interchange (all I-5 Freeway on- and off-ramp intersections at the Lake Forest Drive, El Toro Road, and Alicia Parkway interchanges were analyzed).

The following four traffic scenarios are addressed in the study:

- **Existing (2015)** - The analysis of existing traffic conditions is intended to provide a base of analysis for the remainder of the study. The existing conditions analysis includes an assessment of the streets in the area, current traffic volumes, and operating conditions.

- **Existing (2015) Plus Project** - This phase of analysis adds project-generated forecasts to existing conditions. Any potential traffic impacts will be determined, and additional improvement measures to address the deficiencies will be identified.

- **Year 2018 Cumulative Base** - This phase of analysis projects future traffic growth and operating conditions in the Year 2018 (anticipated completion year for the Project) which could be expected to result from regional growth and related projects <u>without</u> the addition of project traffic.

- **Year 2018 Cumulative plus Project** - This is an analysis of future traffic conditions in the Year 2018 (anticipated completion year for the Project) <u>with</u> the addition of project-generated traffic. Any potential traffic impacts will be determined, and mitigation measures developed.

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KEY

(#) = INTERSECTION MEETS 50 PEAK-HOUR TRIP THRESHOLD

(#) = INTERSECTION DOES NOT MEET 50 PEAK-HOUR TRIP THRESHOLD, BUT ANALYZED ANYWAY

= PROJECT SITE

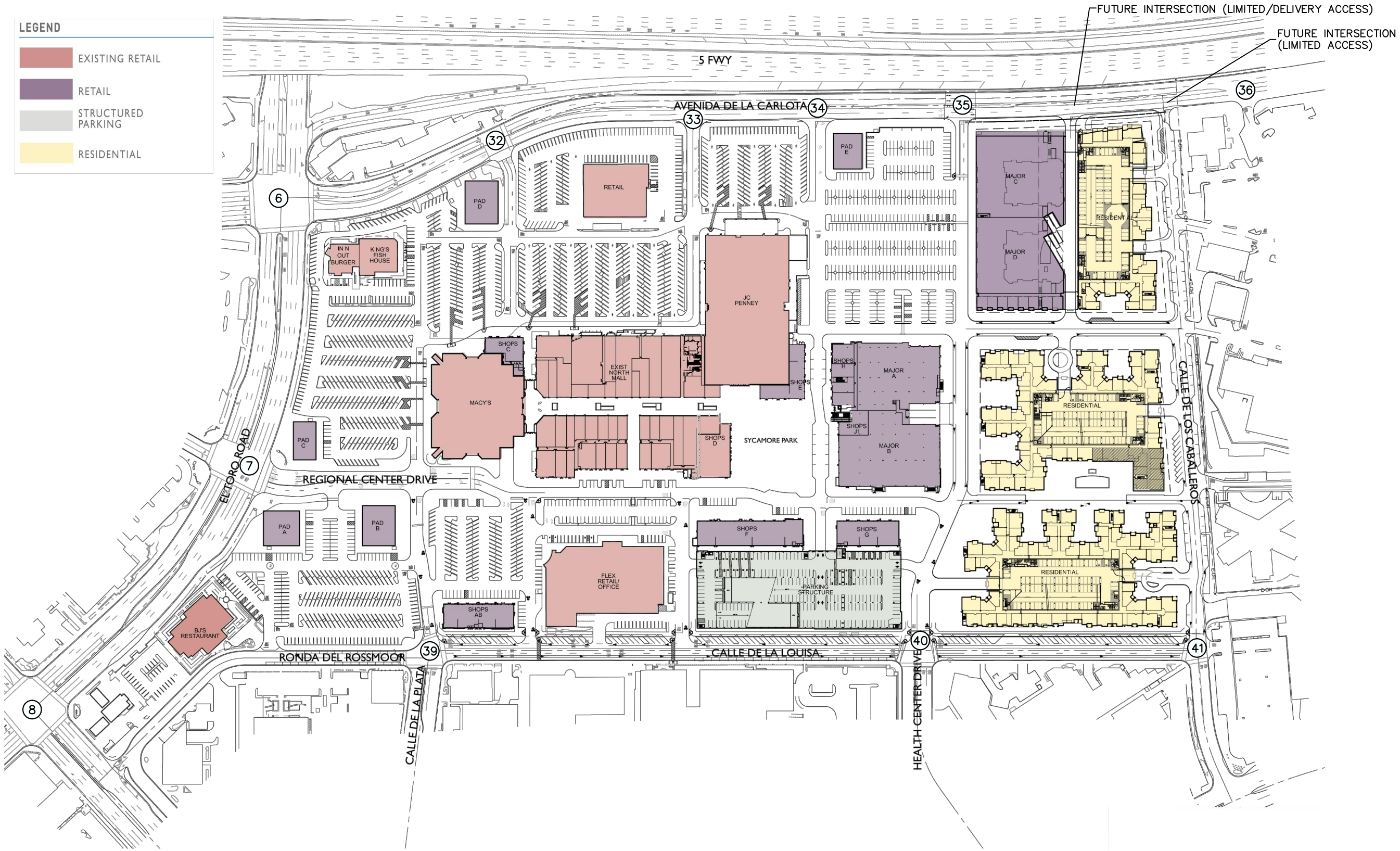
(#) = CMP INTERSECTION

(#) = CALTRANS INTERSECTION

FIGURE 1B

INTERSECTIONS MEETING STUDY CRITERIA

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS



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N NO SCALE

SOUIRCE: PERKOWITZ + RUTH ARCHITECTS

KEY

(#) = STUDY INTERSECTION

FIGURE 2

PROPOSED SITE PLAN

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

3.0 EXISTING CONDITIONS

3.1 Existing Street System

A comprehensive inventory of the street system within the study area was undertaken to develop a detailed description of existing traffic conditions.

Figures 3A through ***3C*** illustrate the existing physical characteristics of the key intersections and streets, including intersection geometry and traffic control, number of travel lanes, median type, parking designations, and posted speed limits.

3.2 Existing Volumes

Traffic counts were conducted at the 61 key intersections during the weekday AM and PM peak period (7:00 to 9:00 AM, 4:00 to 6:00 PM) in May 2015 (while school was still in session), and Saturday midday peak period (12:00 to 2:00 PM) in June 2015.

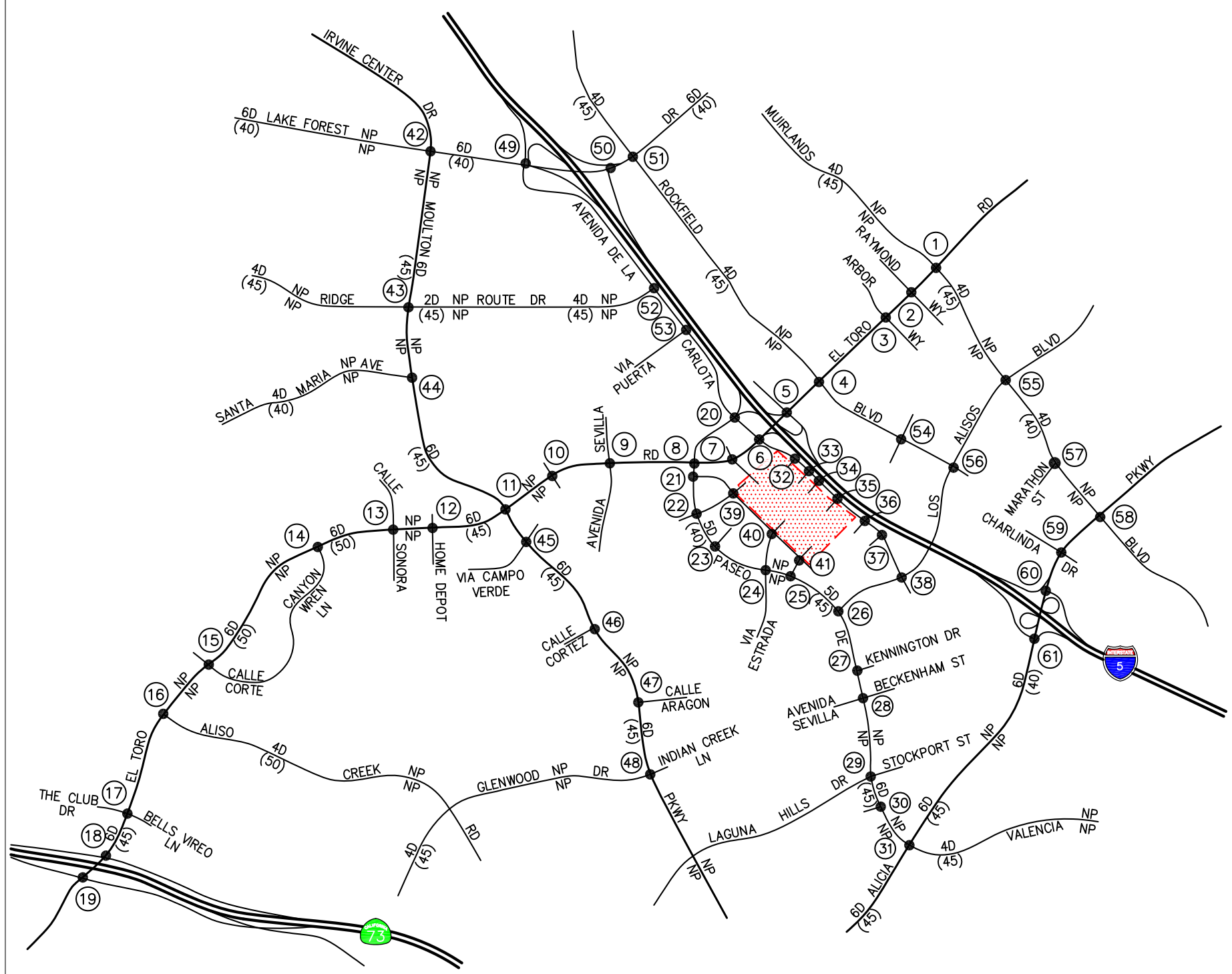
As discussed previously, approximately 309,000 SF GLA of mall space was not occupied on the dates that traffic counts were conducted. To address this, and to account for trips corresponding with the mall's entitled and historically occupied square footage, trip generation for the 309,000 SF GLA was estimated based on the application of ITE rates/equations, and resulting trips were then assigned to the street system and added to the raw traffic counts collected at the 61 key intersections.

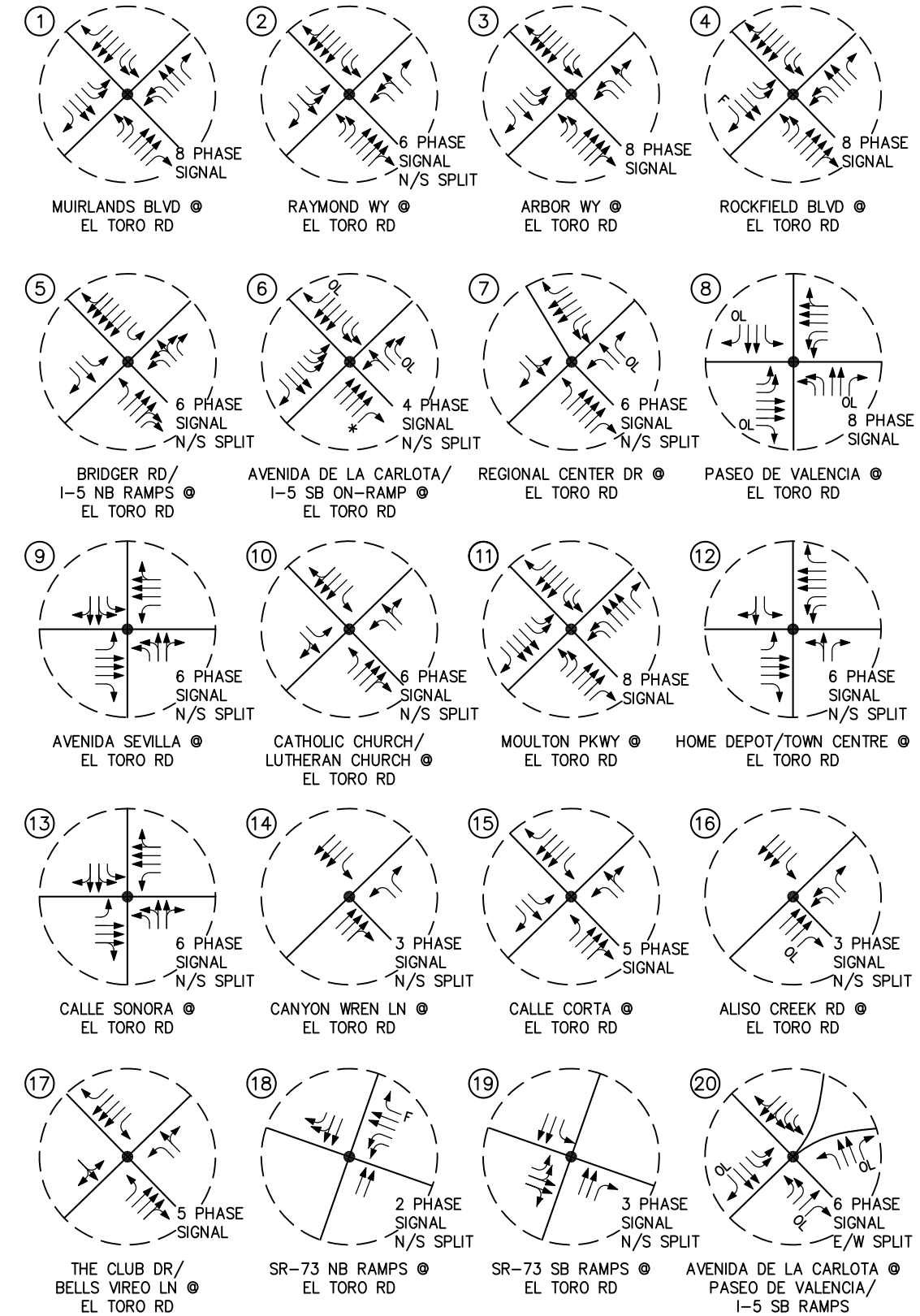
Figures 4A through ***6C*** illustrate the existing weekday AM, weekday PM, and Saturday midday peak hour traffic volumes at the 61 key intersections, respectively.

3.3 Existing Public Transit

Public transit bus service is provided in the Project area by OCTA. Ten OCTA bus routes serve the Project site via El Toro Road, Calle de la Louisa, and Avenida de la Carlota, and the nearby Laguna Hills Transportation Center (with 180 park-and-ride spaces). The bus routes are described below:

1. OCTA Route 83: provides service from Anaheim to Laguna Hills; via the 5 Freeway to Main Street.
2. OCTA Route 87: provides service from Rancho Santa Margarita to Laguna Niguel; via Alicia Parkway.
3. OCTA Route 89: provides service from Mission Viejo to Laguna Beach; via El Toro Road to Laguna Canyon Road.
4. OCTA Route 91: provides service from Laguna Hills to San Clemente; via Paseo de Valencia to Camino Capistrano to Del Obispo.
5. OCTA Route 177: provides service from Foothill Ranch to Laguna Hills; via Lake Forest Drive to Muirlands Boulevard to Los Alisos Boulevard.
6. OCTA Route 187: provides service from Laguna Hills to Dana point; via El Toro Road to Aliso Creek Road to Niguel Road.
7. OCTA Route 188: provides service from Laguna Hills to Irvine; via Moulton Parkway to Irvine Center Drive to Alton parkway to Ridge Route.





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N NO SCALE

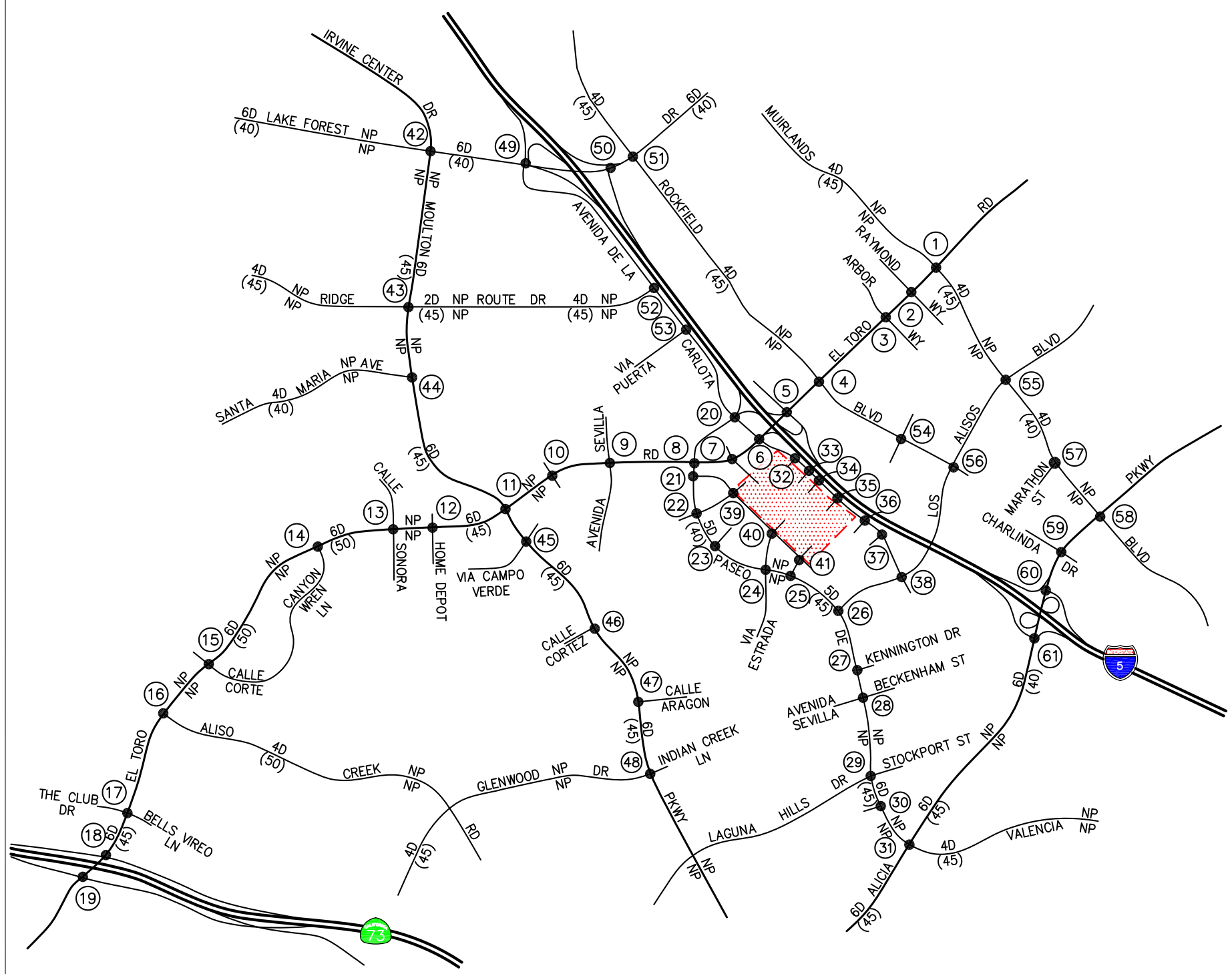
KEY

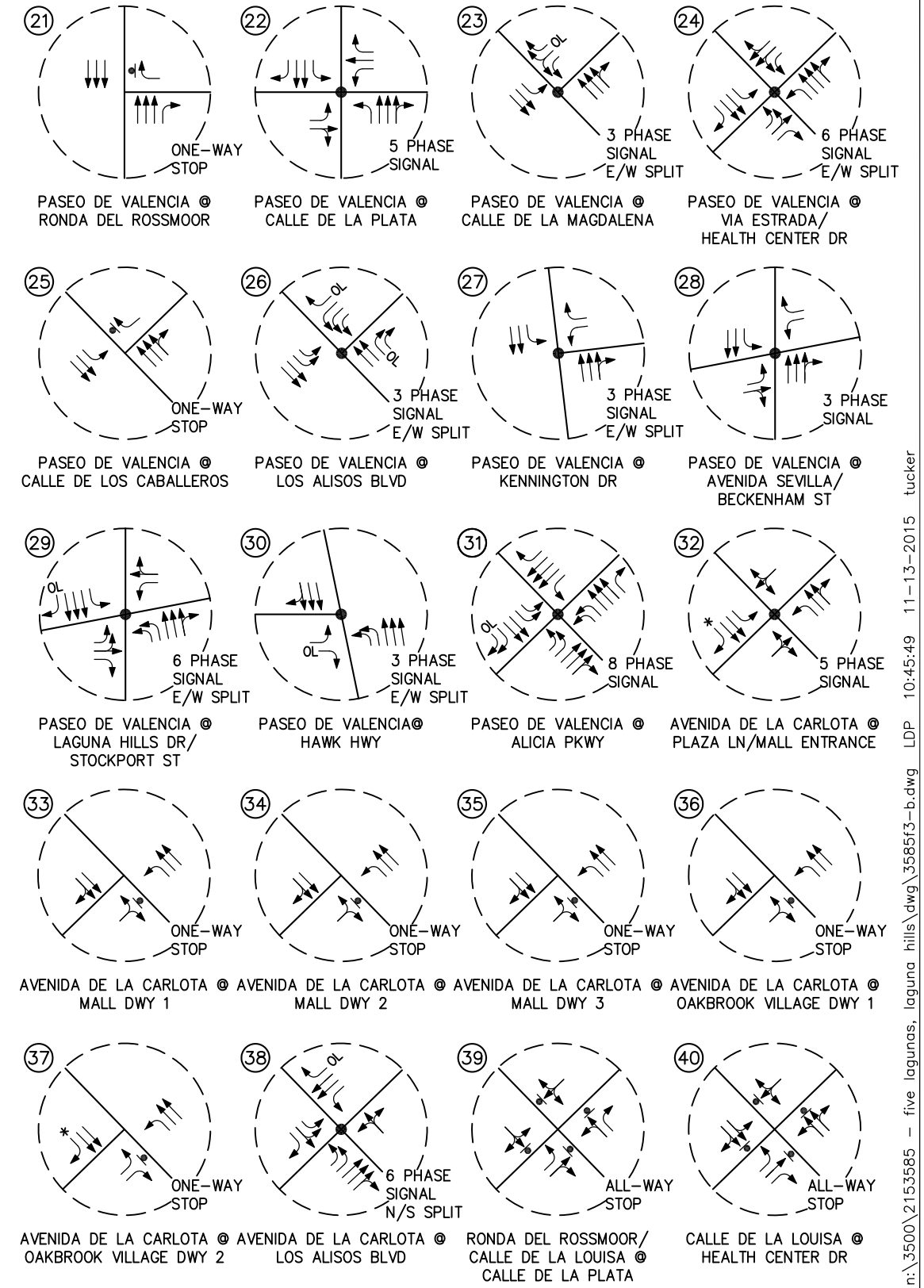
- ← = APPROACH LANE ASSIGNMENT
- ● = TRAFFIC SIGNAL, ☛ = STOP SIGN
- P = PARKING, NP = NO PARKING
- U = UNDIVIDED, D = DIVIDED
- 2 = NUMBER OF TRAVEL LANES
- (XX)= POSTED SPEED LIMIT (MPH)
- F = FREE RIGHT, OL = OVERLAP
- * = FUNCTIONS AS A SEPARATE RIGHT-TURN LANE, HOWEVER IS NOT STRIPED AS SUCH (I.E. MINIMUM LANE WIDTH OF 22' AND AT LEAST 100' CLEARANCE ALONG CURB)
- = PROJECT SITE

FIGURE 3A

EXISTING ROADWAY AND INTERSECTION PHYSCIAL CHARACTERISTICS

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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KEY

← = APPROACH LANE ASSIGNMENT
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P = PARKING, NP = NO PARKING
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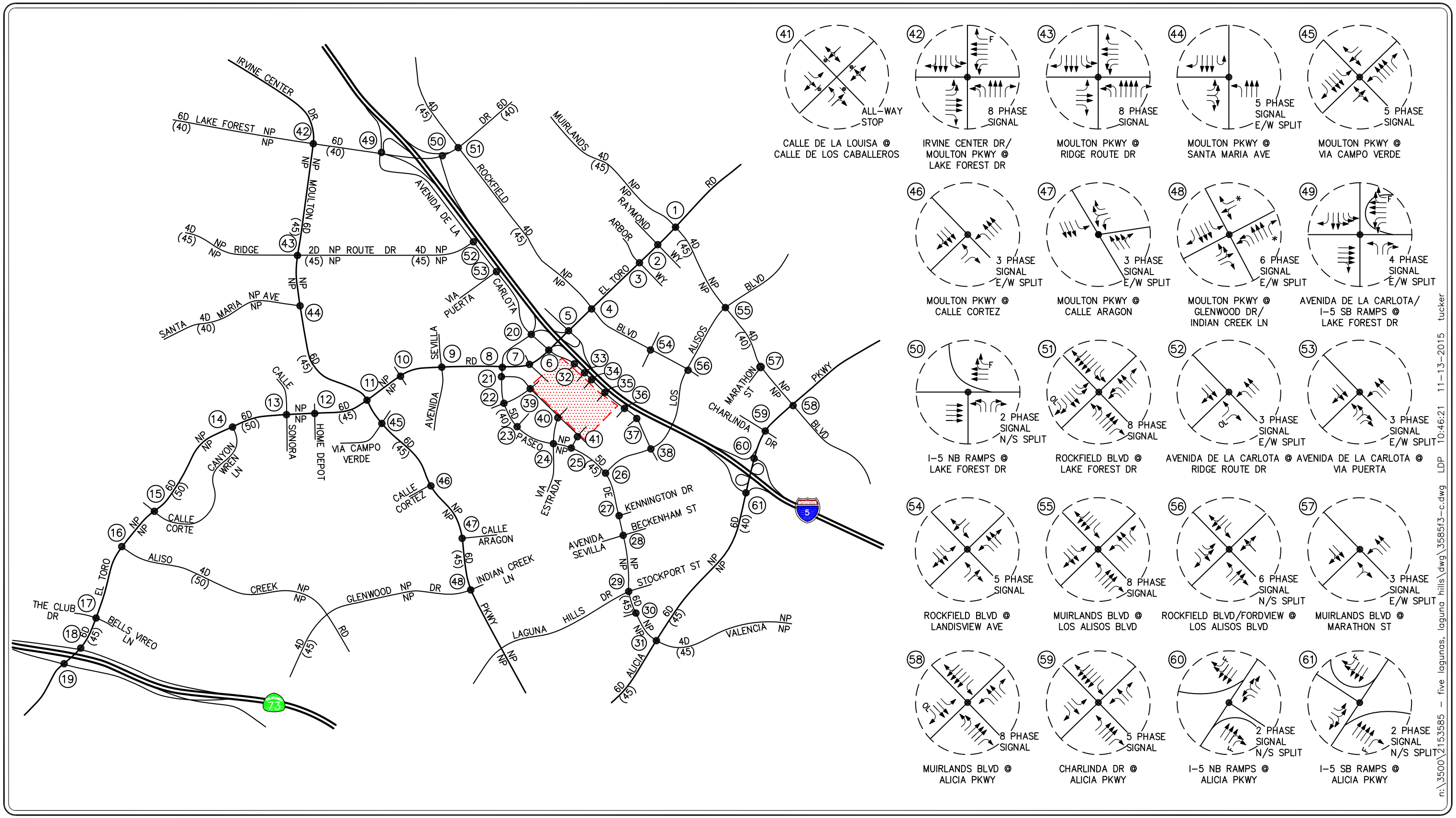
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
F = FREE RIGHT, OL = OVERLAP
* = FUNCTIONS AS A SEPARATE RIGHT-TURN LANE, HOWEVER IS NOT STRIPED AS SUCH (I.E. MINIMUM LANE WIDTH OF 22' AND AT LEAST 100' CLEARANCE ALONG CURB)
= PROJECT SITE

FIGURE 3B

EXISTING ROADWAY AND INTERSECTION PHYSCIAL CHARACTERISTICS

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS



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N NO SCALE

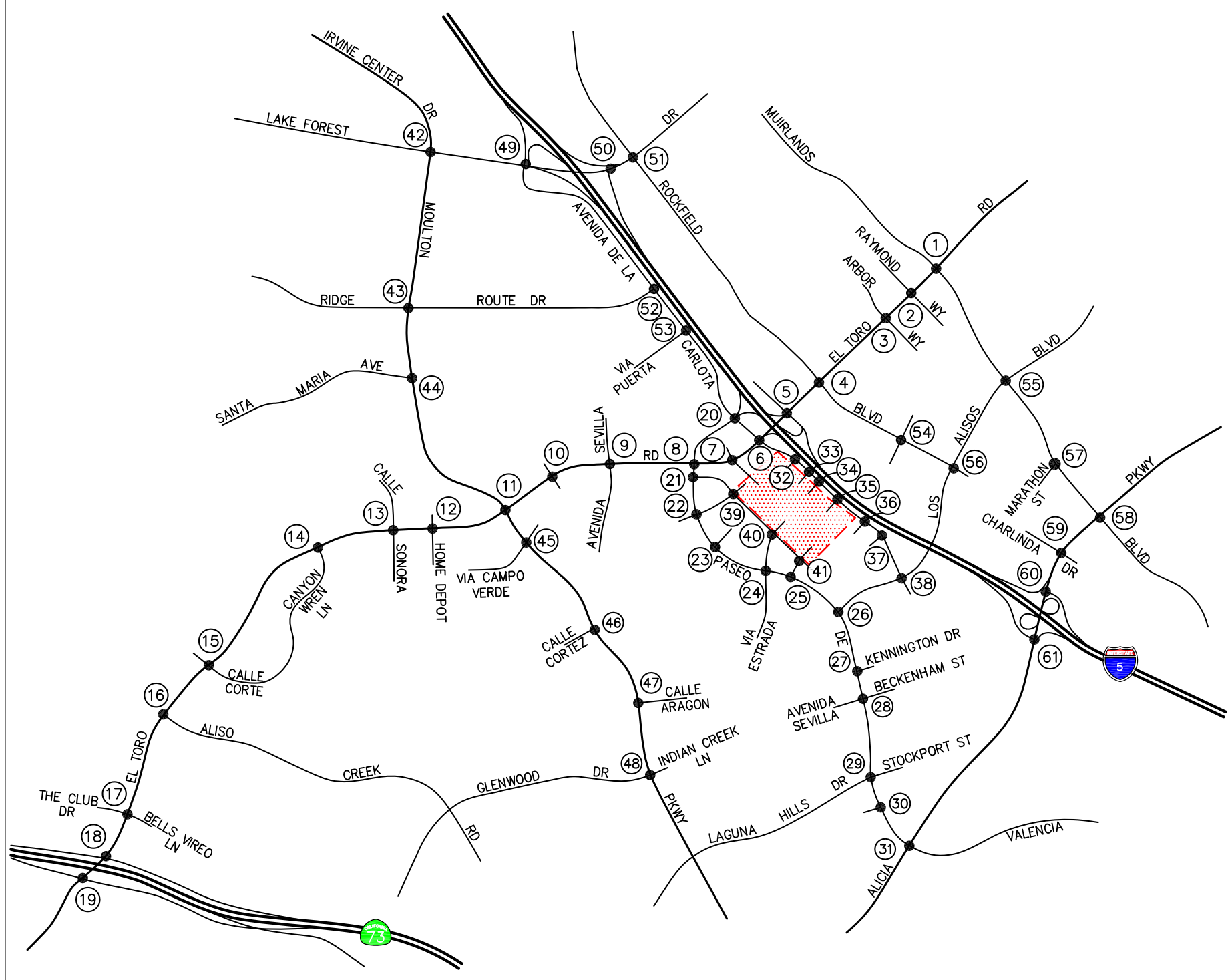
KEY

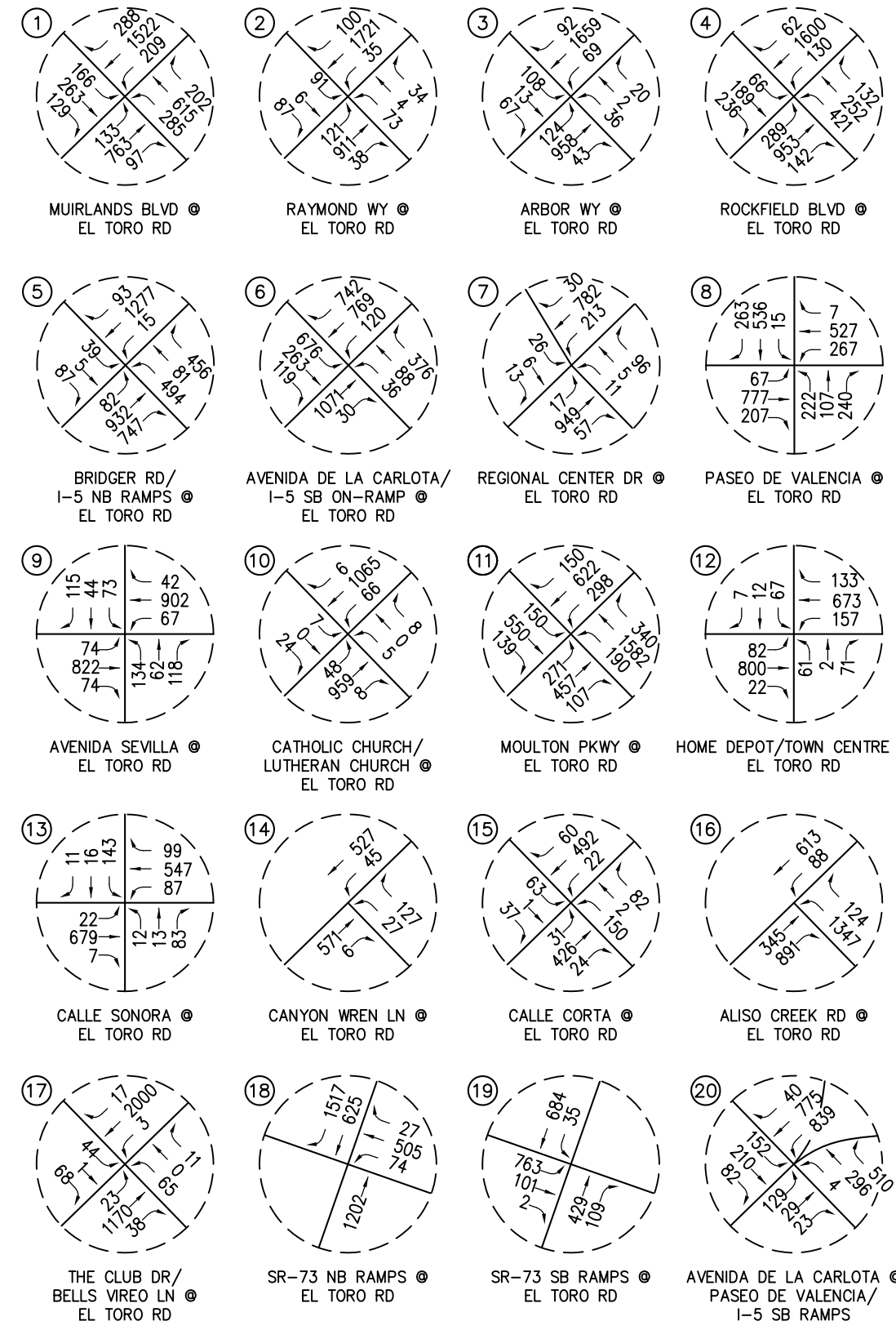
← = APPROACH LANE ASSIGNMENT
● = TRAFFIC SIGNAL, ☛ = STOP SIGN
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
F = FREE RIGHT, OL = OVERLAP
* = FUNCTIONS AS A SEPARATE RIGHT-TURN LANE, HOWEVER IS NOT STRIPED AS SUCH (I.E. MINIMUM LANE WIDTH OF 22' AND AT LEAST 100' CLEARANCE ALONG CURB)
= PROJECT SITE

FIGURE 3C

EXISTING ROADWAY AND INTERSECTION PHYSCIAL CHARACTERISTICS

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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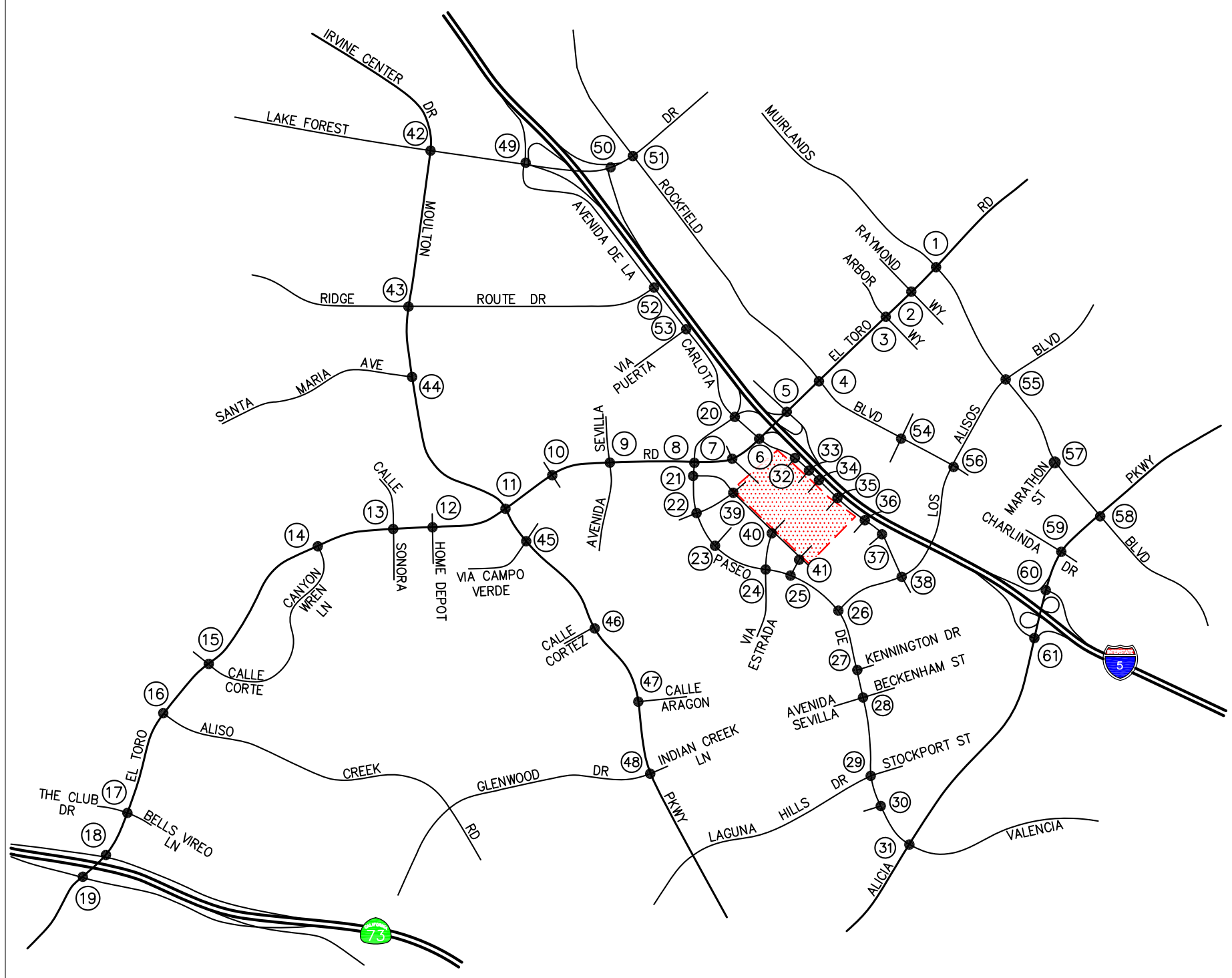
KEY

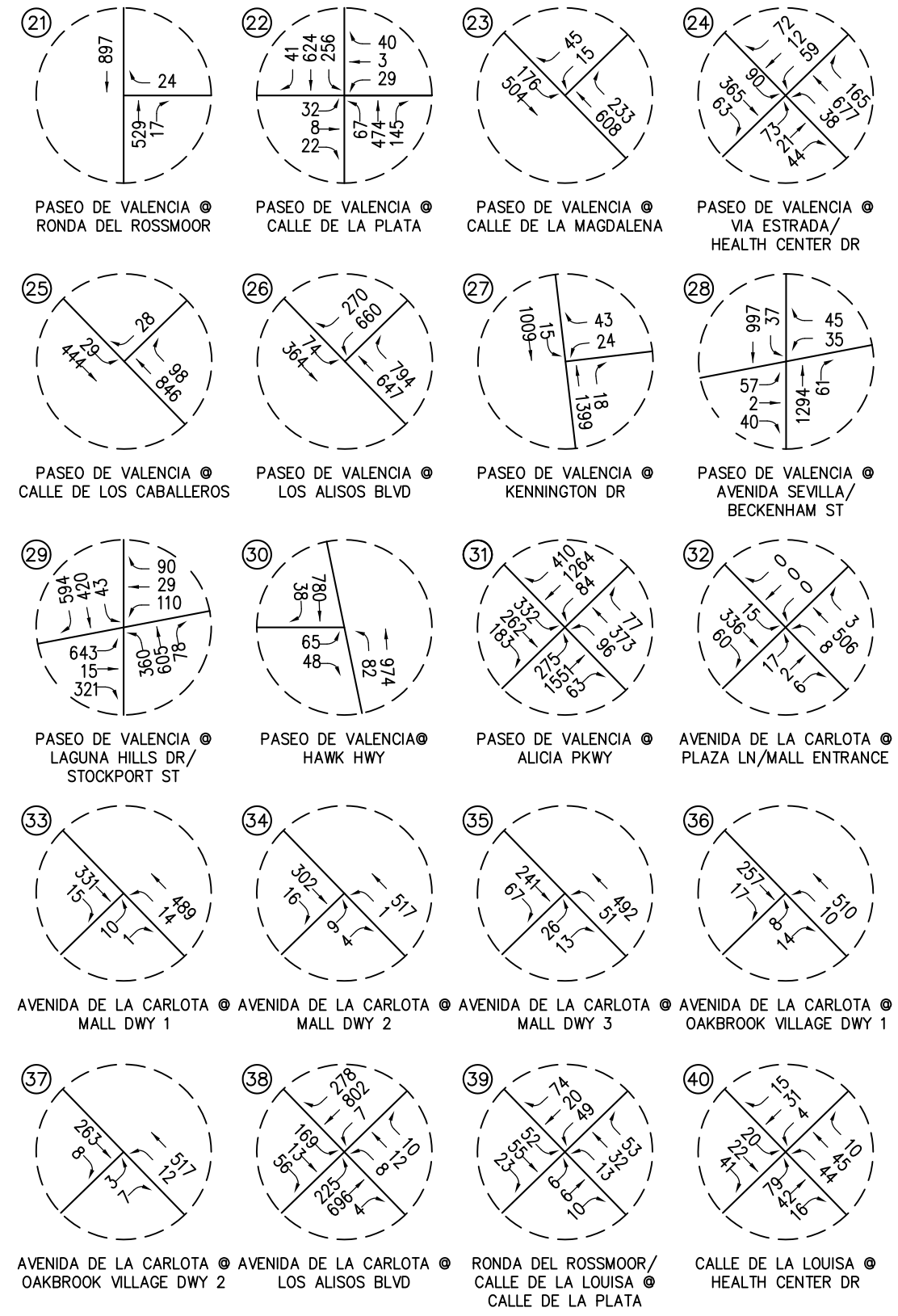
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 4A

EXISTING (2015)
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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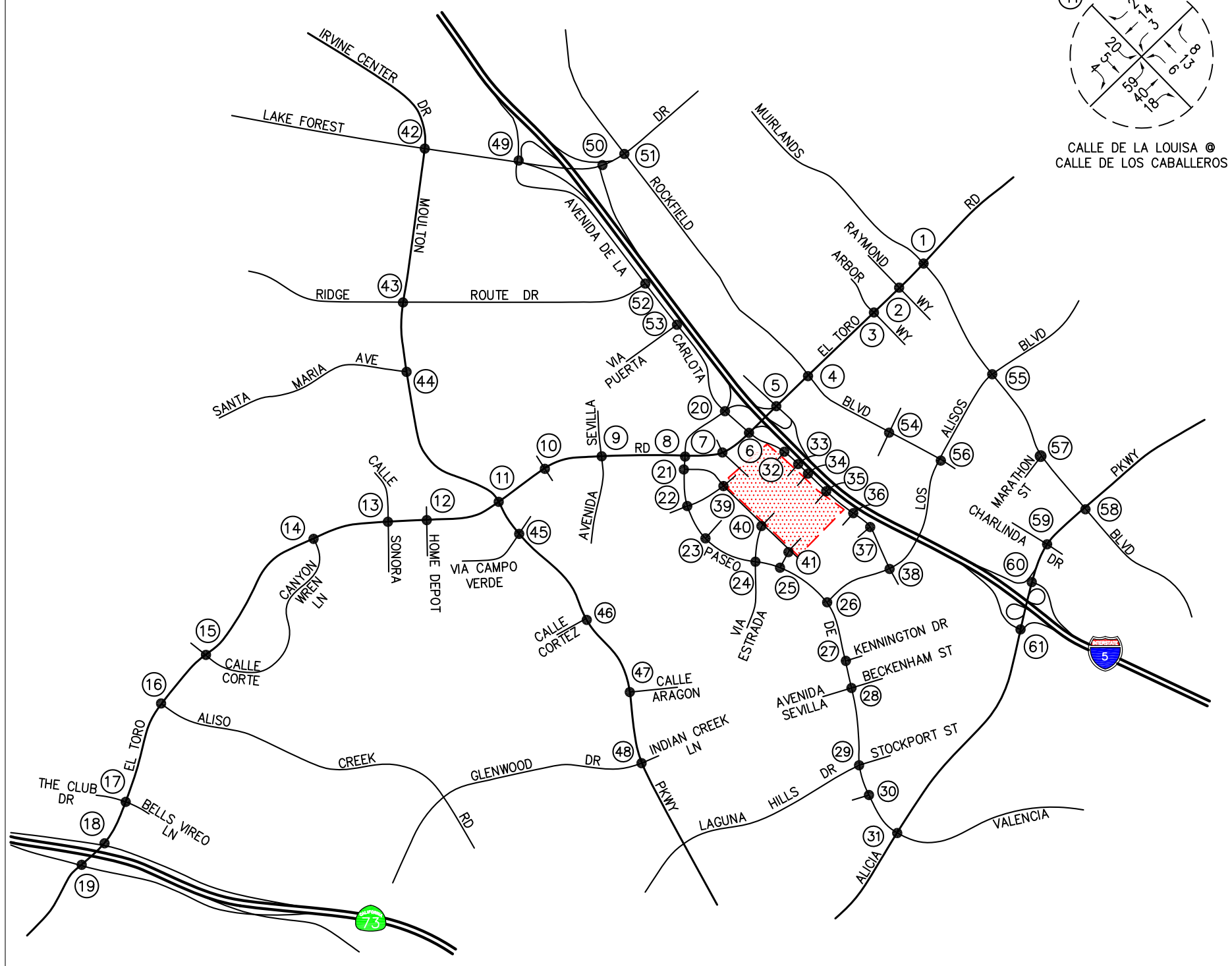
KEY

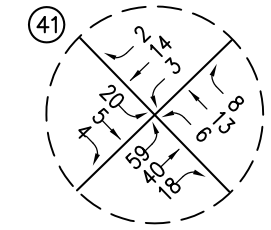
(#) = STUDY INTERSECTION

= PROJECT SITE

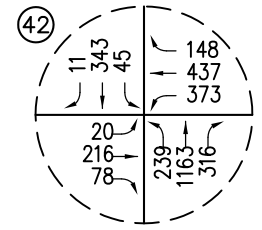
FIGURE 4B

EXISTING (2015)
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

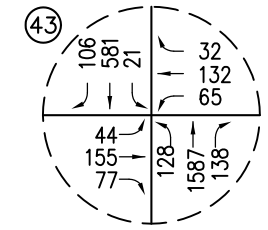




CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



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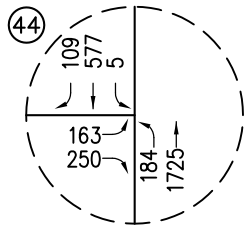

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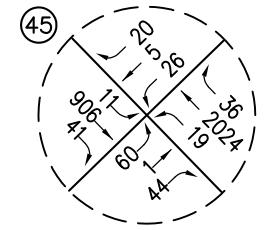

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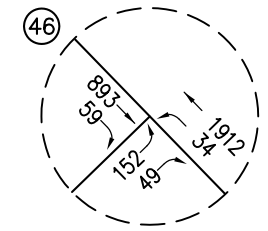

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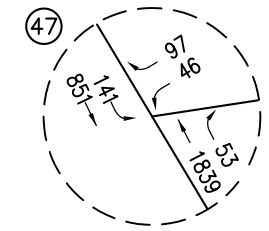

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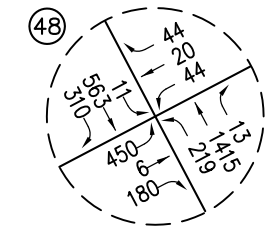
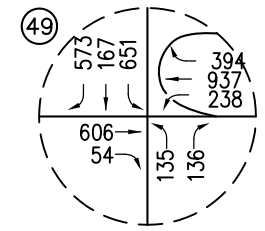
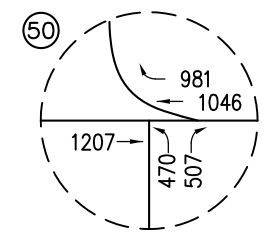


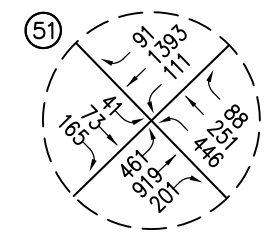
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



I-5 NB RAMPS @
LAKE FOREST DR



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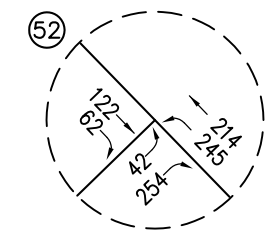
LAKE FOREST DR



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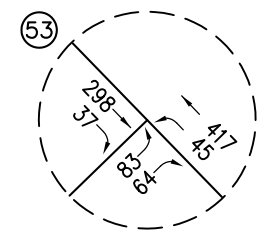
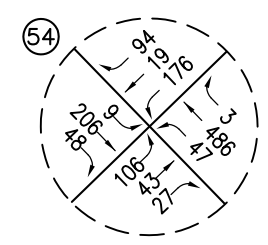
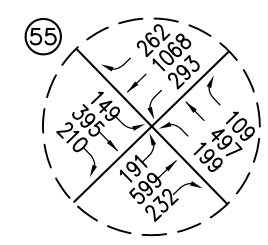
RIDGE ROUTE DR



AVENIDA DE LA CARLOTA @
VIA PUERTA



ROCKFIELD BLVD @
LANDISVIEW AVE



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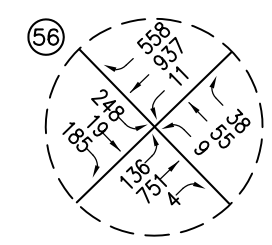
LOS ALISOS BLVD



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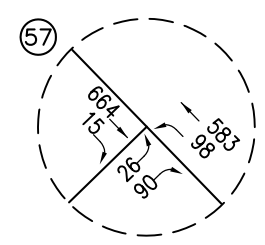
LOS ALISOS BLVD



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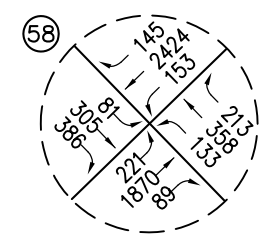
MARATHON ST



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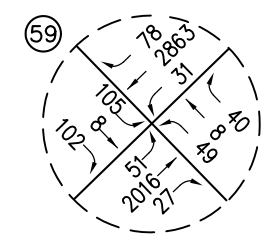
ALICIA PKWY



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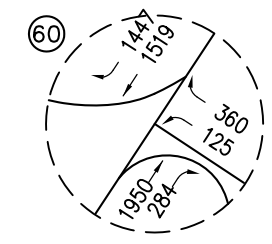
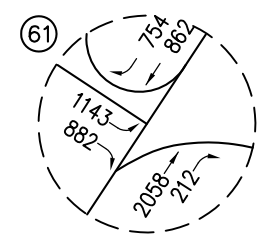


I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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N NO SCALE

KEY

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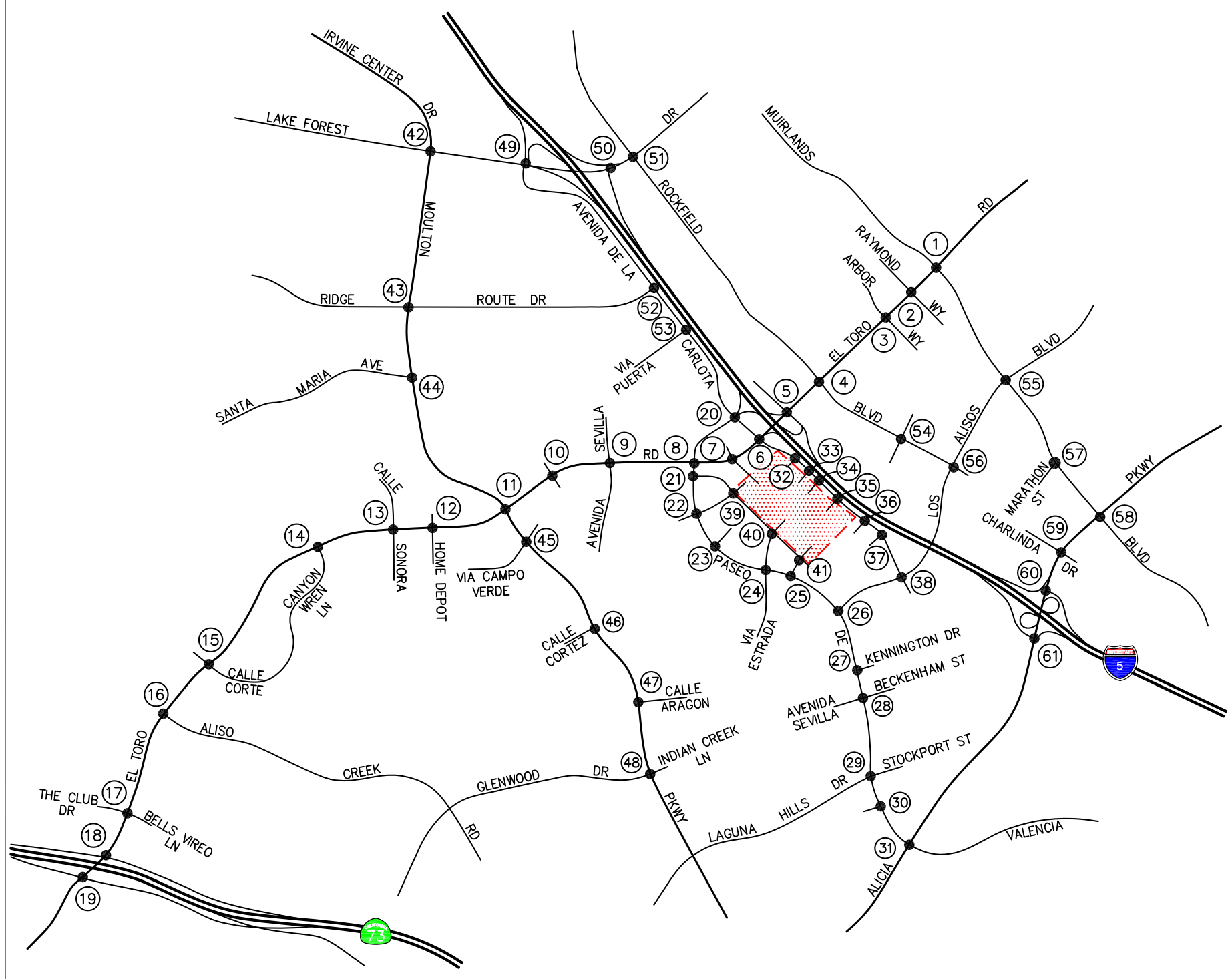
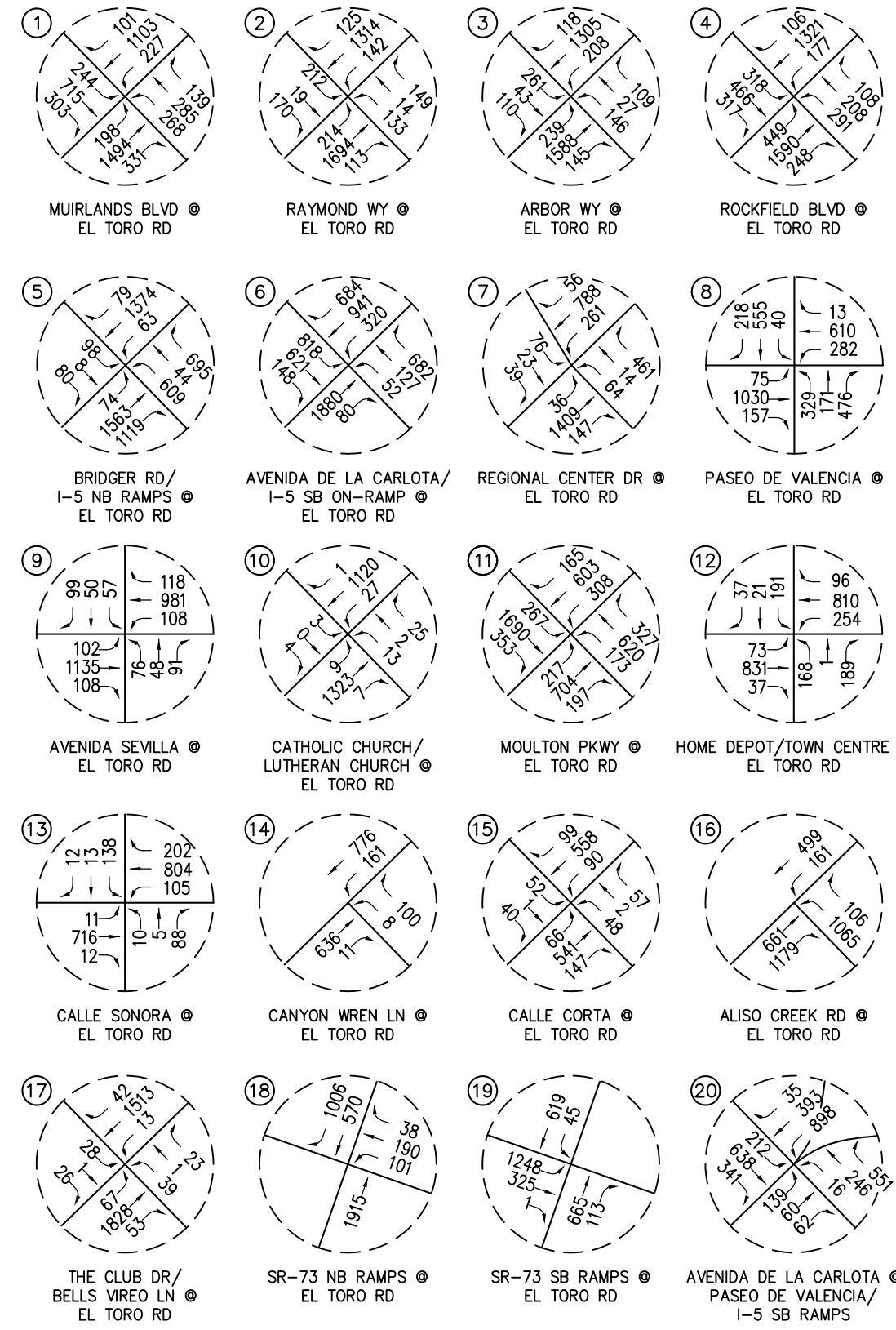
= PROJECT SITE

FIGURE 4C

EXISTING (2015)
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

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KEY

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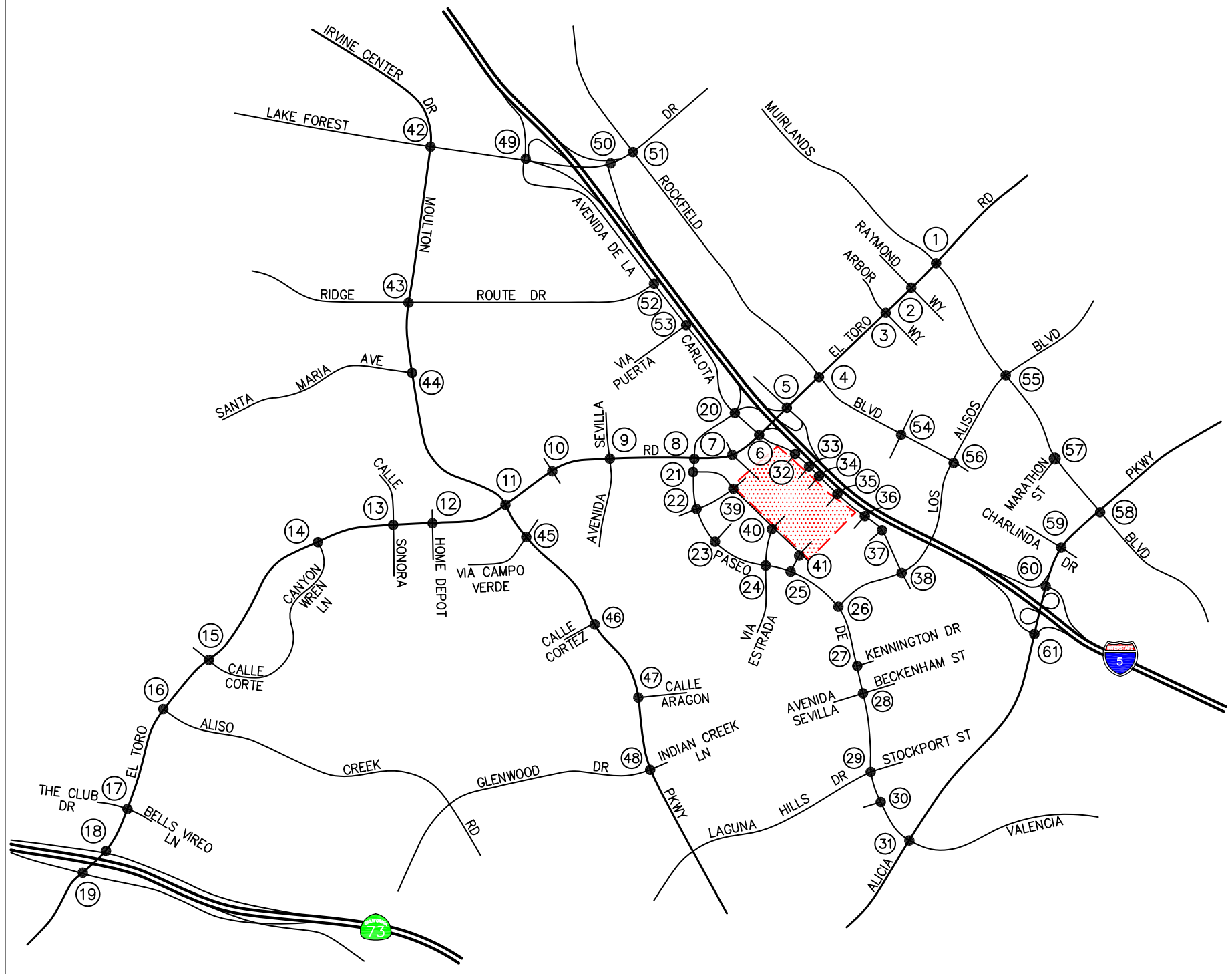
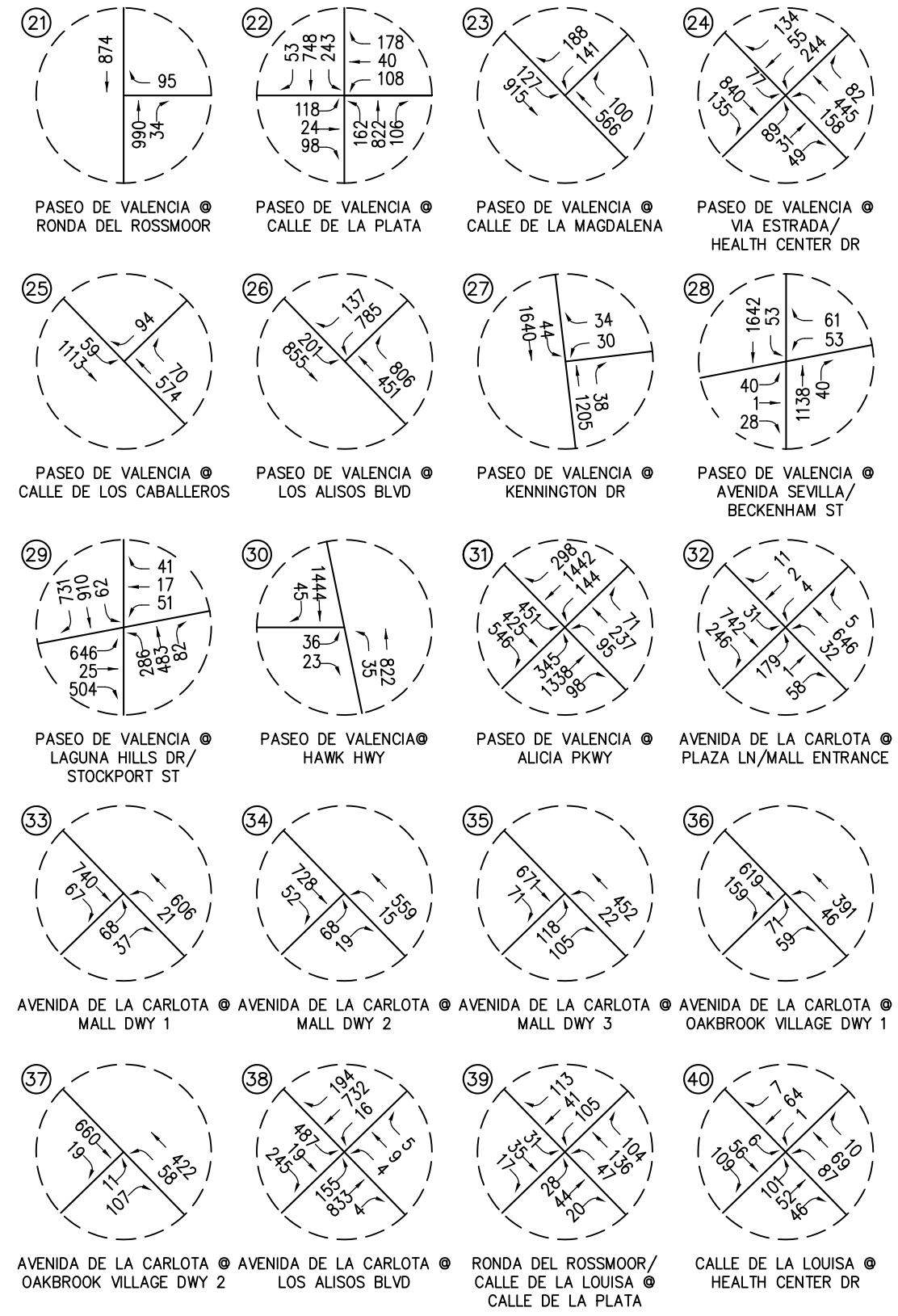
= PROJECT SITE

FIGURE 5A

EXISTING (2015)
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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N NO SCALE

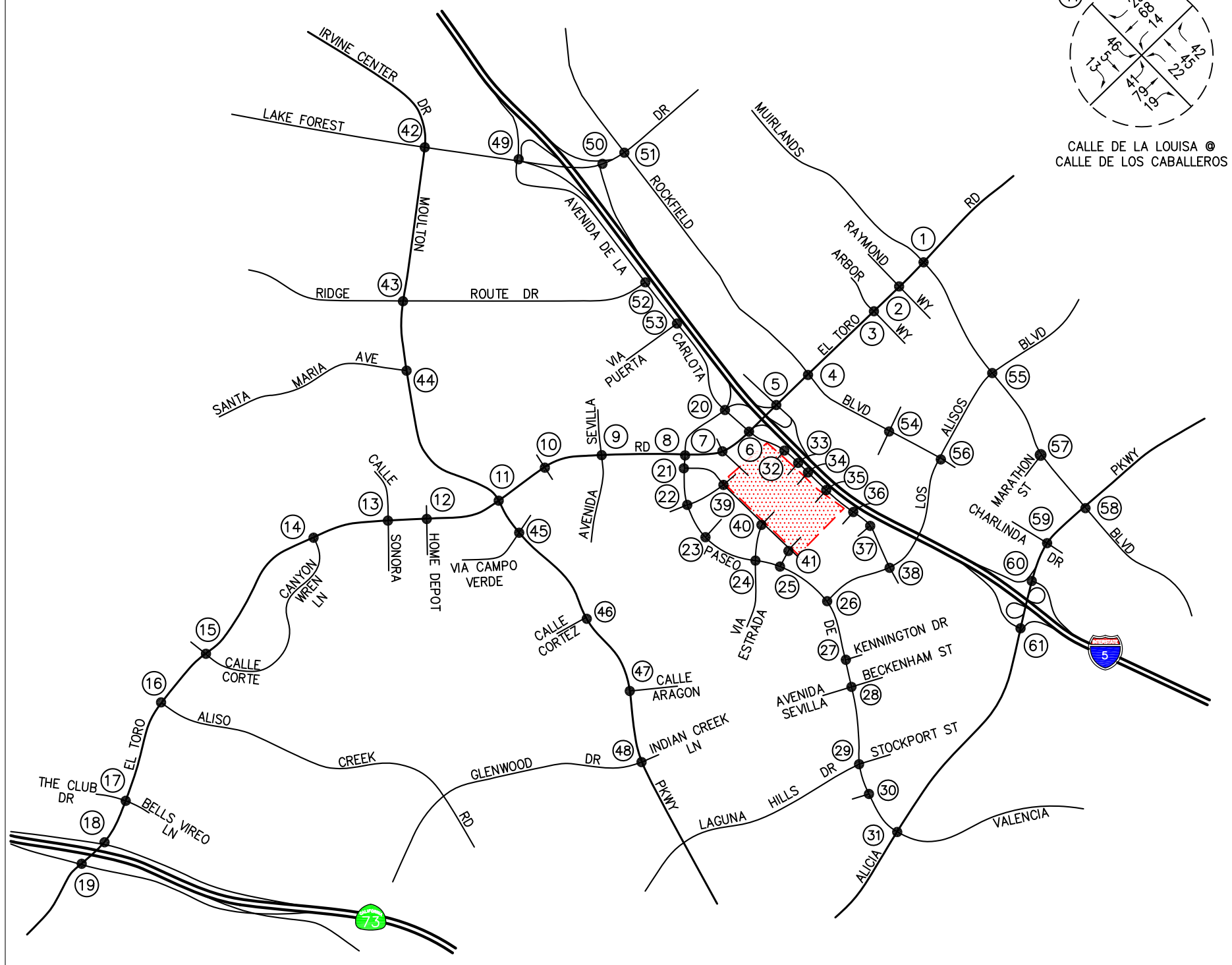
KEY

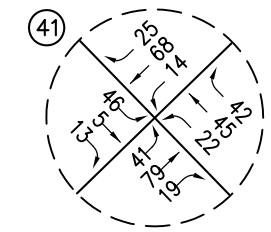
(#) = STUDY INTERSECTION

= PROJECT SITE

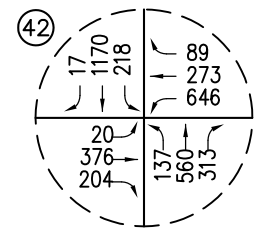
FIGURE 5B

EXISTING (2015)
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

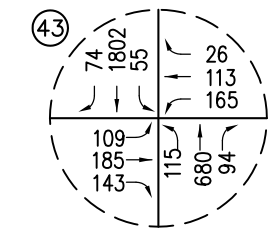




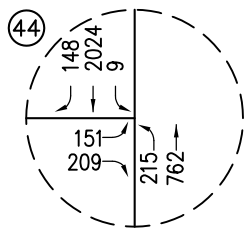
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



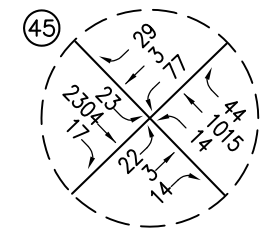
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



MOULTON PKWY @
RIDGE ROUTE DR



MOULTON PKWY @
SANTA MARIA AVE



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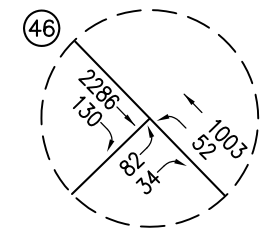
VIA CAMPO VERDE



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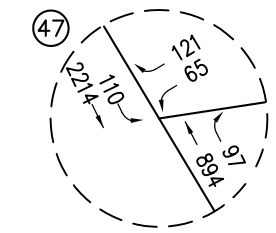
CALLE CORTEZ



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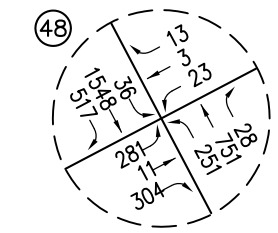
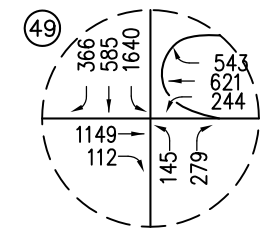
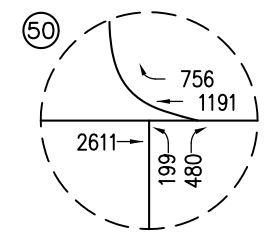


MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



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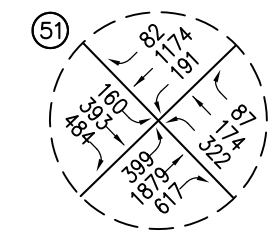
LAKE FOREST DR



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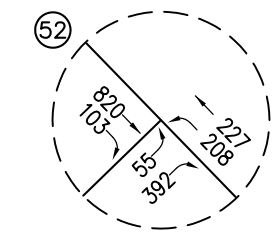
LAKE FOREST DR



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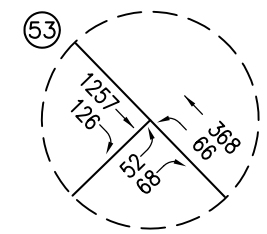
RIDGE ROUTE DR



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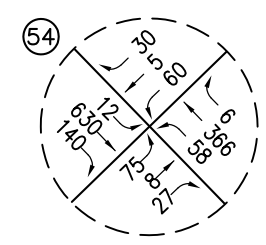
VIA PUERTA



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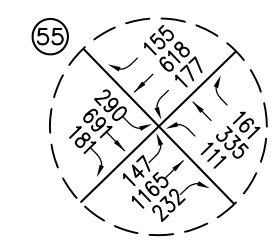
LANDISVIEW AVE



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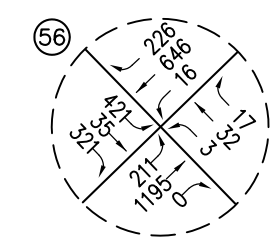
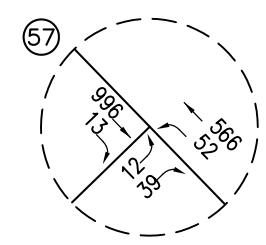
LOS ALISOS BLVD



ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



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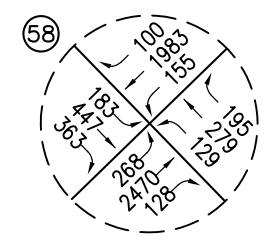
MARATHON ST



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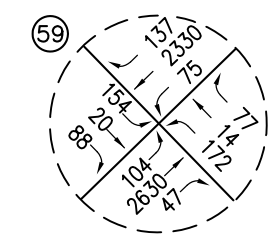
ALICIA PKWY



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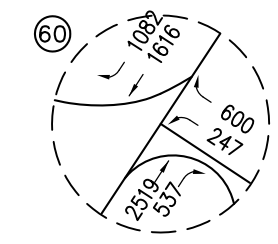
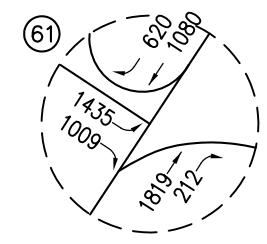


I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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FIGURE 5C

EXISTING (2015)
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

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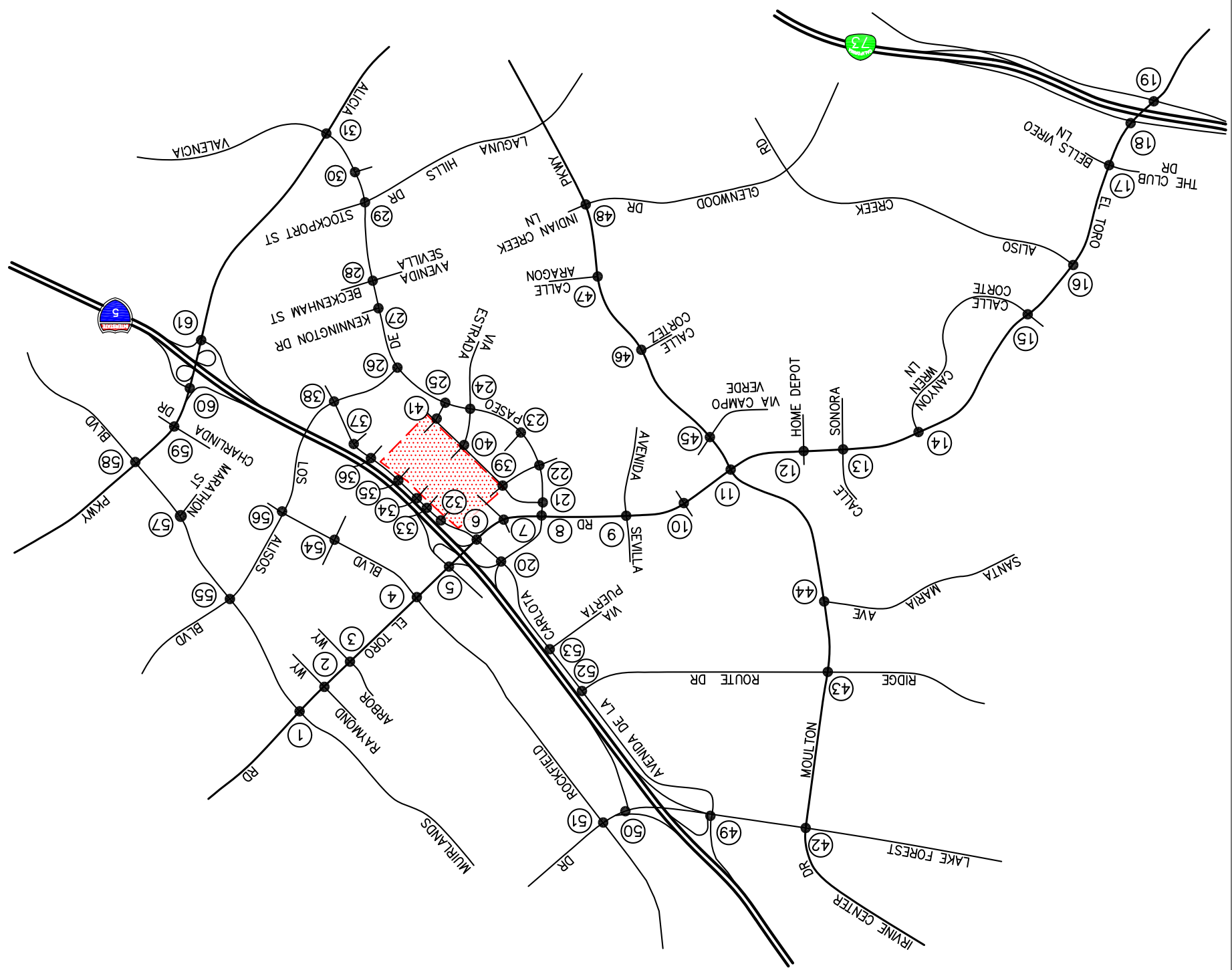
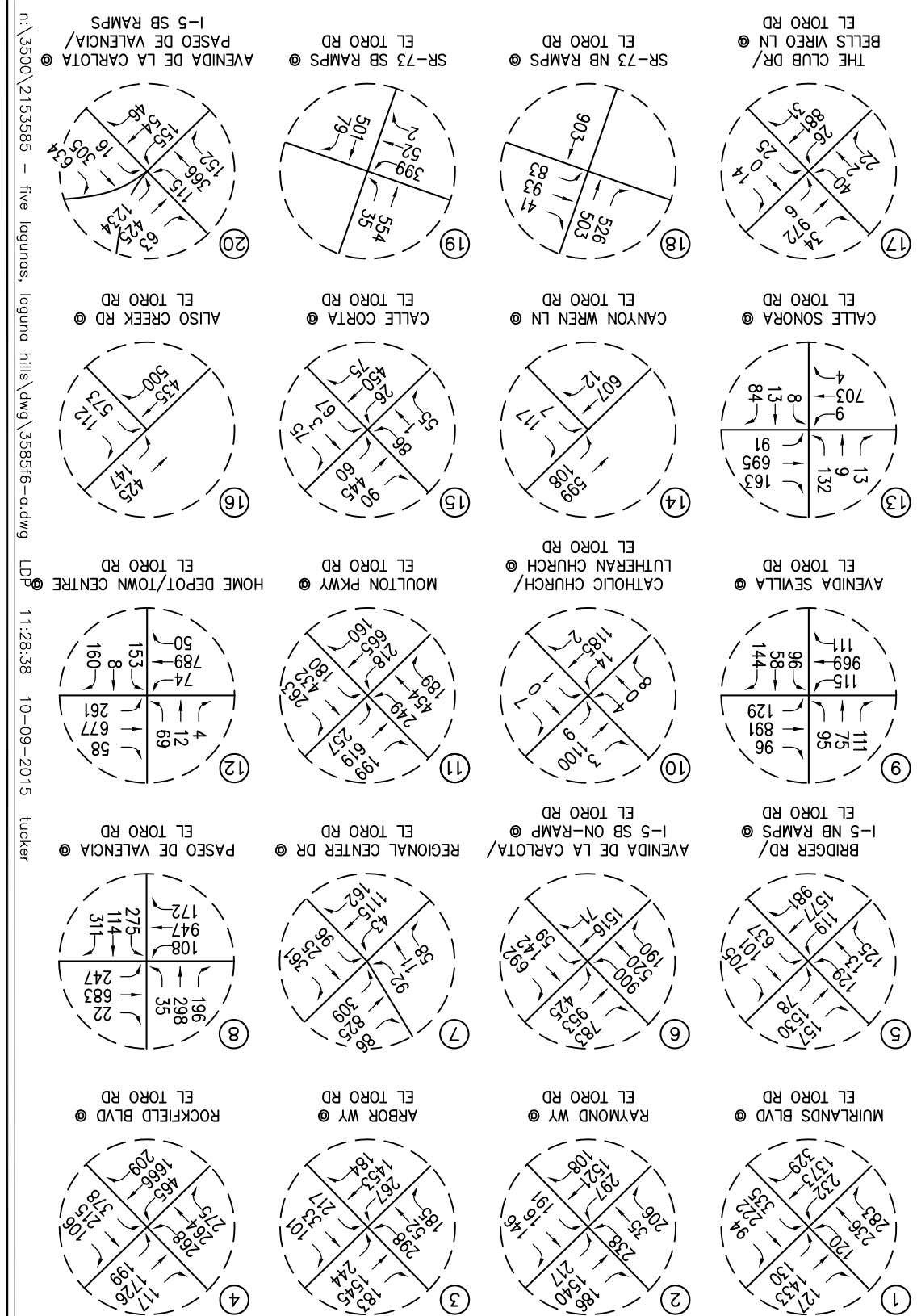
FIGURE 6A

EXISTING (2015)
MIDDAY PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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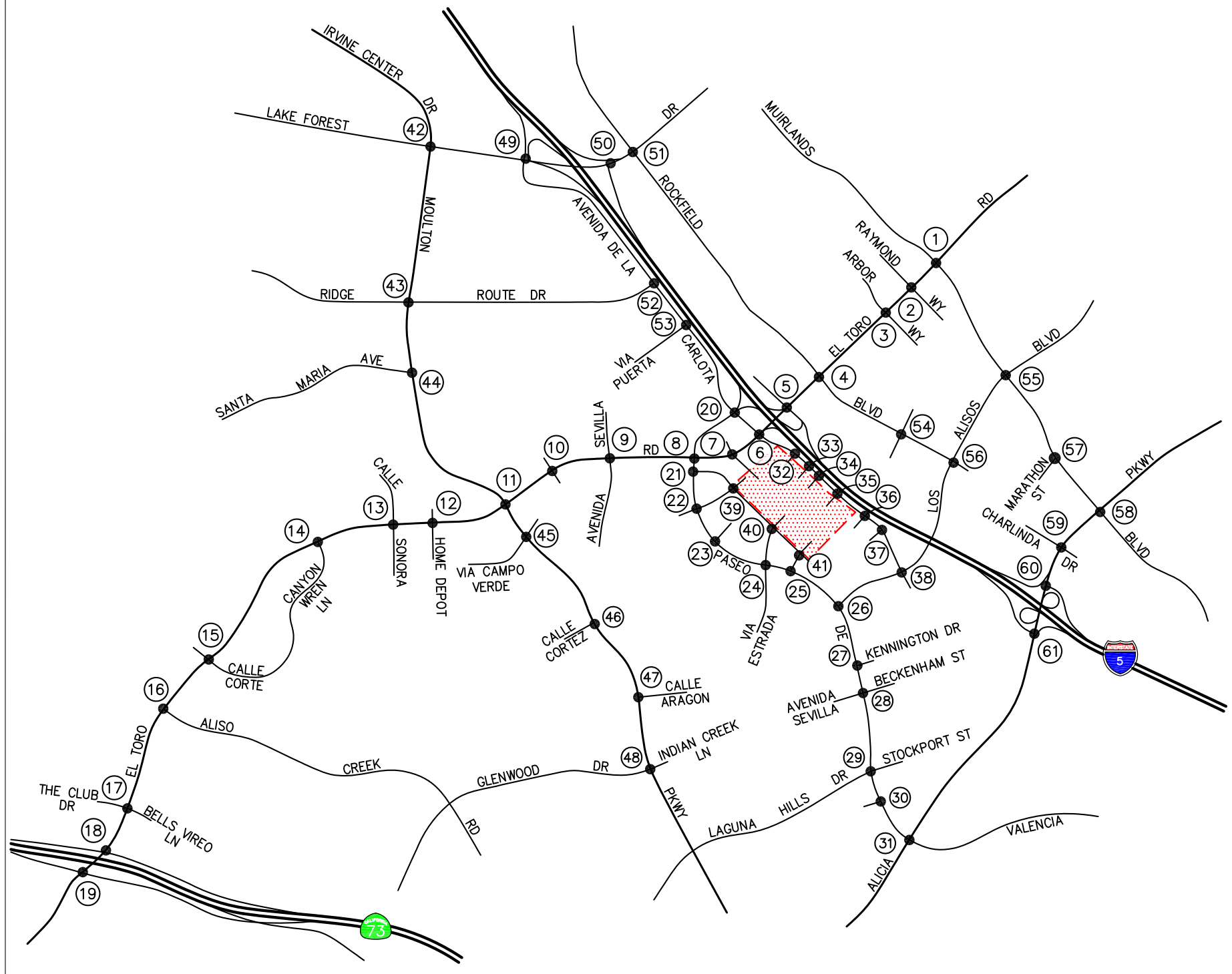

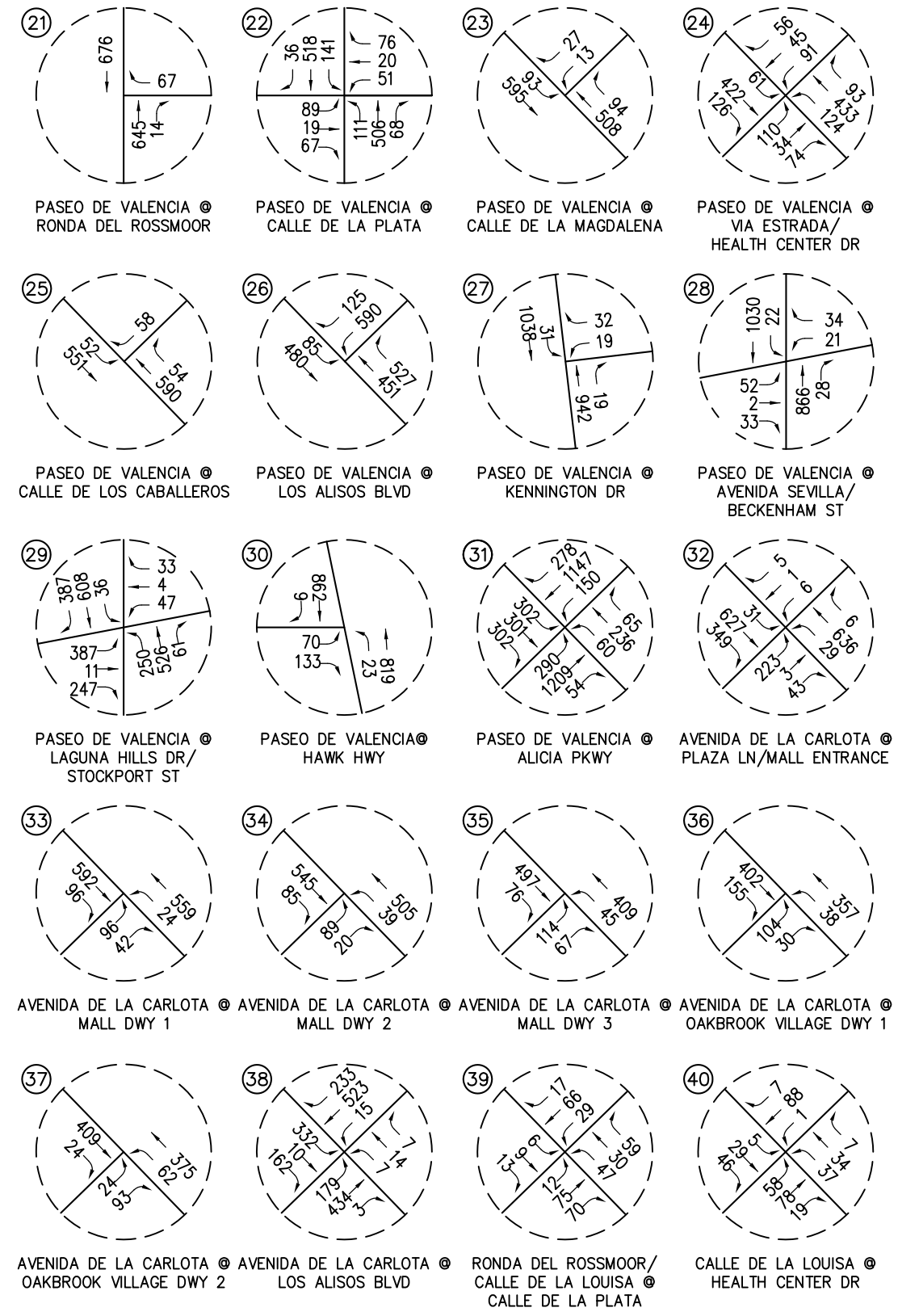

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N NO SCALE

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(#) = STUDY INTERSECTION

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FIGURE 6B

EXISTING (2015)
MIDDAY PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

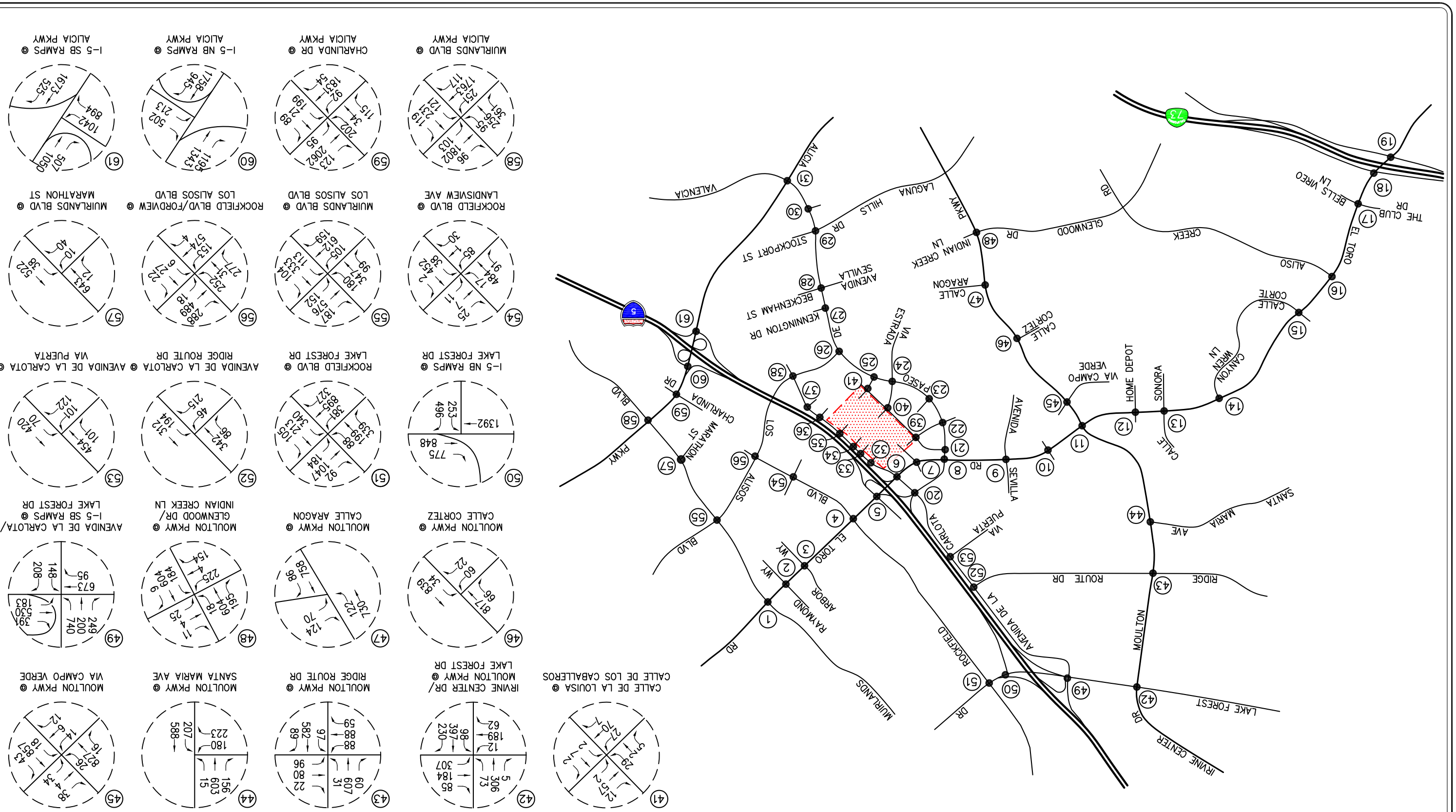
KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6C

EXISTING (2015)
MIDDAY PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS



8. OCTA Route 212: provides service from Irvine to San Juan Capistrano; via the 405 Freeway.
9. OCTA Route 216: provides service from San Juan Capistrano to Costa Mesa; via the 405 Freeway.
10. OCTA Route 683: provides seasonal service from July to August from the Laguna Hills Transportation Center to the Orange County Fairgrounds; via the 55 Freeway.

The bus stops nearest to the Project site are located along El Toro Road, Avenida de la Carlota, and Calle de la Louisa.

Laguna Woods Village offers a complimentary shuttle service for residents that provides them access to the Project site, Laguna Hills Transportation Center, and nearby medical facilities, commercial uses, restaurants, and houses of worship. This shuttle service is available from 9:00 AM until 5:00 PM seven days a week and an extended, on-demand service is available from 8:00 AM until 9:00 AM, and from 5:00 PM until 6:00 PM for residents who specifically reserve a time.

OCTA also provides a Senior Mobility Program for residents over the age of 60 which provides a Taxi Voucher Program along with Non-Emergency Medical Transportation within the combined city limits of Laguna Hills and Mission Viejo. Similarly, OCTA offers a Youth Program which provides discounted fares to children on all fixed-route buses.

3.4 Existing Intersection Peak Hour LOS

Level of Service (LOS) qualitatively measures the operating conditions within a traffic system and how drivers and passengers perceive these conditions. Level of service ranges from LOS A to overloaded conditions at LOS F. LOS D is typically recognized as the minimum satisfactory service level in urban areas. According to CMP traffic impact analysis guidelines, LOS E is the minimum acceptable service level at CMP intersections.

Based upon the City's traffic study guidelines, the *Intersection Capacity Utilization* (ICU) methodology was used to determine the volume-to-capacity relationship for signalized intersections (based upon the individual volume-to-capacity ratios for key conflicting traffic movements), and corresponding level of service. By assuming 1,700 vehicles per hour per lane (vphpl) as the practical capacity for through lanes, left-turn, and right-turn lanes, the ICU method directly relates traffic demand to the available capacity. The resulting ICU numerical value represents the greatest green time requirements plus a 5% allowance (additional ICU value of 0.05) for clearance intervals for the entire intersection. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing. Level of service definitions for signalized intersections are summarized in ***Table 1***.

Based upon the City's traffic impact study guidelines, the methodology in Chapter 17 of the *Highway Capacity Manual* [Transportation Research Board, 2000] was applied in the analysis of the unsignalized key intersections. The HCM stop-control methodology determines the delay and level of service of each approach separately. Whereas the ICU methodology for signalized intersections uses capacity to describe total intersection operation, the HCM method for unsignalized intersections

yields a delay value for each intersection approach. The vehicle total delay on any approach is primarily a function of the volume on the subject approach, and secondarily a function of the volume on the opposing and conflicting approaches. Level of service definitions for unsignalized intersections are described in ***Table 2***.

In addition, the *Highway Capacity Manual* (HCM 2010) Operations methodology was applied in the analysis of all freeway ramp intersections (to address Caltrans traffic impact study requirements).

The HCM 2010 methodology was also applied in Section 6.0 (Site Access) of this report, for the purposes of evaluating vehicular access and queuing conditions at Project driveway intersections.

In Chapter 18 of the HCM 2010, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, as indicated in ***Table 3***. ***Table 4*** presents the LOS categories for unsignalized intersections based on Chapter 19 of the HCM 2010.

Based upon the level of service methodologies described, the existing peak hour traffic volumes presented were used in conjunction with existing lane configurations to determine the current traffic operating conditions at the 61 key intersections.

Appendix A contains the detailed level of service worksheets. ***Appendix B*** contains the raw traffic count data collected.

Tables 5 and ***6*** summarize the existing levels of service for the 61 key intersections during the weekday AM and PM peak hours, and Saturday midday peak hour, respectively.

As *Table 5* indicates, all 61 key intersections currently operate at acceptable LOS D or better (LOS E or better at CMP intersections) during the AM and PM peak hours of a typical weekday.

Table 6 indicates that all 61 key intersections currently operate at acceptable LOS D or better (LOS E or better at CMP intersections) during the Saturday midday peak hour.

The level of service results for existing conditions in this study were compared against those reported in the General Plan traffic study (prepared by Austin-Foust Associates, Inc. in December 2008) and the Oakbrook Village Plaza traffic study (prepared by HDR Engineering in October 2012), and were determined to be generally consistent with the two other studies (considering that physical improvements were completed at the El Toro Road/Moulton Parkway and El Toro Road/Avenida de la Carlota intesections since Oakbrook's 2012 study).

TABLE 1
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS)	Intersection Capacity Utilization Value (ICU)	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.

TABLE 2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS [1]

Level of Service (LOS)	Average Control Delay (sec/veh)	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

[1] Source: *Highway Capacity Manual 2000*, Chapter 17 (Unsignalized Intersections).

TABLE 3
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM)[2]

Level of Service (LOS)	Control Delay (sec/veh)	Level of Service Description
A	≤ 10.0	LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume –to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	> 10.0 and ≤ 20.0	LOS B describes operations with a control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume –to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
C	> 20.0 and ≤ 35.0	LOS C describes operations with a control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	> 35.0 and ≤ 55.0	LOS D describes operations with a control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	> 55.0 and ≤ 80.0	LOS E describes operations with a control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
F	≥ 80.0	LOS F describes operations with a control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

[2] Source: *Highway Capacity Manual 2010*, Chapter 18 (Signalized Intersections).

TABLE 4
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM)[3]

Level of Service (LOS)	Control Delay (sec/veh)	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

[3] Source: *Highway Capacity Manual 2010*, Chapter 19 (Unsignalized Intersections).

TABLE 5

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

	Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
1)	Muirlands Boulevard at	AM	0.617	--	B	No
	El Toro Road (LF)	PM	0.699	--	B	No
2)	Raymond Way at	AM	0.420	--	A	No
	El Toro Road (LF)	PM	0.517	--	A	No
3)	Arbor Way at	AM	0.389	--	A	No
	El Toro Road (LF)	PM	0.523	--	A	No
4)	Rockfield Boulevard at	AM	0.559	--	A	No
	El Toro Road (LF)	PM	0.615	--	B	No
5)	Bridger Road/I-5 Northbound Ramps at	AM	0.501	--	A	No
	El Toro Road (CMP/LF)	PM	0.758	--	C	No
	HCM 2010:	AM	--	32.6	C	No
	HCM 2010:	PM	--	55.7	E	No
6)	Avenida de la Carlota/I-5 Southbound	AM	0.486	--	A	No
	On-Ramp at El Toro Road (CMP)	PM	0.804	--	D	No
	HCM 2010:	AM	--	25.7	C	No
	HCM 2010:	PM	--	43.5	D	No
7)	Regional Center Drive at	AM	0.278	--	A	No
	El Toro Road	PM	0.634	--	B	No
8)	Paseo de Valencia at	AM	0.504	--	A	No
	El Toro Road	PM	0.605	--	B	No
9)	Avenida Sevilla at	AM	0.416	--	A	No
	El Toro Road (LW)	PM	0.437	--	A	No
10)	Catholic Church/Lutheran Church at	AM	0.307	--	A	No
	El Toro Road (LW)	PM	0.345	--	A	No
11)	Moulton Parkway at	AM	0.606	--	B	No
	El Toro Road (CMP/LW)	PM	0.661	--	B	No
12)	Home Depot at	AM	0.330	--	A	No
	El Toro Road (LW)	PM	0.499	--	A	No
13)	Calle Sanora at	AM	0.327	--	A	No
	El Toro Road (LW)	PM	0.346	--	A	No
14)	Canyon Wren Lane at	AM	0.253	--	A	No
	El Toro Road (AV)	PM	0.322	--	A	No
15)	Calle Corta at	AM	0.271	--	A	No
	El Toro Road (LW)	PM	0.303	--	A	No
16)	Aliso Creek Road at	AM	0.626	--	B	No
	El Toro Road (LW)	PM	0.838	--	D	No

TABLE 5 (CONTINUED)

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
17) The Club Drive/Bells Vireo Lane at	AM	0.560	--	A	No
El Toro Road (LB)	PM	0.482	--	A	No
18) SR-73 Northbound Ramps at	AM	0.578	--	A	No
El Toro Road (CMP/LB)	PM	0.669	--	B	No
HCM 2010:	AM	--	14.2	B	No
HCM 2010:	PM	--	9.6	A	No
19) SR-73 Southbound Ramps at	AM	0.476	--	A	No
El Toro Road (CMP/LB)	PM	0.639	--	B	No
HCM 2010:	AM	--	24.1	C	No
HCM 2010:	PM	--	24.1	C	No
20) Avenida de la Carlota at	AM	0.486	--	A	No
Paseo de Valencia/I-5 Southbound Ramps	PM	0.535	--	A	No
HCM 2010:	AM	--	44.8	D	No
HCM 2010:	PM	--	42.7	D	No
21) Paseo de Valencia at	*AM*	--	*10.6*	*B*	*No*
Ronda del Rossmoor (LW)	*PM*	--	*11.2*	*B*	*No*
22) Paseo de Valencia at	AM	0.357	--	A	No
Calle de la Plata (LW)	PM	0.533	--	A	No
23) Paseo de Valencia at	AM	0.332	--	A	No
Calle de la Magdalena (LW)	PM	0.384	--	A	No
24) Paseo de Valencia at	AM	0.338	--	A	No
Health Center Drive (LW)	PM	0.511	--	A	No
25) Paseo de Valencia at	*AM*	--	*10.6*	*B*	*No*
Calle de los Caballeros (LW)	*PM*	--	*10.5*	*B*	*No*
26) Paseo de Valencia at	AM	0.449	--	A	No
Los Alisos Boulevard	PM	0.455	--	A	No
27) Paseo de Valencia at	AM	0.368	--	A	No
Kennington Drive (LW)	PM	0.550	--	A	No
28) Paseo de Valencia at	AM	0.393	--	A	No
Avenida Sevilla/Beckenham Street (LW)	PM	0.581	--	A	No
29) Paseo de Valencia at	AM	0.649	--	B	No
Laguna Hills Drive/Stockport Street	PM	0.680	--	B	No
30) Paseo de Valencia at	AM	0.301	--	A	No
Hawk Highway	PM	0.425	--	A	No
31) Paseo de Valencia at	AM	0.643	--	B	No
Alicia Parkway	PM	0.645	--	B	No

TABLE 5 (CONTINUED)

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
32) Avenida de la Carlota at	AM	0.245	--	A	No
Plaza Lane/Mall Entrance	PM	0.436	--	A	No
33) Avenida de la Carlota at	*AM*	--	*13.3*	*B*	*No*
Mall Driveway 1	*PM*	--	*27.7*	*D*	*No*
34) Avenida de la Carlota at	*AM*	--	*11.9*	*B*	*No*
Mall Driveway 2	*PM*	--	*26.4*	*D*	*No*
35) Avenida de la Carlota at	*AM*	--	*12.8*	*B*	*No*
Mall Driveway 3	*PM*	--	*32.4*	*D*	*No*
36) Avenida de la Carlota at	*AM*	--	*10.5*	*B*	*No*
Oakbrook Village Driveway 1	*PM*	--	*22.8*	*C*	*No*
37) Avenida de la Carlota at	*AM*	--	*10.1*	*B*	*No*
Oakbrook Village Driveway 2	*PM*	--	*12.3*	*B*	*No*
38) Avenida de la Carlota at	AM	0.423	--	A	No
Los Alisos Boulevard	PM	0.470	--	A	No
39) Ronda del Rossmoor/Calle de la Louisa at	*AM*	--	*8.6*	*A*	*No*
Calle de la Plata	*PM*	--	*10.4*	*B*	*No*
40) Calle de la Louisa at	*AM*	--	*8.2*	*A*	*No*
Health Center Drive	*PM*	--	*8.9*	*A*	*No*
41) Calle de la Louisa at	*AM*	--	*7.9*	*A*	*No*
Calle de los Caballeros	*PM*	--	*8.7*	*A*	*No*
42) Irvine Center Drive/Moulton Parkway at	AM	0.447	--	A	No
Lake Forest Drive	PM	0.674	--	B	No
43) Moulton Parkway at	AM	0.354	--	A	No
Ridge Route Drive	PM	0.570	--	A	No
44) Moulton Parkway at	AM	0.472	--	A	No
Santa Maria Avenue	PM	0.644	--	B	No
45) Moulton Parkway at	AM	0.530	--	A	No
Via Campo Verde (LW)	PM	0.578	--	A	No
46) Moulton Parkway at	AM	0.514	--	A	No
Calle Cortez (AV)	PM	0.603	--	B	No
47) Moulton Parkway at	AM	0.529	--	A	No
Calle Aragon (AV)	PM	0.517	--	A	No
48) Moulton Parkway at	AM	0.506	--	A	No
Glenwood Drive/Indian Creek Lane	PM	0.621	--	B	No
49) Avenida de la Carlota/I-5 Southbound	AM	0.650	--	B	No
Ramps at Lake Forest Drive	PM	0.752	--	C	No

TABLE 5 (CONTINUED)
EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
HCM 2010:	AM	--	26.4	C	No
HCM 2010:	PM	--	26.5	C	No
50) I-5 Northbound Ramps at	AM	0.393	--	A	No
Lake Forest Drive (LF)	PM	0.554	--	A	No
HCM 2010:	AM	--	19.1	B	No
HCM 2010:	PM	--	15.6	B	No
51) Rockfield Boulevard at	AM	0.556	--	A	No
Lake Forest Drive (LF)	PM	0.685	--	B	No
52) Avenida de la Carlota at	AM	0.426	--	A	No
Ridge Route Drive	PM	0.763	--	C	No
53) Avenida de la Carlota at	AM	0.202	--	A	No
Via Puerta (LW)	PM	0.517	--	A	No
54) Rockfield Boulevard at	AM	0.344	--	A	No
Landisview Avenue (LF)	PM	0.375	--	A	No
55) Muirlands Boulevard at	AM	0.718	--	C	No
Los Alisos Boulevard (MV)	PM	0.704	--	C	No
56) Rockfield Boulevard/Fordview at	AM	0.722	--	C	No
Los Alisos Boulevard (LF)	PM	0.622	--	B	No
57) Muirlands Boulevard at	AM	0.376	--	A	No
Marathon Street (MV)	PM	0.407	--	A	No
58) Muirlands Boulevard at	AM	0.747	--	C	No
Alicia Parkway (MV)	PM	0.831	--	D	No
59) Charlinda Drive at	AM	0.594	--	A	No
Alicia Parkway (MV)	PM	0.755	--	C	No
60) I-5 Northbound Ramps at	AM	0.522	--	A	No
Alicia Parkway (MV)	PM	0.694	--	B	No
HCM 2010:	AM	--	14.3	B	No
HCM 2010:	PM	--	17.9	B	No
61) I-5 Southbound Ramps at	AM	0.777	--	C	No
Alicia Parkway	PM	0.836	--	D	No
HCM 2010:	AM	--	26.9	C	No
HCM 2010:	PM	--	31.5	C	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

Blue text corresponds to a CMP intersection where LOS E is the minimum acceptable LOS.

CMP = Congestion Management Program; LF = Lake Forest; LW = Laguna Woods; AV = Aliso Viejo; LB = Laguna Beach; MV = Mission Viejo

TABLE 6

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
1) Muirlands Boulevard at El Toro Road (LF)	Sat Midday	0.639	--	B	No
2) Raymond Way at El Toro Road (LF)	Sat Midday	0.567	--	A	No
3) Arbor Way at El Toro Road (LF)	Sat Midday	0.549	--	A	No
4) Rockfield Boulevard at El Toro Road (LF)	Sat Midday	0.647	--	B	No
5) Bridger Road/I-5 Northbound Ramps at El Toro Road (CMP/LF)	Sat Midday	0.789	--	C	No
HCM 2010:	Sat	--	48.1	D	No
HCM 2010:	Midday				
6) Avenida de la Carlota/I-5 Southbound On-Ramp at El Toro Road (CMP)	Sat Midday	0.778	--	C	No
HCM 2010:	Sat	--	39.8	D	No
HCM 2010:	Midday				
7) Regional Center Drive at El Toro Road	Sat Midday	0.524	--	A	No
8) Paseo de Valencia at El Toro Road	Sat Midday	0.493	--	A	No
9) Avenida Sevilla at El Toro Road (LW)	Sat Midday	0.466	--	A	No
10) Catholic Church/Lutheran Church at El Toro Road (LW)	Sat Midday	0.297	--	A	No
11) Moulton Parkway at El Toro Road (CMP/LW)	Sat Midday	0.461	--	A	No
12) Home Depot at El Toro Road (LW)	Sat Midday	0.417	--	A	No
13) Calle Sanora at El Toro Road (LW)	Sat Midday	0.330	--	A	No
14) Canyon Wren Lane at El Toro Road (AV)	Sat Midday	0.293	--	A	No
15) Calle Corta at El Toro Road (LW)	Sat Midday	0.285	--	A	No
16) Aliso Creek Road at El Toro Road (LW)	Sat Midday	0.431	--	A	No

TABLE 6 (CONTINUED)

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
17) The Club Drive/Bells Vireo Lane at El Toro Road (LB)	Sat Midday	0.308	--	A	No
18) SR-73 Northbound Ramps at El Toro Road (CMP/LB)	Sat Midday	0.343	--	A	No
HCM 2010:	Sat	--	18.6	B	No
HCM 2010:	Midday				
19) SR-73 Southbound Ramps at El Toro Road (CMP/LB)	Sat Midday	0.335	--	A	No
HCM 2010:	Sat	--	25.1	C	No
HCM 2010:	Midday				
20) Avenida de la Carlota at Paseo de Valencia/I-5 Southbound Ramps	Sat Midday	0.568	--	A	No
HCM 2010:	Sat	--	28.8	C	No
HCM 2010:	Midday				
21) Paseo de Valencia at Ronda del Rossmoor (LW)	*Sat Midday*	--	*10.6*	*B*	*No*
22) Paseo de Valencia at Calle de la Plata (LW)	Sat Midday	0.358	--	A	No
23) Paseo de Valencia at Calle de la Magdalena (LW)	Sat Midday	0.233	--	A	No
24) Paseo de Valencia at Health Center Drive (LW)	Sat Midday	0.327	--	A	No
25) Paseo de Valencia at Calle de los Caballeros (LW)	*Sat Midday*	--	*9.9*	*A*	*No*
26) Paseo de Valencia at Los Alisos Boulevard	Sat Midday	0.323	--	A	No
27) Paseo de Valencia at Kennington Drive (LW)	Sat Midday	0.371	--	A	No
28) Paseo de Valencia at Avenida Sevilla/Beckenham Street (LW)	Sat Midday	0.401	--	A	No
29) Paseo de Valencia at Laguna Hills Drive/Stockport Street	Sat Midday	0.419	--	A	No
30) Paseo de Valencia at Hawk Highway	Sat Midday	0.350	--	A	No
31) Paseo de Valencia at Alicia Parkway	Sat Midday	0.565	--	A	No

TABLE 6 (CONTINUED)

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
32) Avenida de la Carlota at Plaza Lane/Mall Entrance	Sat Midday	0.452	--	A	No
33) Avenida de la Carlota at Mall Driveway 1	*Sat Midday*	--	*25.8*	*D*	*No*
34) Avenida de la Carlota at Mall Driveway 2	*Sat Midday*	--	*23.7*	*C*	*No*
35) Avenida de la Carlota at Mall Driveway 3	*Sat Midday*	--	*22.4*	*C*	*No*
36) Avenida de la Carlota at Oakbrook Village Driveway 1	*Sat Midday*	--	*18.7*	*C*	*No*
37) Avenida de la Carlota at Oakbrook Village Driveway 2	*Sat Midday*	--	*11.3*	*B*	*No*
38) Avenida de la Carlota at Los Alisos Boulevard	Sat Midday	0.374	--	A	No
39) Ronda del Rossmoor/Calle de la Louisa at Calle de la Plata	*Sat Midday*	--	*8.5*	*A*	*No*
40) Calle de la Louisa at Health Center Drive	*Sat Midday*	--	*8.3*	*A*	*No*
41) Calle de la Louisa at Calle de los Caballeros	*Sat Midday*	--	*8.0*	*A*	*No*
42) Irvine Center Drive/Moulton Parkway at Lake Forest Drive	Sat Midday	0.334	--	A	No
43) Moulton Parkway at Ridge Route Drive	Sat Midday	0.273	--	A	No
44) Moulton Parkway at Santa Maria Avenue	Sat Midday	0.370	--	A	No
45) Moulton Parkway at Via Campo Verde (LW)	Sat Midday	0.272	--	A	No
46) Moulton Parkway at Calle Cortez (AV)	Sat Midday	0.278	--	A	No
47) Moulton Parkway at Calle Aragon (AV)	Sat Midday	0.322	--	A	No
48) Moulton Parkway at Glenwood Drive/Indian Creek Lane	Sat Midday	0.330	--	A	No
49) Avenida de la Carlota/I-5 Southbound Ramps at Lake Forest Drive	Sat Midday	0.470	--	A	No

TABLE 6 (CONTINUED)

EXISTING (2015) INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Delay	LOS	Poor LOS?
HCM 2010:	Sat	--	23.7	C	No
HCM 2010:	Midday				
50) I-5 Northbound Ramps at Lake Forest Drive (LF)	Sat	0.379	--	A	No
	Midday				
HCM 2010:	Sat	--	19.1	B	No
HCM 2010:	Midday				
51) Rockfield Boulevard at Lake Forest Drive (LF)	Sat	0.488	--	A	No
	Midday				
52) Avenida de la Carlota at Ridge Route Drive	Sat	0.461	--	A	No
	Midday				
53) Avenida de la Carlota at Via Puerta (LW)	Sat	0.295	--	A	No
	Midday				
54) Rockfield Boulevard at Landisview Avenue (LF)	Sat	0.310	--	A	No
	Midday				
55) Muirlands Boulevard at Los Alisos Boulevard (MV)	Sat	0.463	--	C	No
	Midday				
56) Rockfield Boulevard/Fordview at Los Alisos Boulevard (LF)	Sat	0.539	--	A	No
	Midday				
57) Muirlands Boulevard at Marathon Street (MV)	Sat	0.294	--	A	No
	Midday				
58) Muirlands Boulevard at Alicia Parkway (MV)	Sat	0.666	--	B	No
	Midday				
59) Charlinda Drive at Alicia Parkway (MV)	Sat	0.639	--	B	No
	Midday				
60) I-5 Northbound Ramps at Alicia Parkway (MV)	Sat	0.520	--	A	No
	Midday				
HCM 2010:	Sat	--	17.4	B	No
HCM 2010:	Midday				
61) I-5 Southbound Ramps at Alicia Parkway	Sat	0.697	--	B	No
	Midday				
HCM 2010:	Sat	--	25.0	C	No
HCM 2010:	Midday				

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

Blue text corresponds to a CMP intersection where LOS E is the minimum acceptable LOS.

CMP = Congestion Management Program; LF = Lake Forest; LW = Laguna Woods; AV = Aliso Viejo; LB = Laguna Beach; MV = Mission Viejo

4.0 TRAFFIC FORECASTS

In order to determine potential traffic impacts of the Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is estimated by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation with applicable trip adjustments/credits to account for the existing land uses on site, internal capture, and/or alternative modes of transportation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. 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.

With the forecasting process complete and project traffic assignments developed, the impact of the proposed project is isolated by comparing levels of service at selected key intersections using expected future traffic volumes with and without project-generated traffic. The significance of the Project's impacts, and the need for site-specific and/or cumulative local area traffic improvements, can then be determined.

4.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation equations and/or rates used in the traffic forecasting procedure are found in the 9th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2012]. The trip rates for ITE Land Use 820: Shopping Center, 720: Medical-Dental Office, and 220: Apartments, were applied to the Project.

Since the Project is comprised of a mix of uses (including retail, restaurant, cinema, health club, medical office, and residential), it was appropriate to account for "internal" tripmaking/interactions that will occur between the various land uses on site, and will not occur by traveling on the external street system. ITE trip generation rates and equations are derived from single-use, stand-alone sites, and do not reflect the potential for interaction among uses in a mixed-use setting. The methodology used in estimating internal trips for the project is well documented in the Third Edition of ITE's *Trip Generation Handbook* [Washington, D.C., August 2014].

Additionally, because of the retail nature of the Project, "pass-by" reductions were applied to retail-generated trips (after accounting for internal trip reductions). This is typically done to account for conditions when the total number of trips generated by a retail-oriented development is not entirely

new to the external street system. Retail-oriented developments such as shopping centers and restaurants, which are located along major/busy roadways, attract a portion of their trips from traffic already on the street system for a different purpose (i.e., the retail site is not the primary or ultimate destination). These retail trips do not add new traffic to the surrounding street system. The methodology used in estimating pass-by trips is also contained in ITE's *Trip Generation Handbook*.

Modest internal capture and pass-by trip reductions were applied (despite the vast majority of uses surrounding the site that could realistically result in greater interactions with the Project than assumed), which are appropriate for application based on the Project setting and ITE-recommended methodology, and are allowed per the City's current traffic study guidelines. It should be noted that internal tripmaking within the mall is inherent in the ITE Shopping Center rates/equations; therefore, internal trip reductions were not applied to shopping center trips, and only applied to the residential and medical office trips in this study. As a conservative measure, no further trip reductions to account for alternative modes of travel (despite the Project's proximity to the Laguna Hills Transportation Center) have been applied.

As shown in ***Table 7***, the net project trips are estimated to be approximately 6,434 daily trips on a typical weekday, of which 558 trips are expected to occur during the AM peak hour, and 569 trips could be generated during the PM peak hour, and 4,919 daily trips on a Saturday, of which 456 trips could occur during the Saturday midday peak hour. The potential impact of these added/incremental trips are assessed in this report. Comparing the mall's future trips against existing trips indicates a reduction in shopping center trips; therefore, net Project trips are primarily attributable to the residential and medical office components of the Project. This is a key aspect of the Project's traffic generation that was taken into consideration in developing the Project trip distribution pattern, as discussed in the next section of this report.

Table 7 also presents a trip budget assessment for the Project, given its location within the UVSP area. As described in the UVSP and the Program EIR, development intensity within the UVSP is regulated by trip budget limits that correlate with LOS D (except with regard to CMP intersections), and "anticipated" land uses referenced in the Program EIR and UVSP do not function as development limits. Page 35 of the UVSP provides that "*the Specific Plan includes provisions for flexibility in development options, so that there could be more retail uses and less office uses, or vice-versa, as long as the trip budgets are not exceeded. The trip budget debiting process is based upon the addition or subtraction of "vehicle trips", not land use type or size of the project…*" In this case, the Project's proposed 988 apartment units exceed the 200 dwelling units referenced in the UVSP, and the retail and medical office components of the Project fall below the 300,000 SF of retail and 138,000 SF of medical office referenced in the UVSP.

City staff identified development projects that were approved within the UVSP subsequent to the certification of the Program EIR in order to assess current trip budget limits. After debiting all development projects that have been approved since the June 2009 General Plan Update, the remaining UVSP trip budgets (as of May 2015) correspond to 1,008 AM peak hour trips and 2,202 PM peak hour trips. Subtracting the net project trips (558 AM peak hour trips and 569 PM peak

TABLE 7
PROJECT TRIP GENERATION

LAND USE	Unit / Size	Typical Weekday Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Saturday Daily	Midday Peak Hour In	Midday Peak Hour Out	Midday Peak Hour Total
ITE TRIP RATES												
Shopping Ctr	trips/KSF GLA	[a]	62%	38%	[a]	48%	52%	[a]	[a]	52%	48%	[a]
Medical Office	trips/KSF GFA	36.13	79%	21%	2.39	28%	72%	3.57	8.96	57%	43%	3.63
Apartment	trips/DU	6.65	20%	80%	0.51	65%	35%	0.62	6.39	50%	50%	0.52
PROPOSED PROJECT												
Mall [b]	**834,706 SF GLA**	26,973	353	216	569	1,192	1,291	2,483	35,174	1,667	1,805	3,472
Retail (570,180 SF GLA)												
Restaurants (115,354 SF GLA)												
Health Club (40,102 SF GLA)												
Cinema (109,070 SF GLA)												
Med Office [c]	**45,890 SF GFA**	1,658	87	23	110	46	118	164	411	95	72	167
Apartments	**988 DU**	6,570	101	403	504	398	215	613	6,313	257	257	514
FUTURE		**35,201**	**541**	**642**	**1,183**	**1,636**	**1,624**	**3,260**	**41,898**	**2,019**	**2,134**	**4,153**
Internal Trip Reduction [d]		(1,144)	(18)	(24)	(42)	(80)	(67)	(147)	(984)	(72)	(68)	(140)
Sub-Total		34,057	523	618	1,141	1,556	1,557	3,113	40,914	1,947	2,066	4,013
Pass-By Trip Reduction [e]		(2,697)	(18)	(11)	(29)	(119)	(129)	(248)	(3,517)	(167)	(181)	(348)
Net Future Trips		**31,360**	**505**	**607**	**1,112**	**1,437**	**1,428**	**2,865**	**37,397**	**1,780**	**1,885**	**3,665**
EXISTING	869,352 SF GLA	27,696	361	222	583	1,224	1,327	2,551	36,087	1,711	1,854	3,565
Pass-By Trip Reduction [e]		(2,770)	(18)	(11)	(29)	(122)	(133)	(255)	(3,609)	(171)	(185)	(356)
Net Existing Trips		**24,926**	**343**	**211**	**554**	**1,102**	**1,194**	**2,296**	**32,478**	**1,540**	**1,669**	**3,209**
NET PROJECT TRIPS (Future minus Existing)		**6,434**	**162**	**396**	**558**	**335**	**234**	**569**	**4,919**	**240**	**216**	**456**
UVSP TRIP BUDGETS												
Per June 2009 Program EIR		--	--	--	1,243	--	--	2,272	--	--	--	--
Less Chevron (approved 5/11)		--	--	--	0	--	--	27	--	--	--	--
Less Taj Mahal (approved 6/11)		--	--	--	(9)	--	--	(44)	--	--	--	--
Less Ash./ChickFilA (app. 7/11)		--	--	--	0	--	--	(12)	--	--	--	--
Less Oakbrook Vill. (app. 11/12)		--	--	--	(194)	--	--	(44)	--	--	--	--
Less Raising Cane's (app. 4/15)		--	--	--	(32)	--	--	3	--	--	--	--
Remaining UVSP Trip Budgets (May 2015)		--	--	--	**1,008**	--	--	**2,202**	--	--	--	--
Minus Net Project Trips		--	--	--	(558)	--	--	(569)	--	--	--	--
Residual UVSP Trip Budgets After Project		--	--	--	**450**	--	--	**1,633**	--	--	--	--

TABLE 7 (CONTINUED)
PROJECT TRIP GENERATION

LAND USE	Unit / Size	Typical Weekday							Saturday			
		Daily	AM Peak Hour			PM Peak Hour			Daily	Midday Peak Hour		
			In	Out	Total	In	Out	Total		In	Out	Total
PROJECT VS. 2008 GP												
Gross Project Trips		35,201	541	642	1,183	1,636	1,624	3,260	--	--	--	--
Less 2008 GP Trips for Mall [f]		(48,715)	(713)	(457)	(1,170)	(2,034)	(2,204)	(4,238)				
Difference (vs. 2008 GP)		**(13,514)**	**(172)**	**185**	**13**	**(398)**	**(580)**	**(978)**	--	--	--	--
PROJECT VS. 2030 GP												
Gross Project Trips		35,201	541	642	1,183	1,636	1,624	3,260	--	--	--	--
Less 2030 GP Trips for Mall [f]		(42,469)	(1,222)	(1,068)	(2,290)	(2,038)	(1,936)	(3,974)				
Difference (vs. 2030 GP)		**(7,268)**	**(681)**	**(426)**	**(1,107)**	**(402)**	**(312)**	**(714)**	--	--	--	--

Notes:

[a] Trip generation for shopping centers/retail uses were calculated using the following equations:

Weekday Daily Rate:	Ln(T) = 0.65Ln(X) + 5.83	Ln = Natural logarithm
AM Commuter Peak Hour Rate:	Ln(T) = 0.61Ln(X) + 2.24	T = Two-way volume of traffic (total trip ends)
PM Commuter Peak Hour Rate:	Ln(T) = 0.67Ln(X) + 3.31	X = Area in 1,000 gross square feet of leasable area
Saturday Daily	Ln(T) = 0.63Ln(X) + 6.23	
Peak Hour of the Generator:	Ln(T) = 0.65Ln(X) + 3.78	

[b] Per City staff direction and ITE's definition of Land Use: 820 (Shopping Center), the restaurant, health club, and cinema SF are included in the Shopping Center SF.

[c] As a conservative measure, medical office is assumed instead of retail, and is treated as a standalone use even though the ITE Shopping Center trip rates account for "office buildings" that are part of the Center.

[d] The internal trip reductions correspond to approximately 3% to 4% of total future trips.

[e] The pass-by trip reductions applied to retail trips are 10% for daily, 5% for AM peak hour, and 10% for PM and Saturday midday peak hours.

[f] Trips for Laguna Hills Mall (Zone 30 in the City's traffic model) are derived from Appendix B of the Program EIR traffic study

hour trips) from that yields a residual UVSP trip budget of 450 AM peak hour trips and 1,633 PM peak hour trips.

The second page of *Table 7* compares gross project trips against the Mall trips (Zone 30 in the City's traffic model) accounted for, and previously evaluated, in the Program EIR studies for Year 2008 conditions and Year 2030 conditions. The negative differences (in red) reported in *Table 7* indicate that the gross project trips estimated are generally less than what have already been studied as part of the Program EIR under Year 2008 and Year 2030 conditions.

4.2 Project Traffic Distribution and Assignment

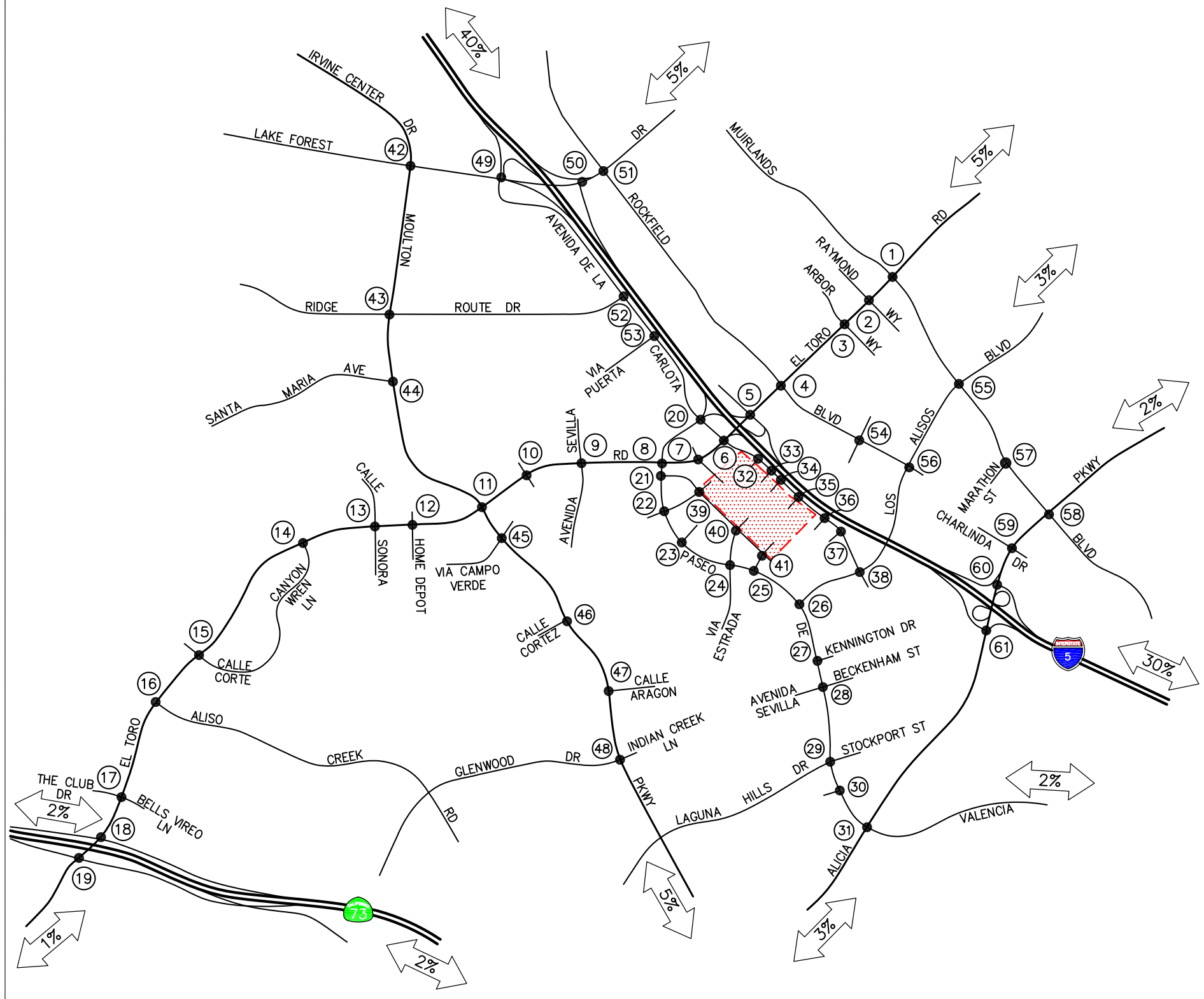
The geographic distribution of traffic generated by developments such as the Project is dependent upon the following factors:

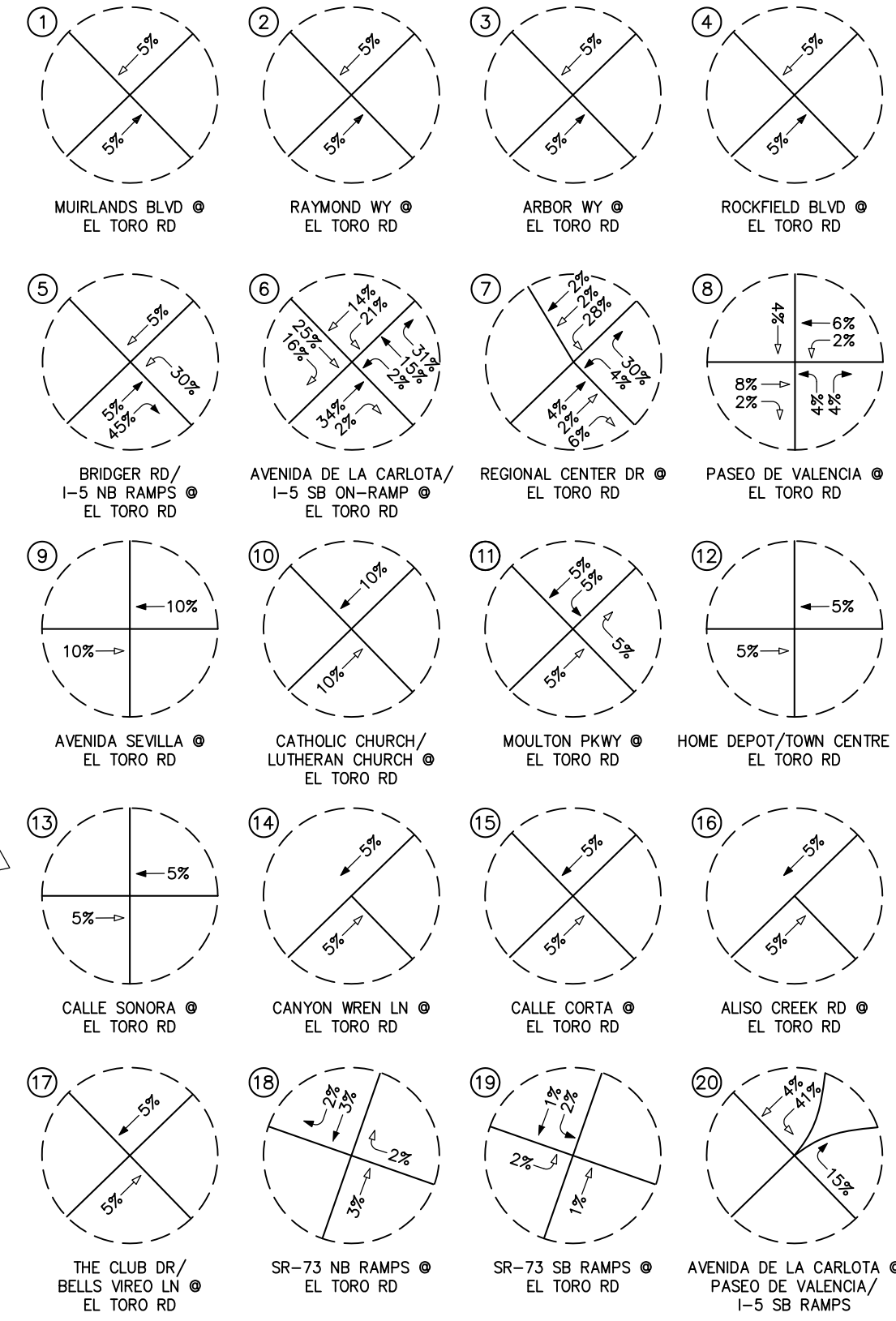
- the Project's market/service area
- location of site access points in relation to the surrounding street system
- location of parking areas, and ingress/egress availability at the parking areas
- the site's proximity to major traffic carriers and regional access routes
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns
- presence of traffic congestion in the surrounding vicinity

As discussed previously, comparing the mall's future trips against existing trips indicates a reduction in shopping center trips; therefore, net Project trips are primarily attributable to the residential and medical office components of the Project. This is a key aspect of the Project's traffic generation that was taken into consideration in developing the Project trip distribution pattern.

A select zone assignment from the City's traffic model (contained in ***Appendix C*** of this report), and prior traffic studies prepared for the mall and other developments within the study area, were used as a starting point, and further refined to reflect a less local/more regional orientation that is more typical of residential and medical office trips. The trip distribution refinements were based on the Project's market analysis, and SCAG's *Profile of the City of Laguna Hills* (dated May 2015). Based on these considerations, a project trip distribution pattern was developed and presented on ***Figures 7A*** through ***7C***. It presumes that the net Project trips (i.e., residential and medical office in nature, not shopping center) would primarily be using Project driveways with direct connections to the residential blocks and medical office parking. In addition, background traffic volumes at Avenida de la Carlota intersections were redistributed to account for the reconfiguration of Project driveways to restrict movements to right-turns in and out only.

The traffic expected to be generated by the Project was assigned to the local street network using the net trip generation estimates presented in *Table 7*, and the Project distribution pattern illustrated in *Figures 7A* through *7C*. ***Figures 8A*** through ***10C*** present the Project-generated traffic volumes for the weekday AM, weekday PM, and Saturday midday, peak hours, respectively.





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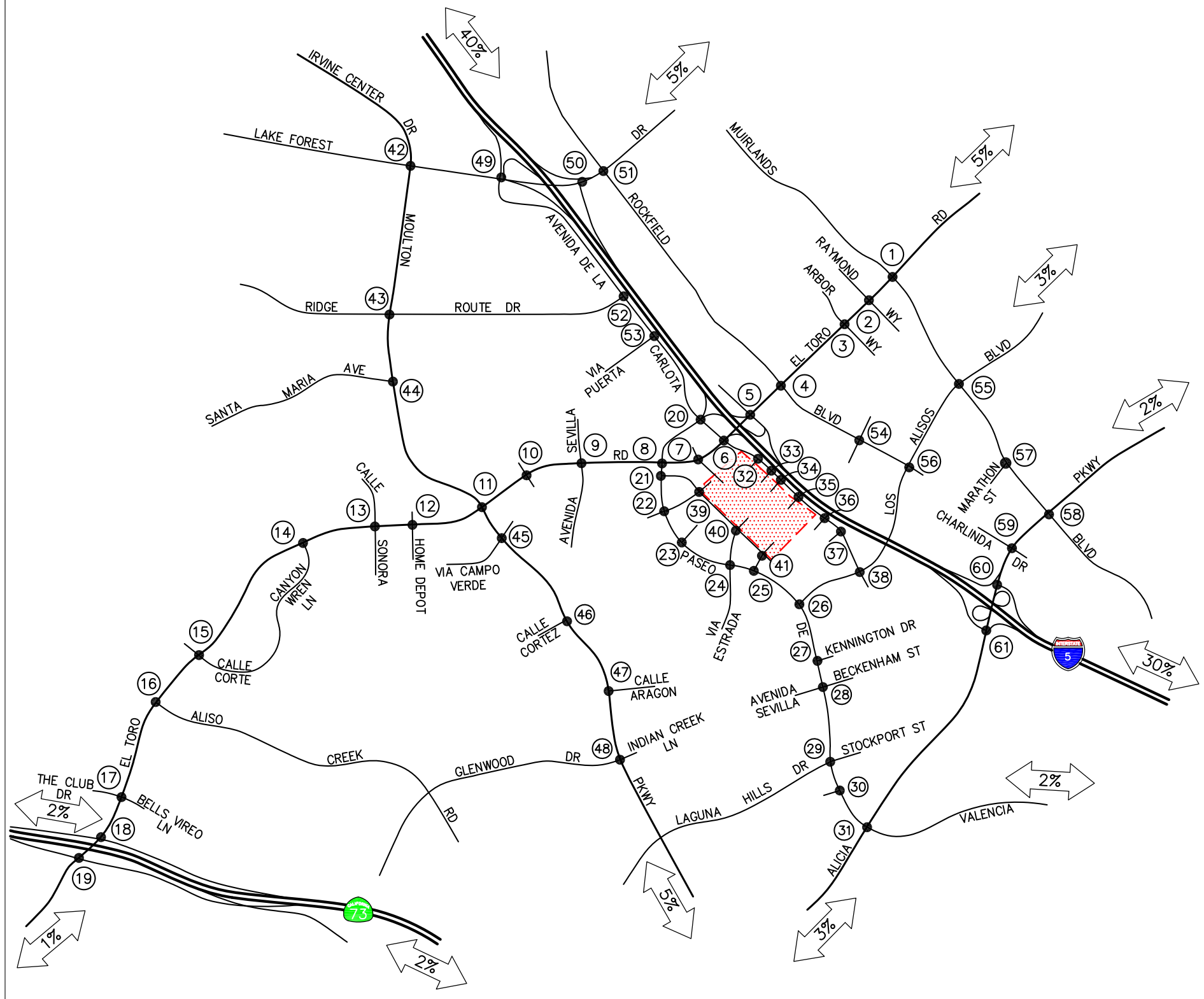
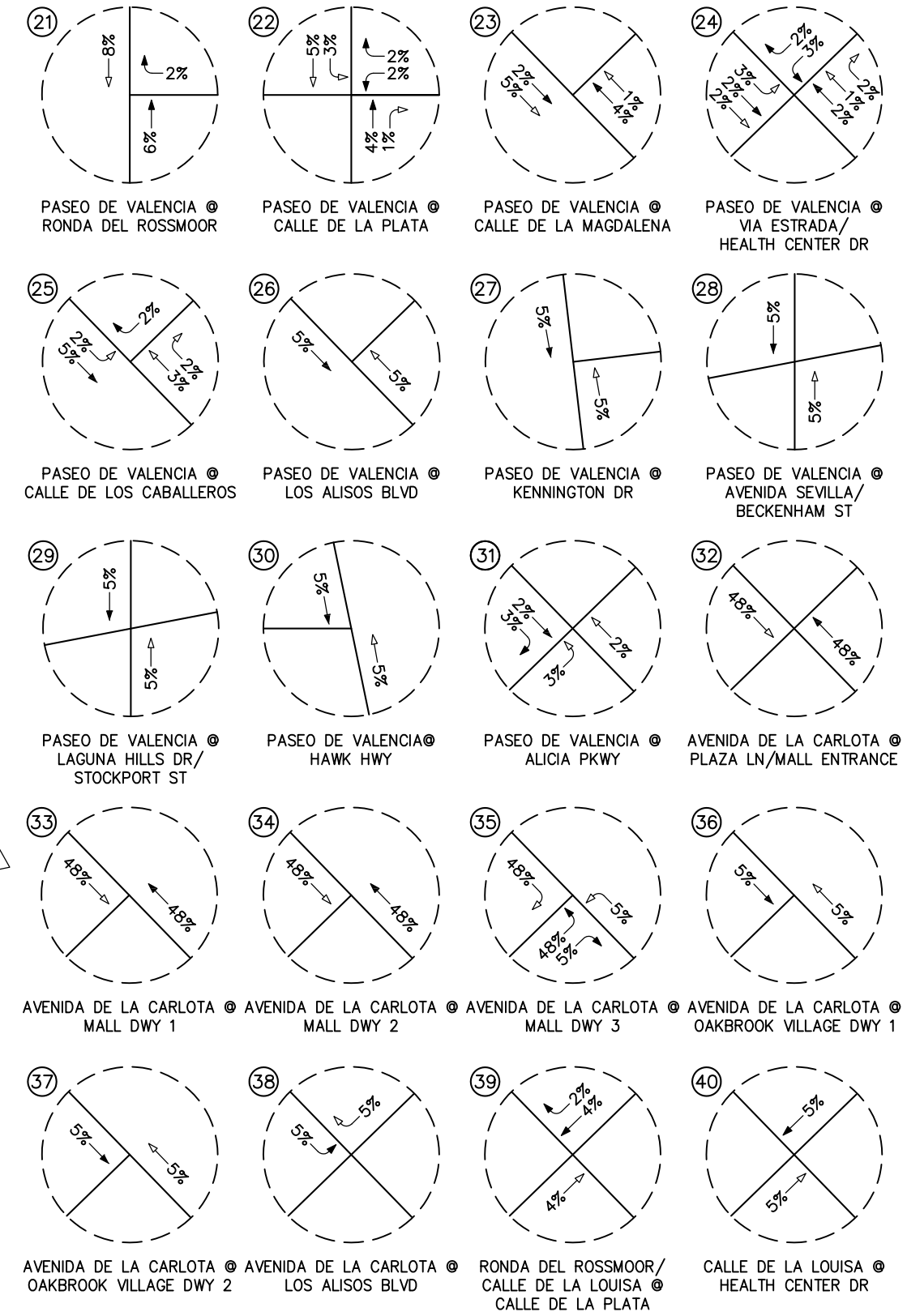
N NO SCALE

KEY
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 7A

PROJECT TRAFFIC DISTRIBUTION PATTERN
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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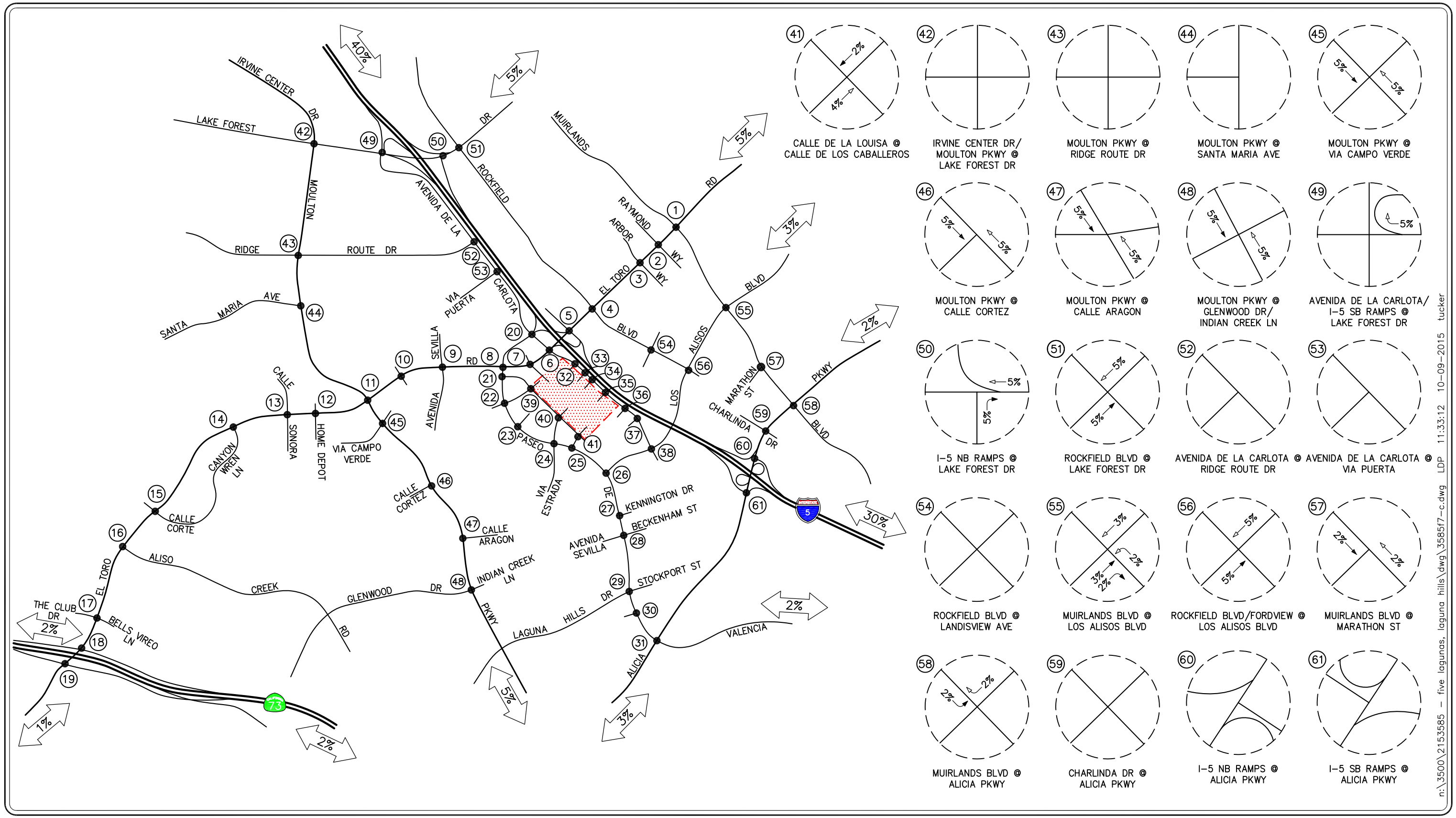
KEY
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 7B

PROJECT TRAFFIC DISTRIBUTION PATTERN

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS



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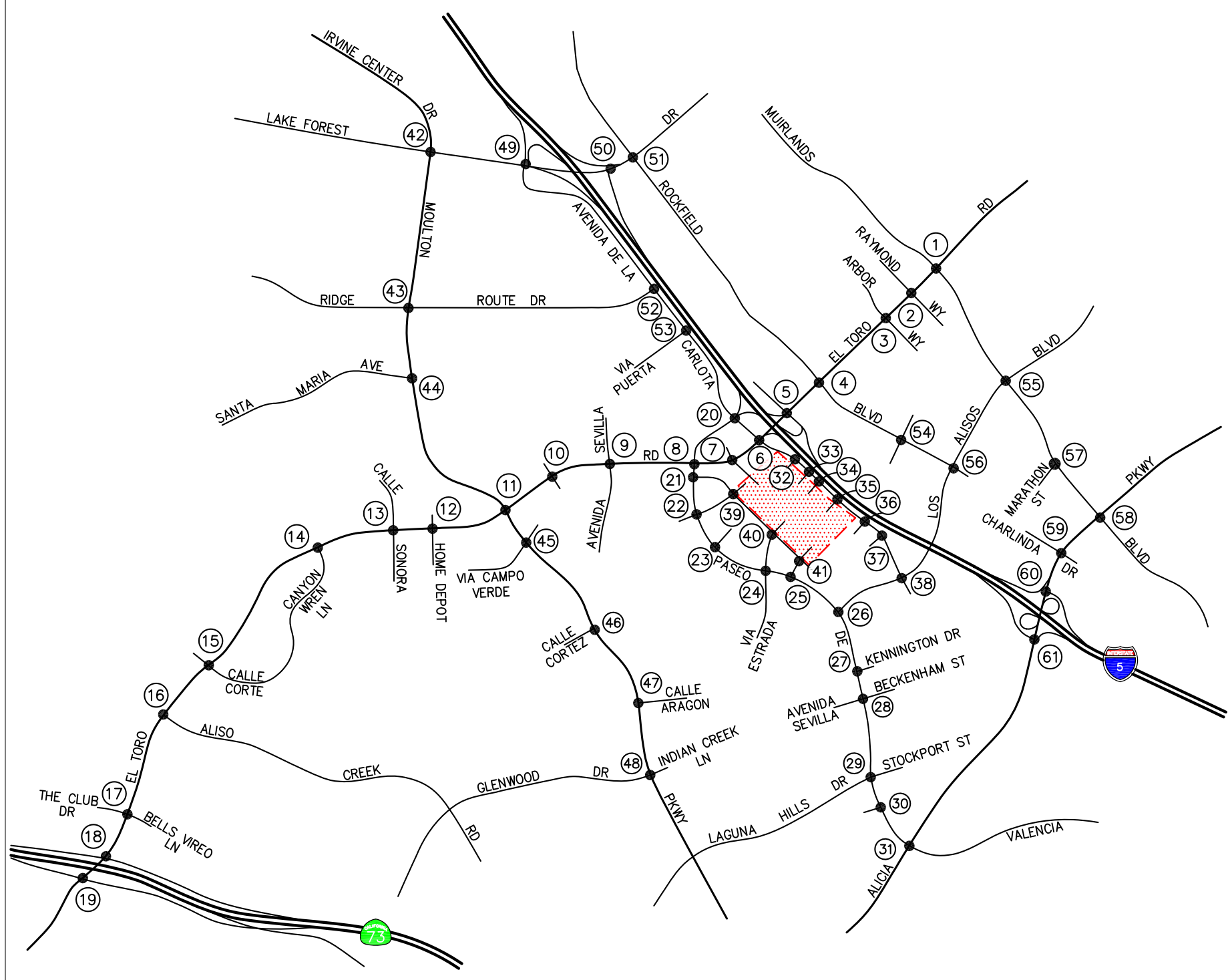
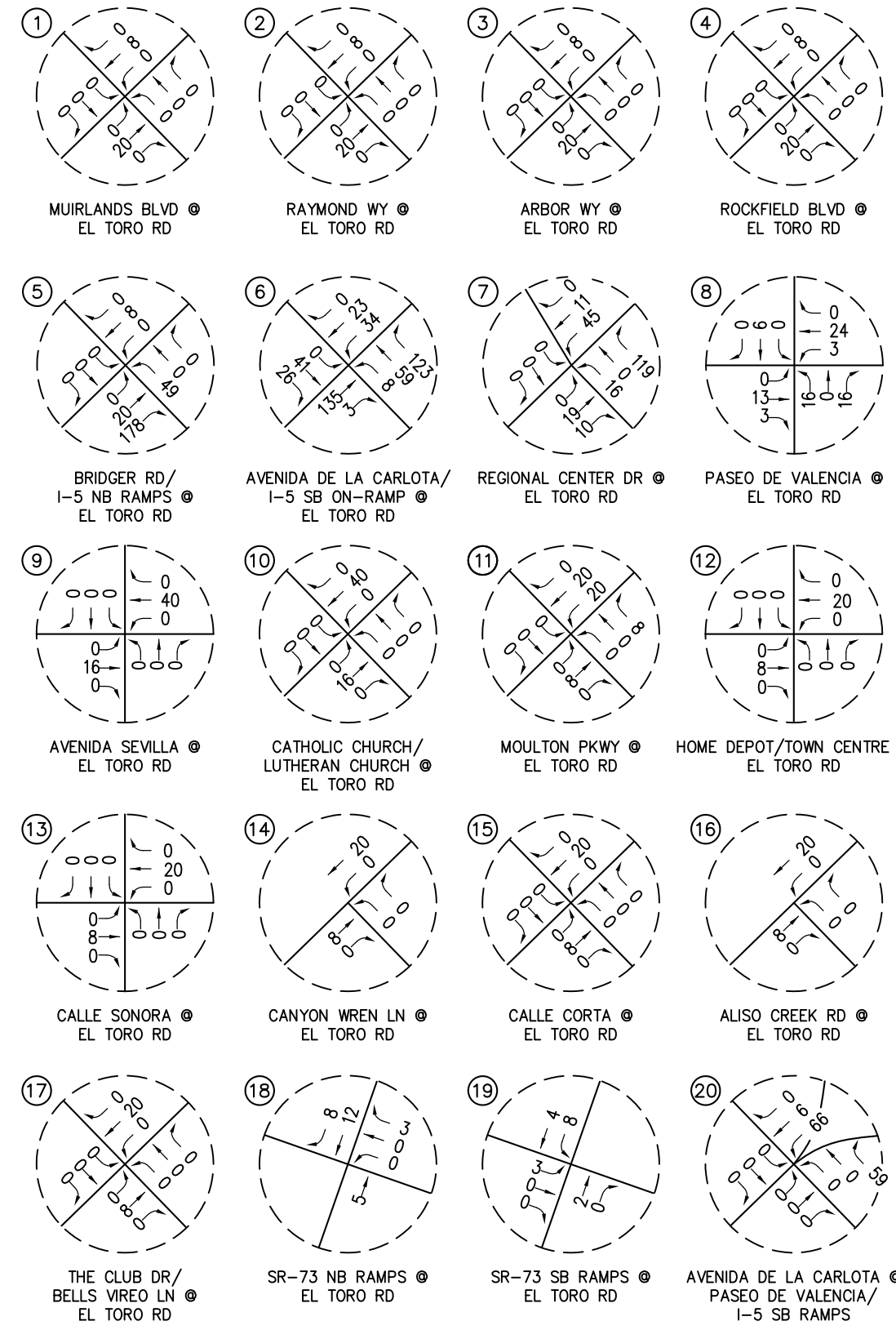
KEY
= INBOUND PERCENTAGE
= OUTBOUND PERCENTAGE
= PROJECT SITE

FIGURE 7C

PROJECT TRAFFIC DISTRIBUTION PATTERN

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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KEY

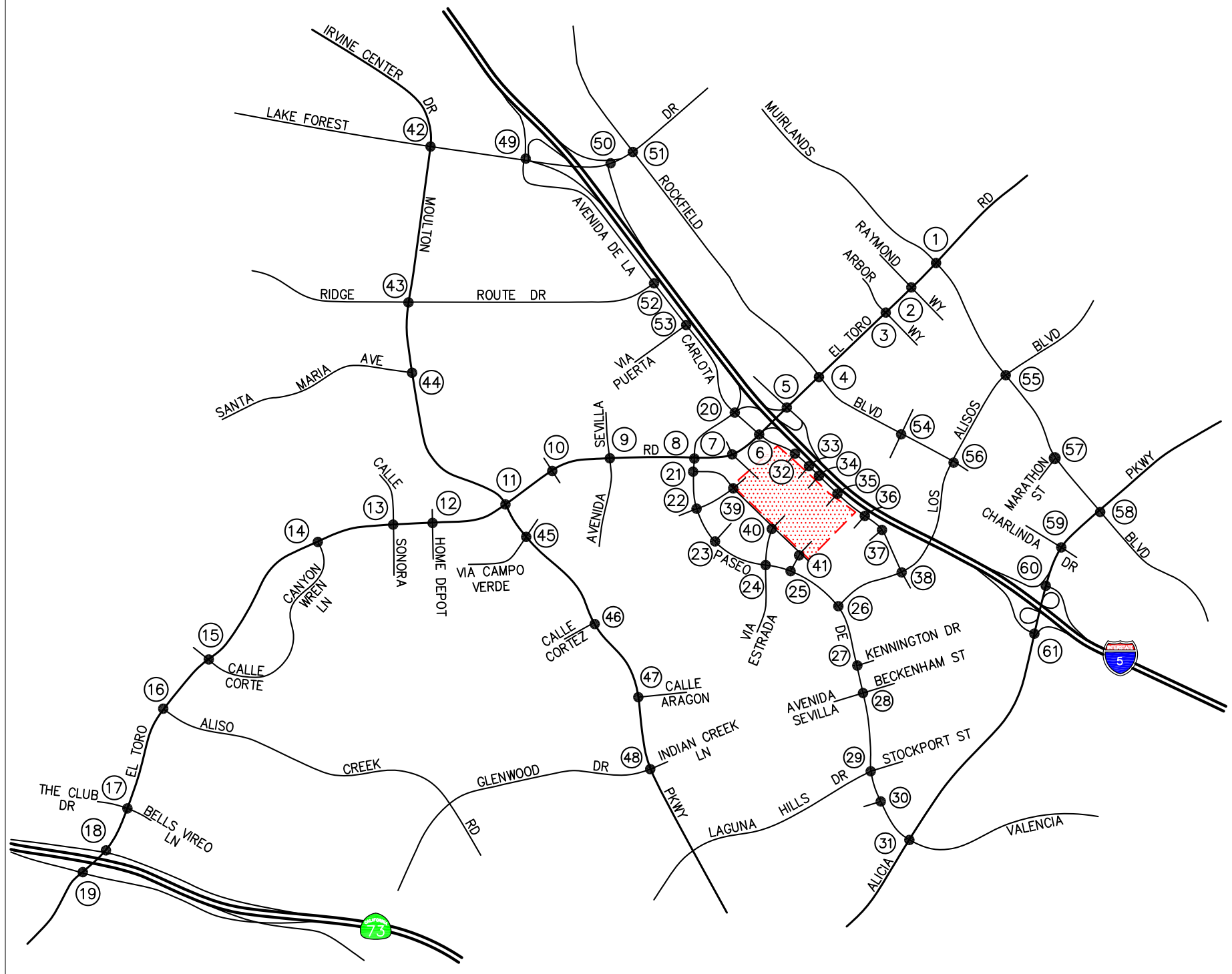
(#) = STUDY INTERSECTION

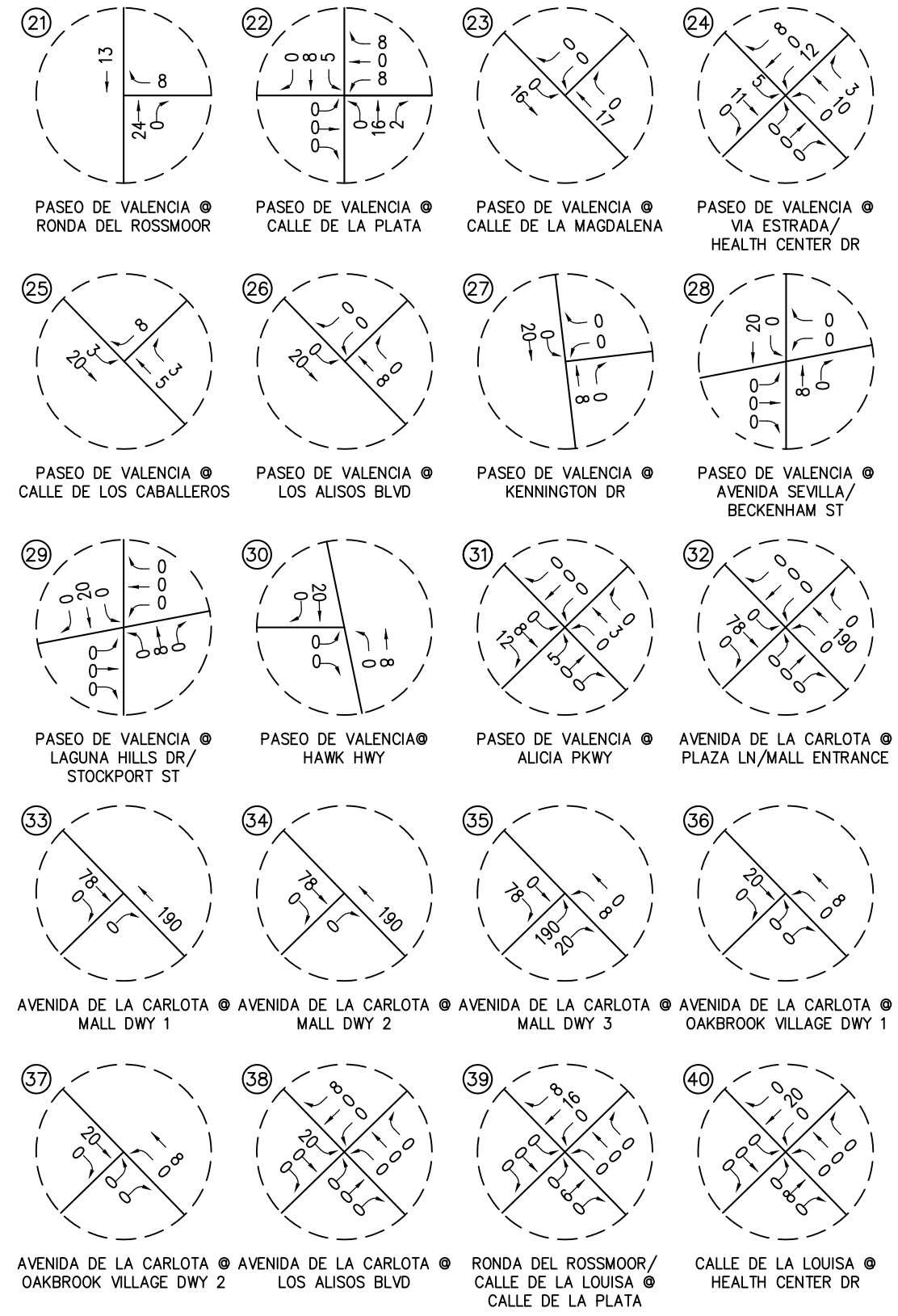
= PROJECT SITE

FIGURE 8A

PROJECT TRAFFIC VOLUMES
AM PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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(#) = STUDY INTERSECTION

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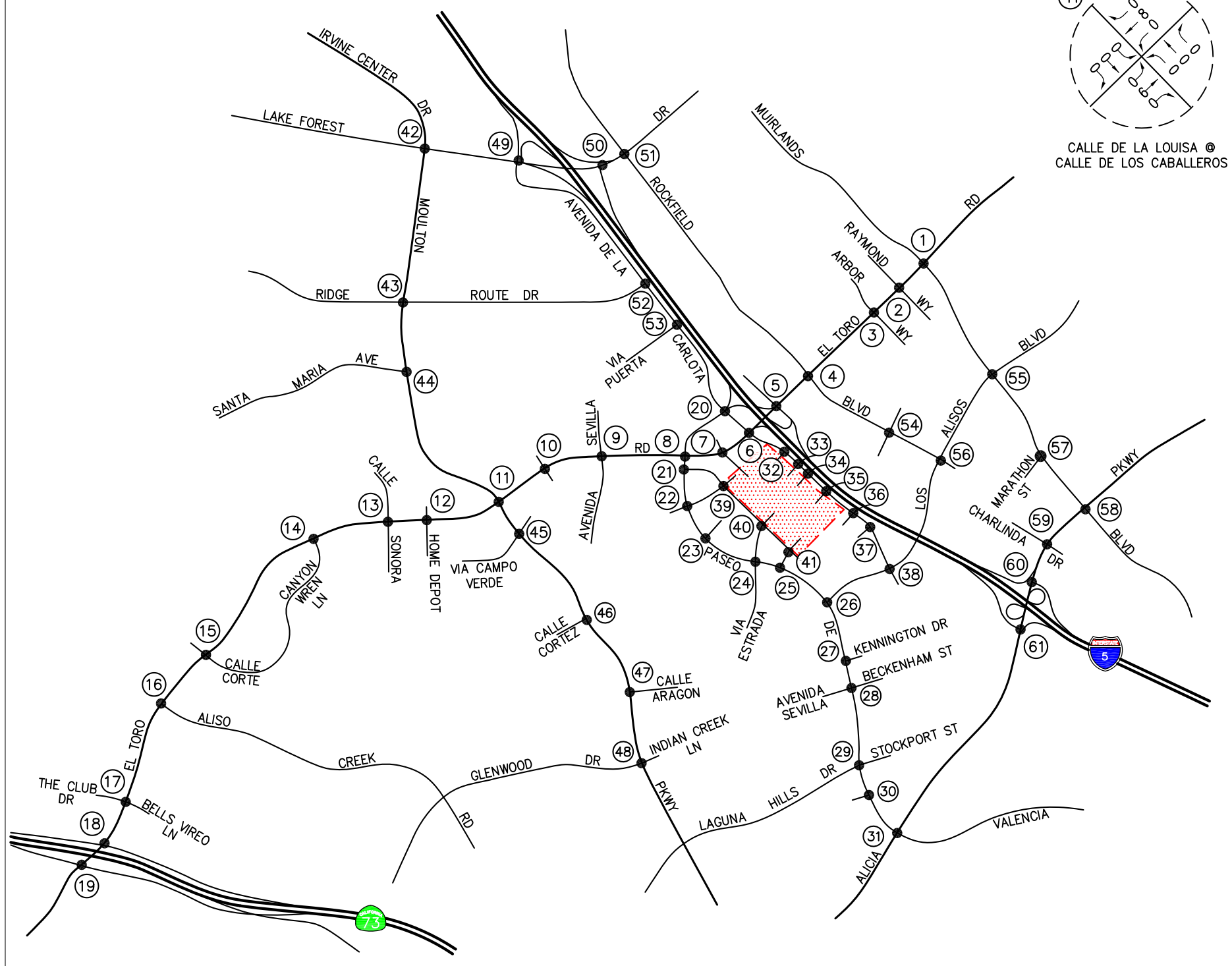
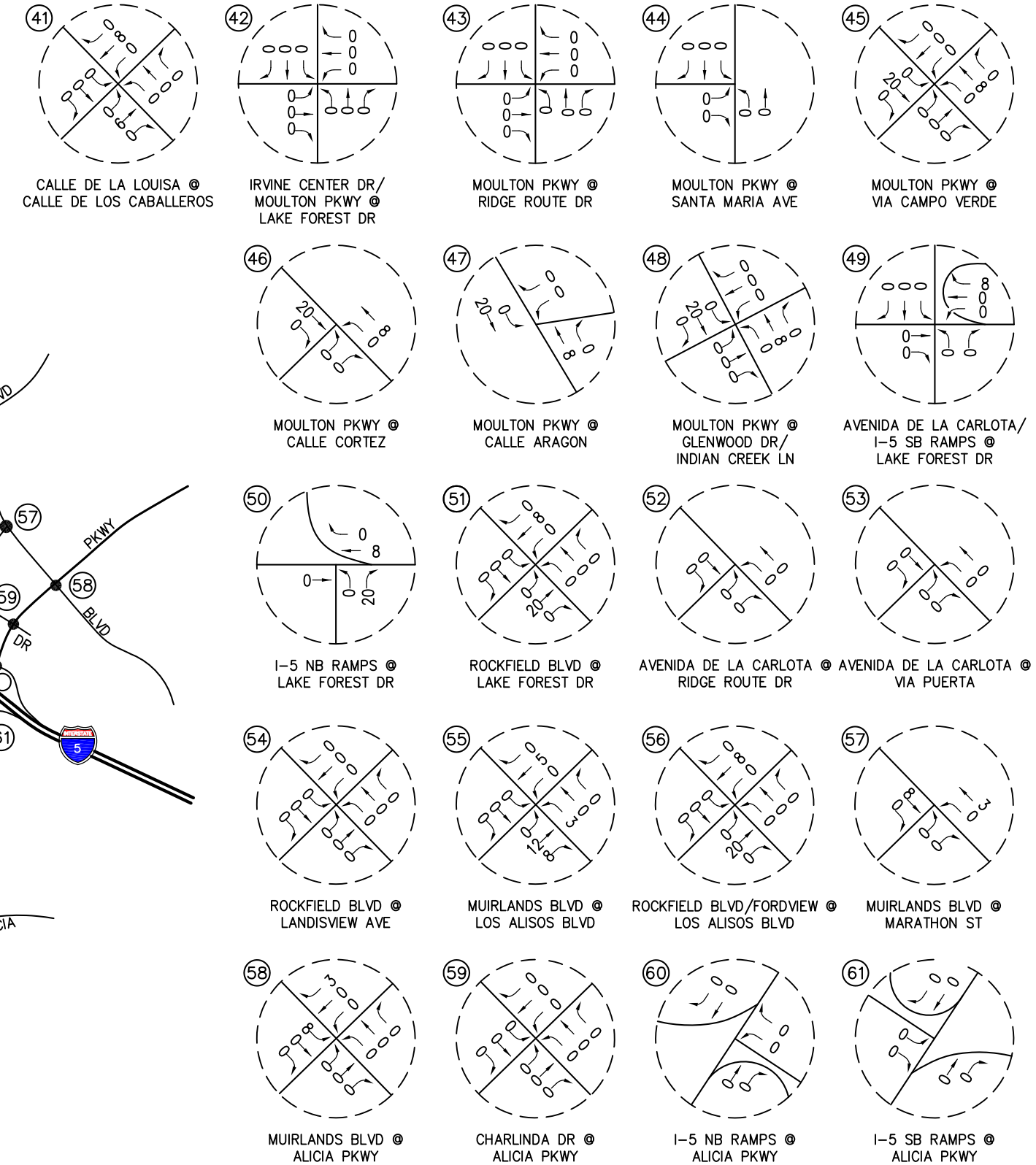
FIGURE 8B

PROJECT TRAFFIC VOLUMES
AM PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 8C

PROJECT TRAFFIC VOLUMES
AM PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

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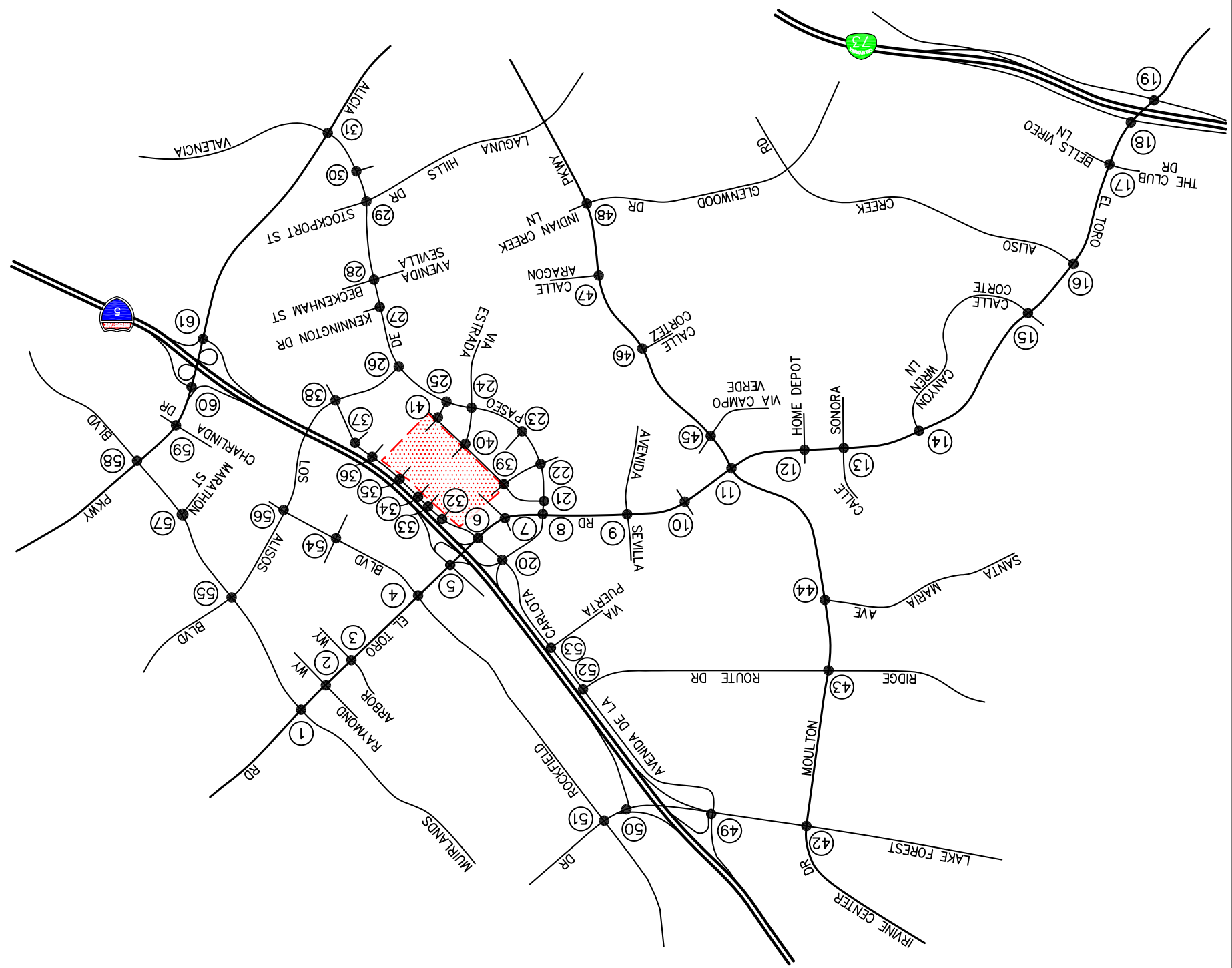
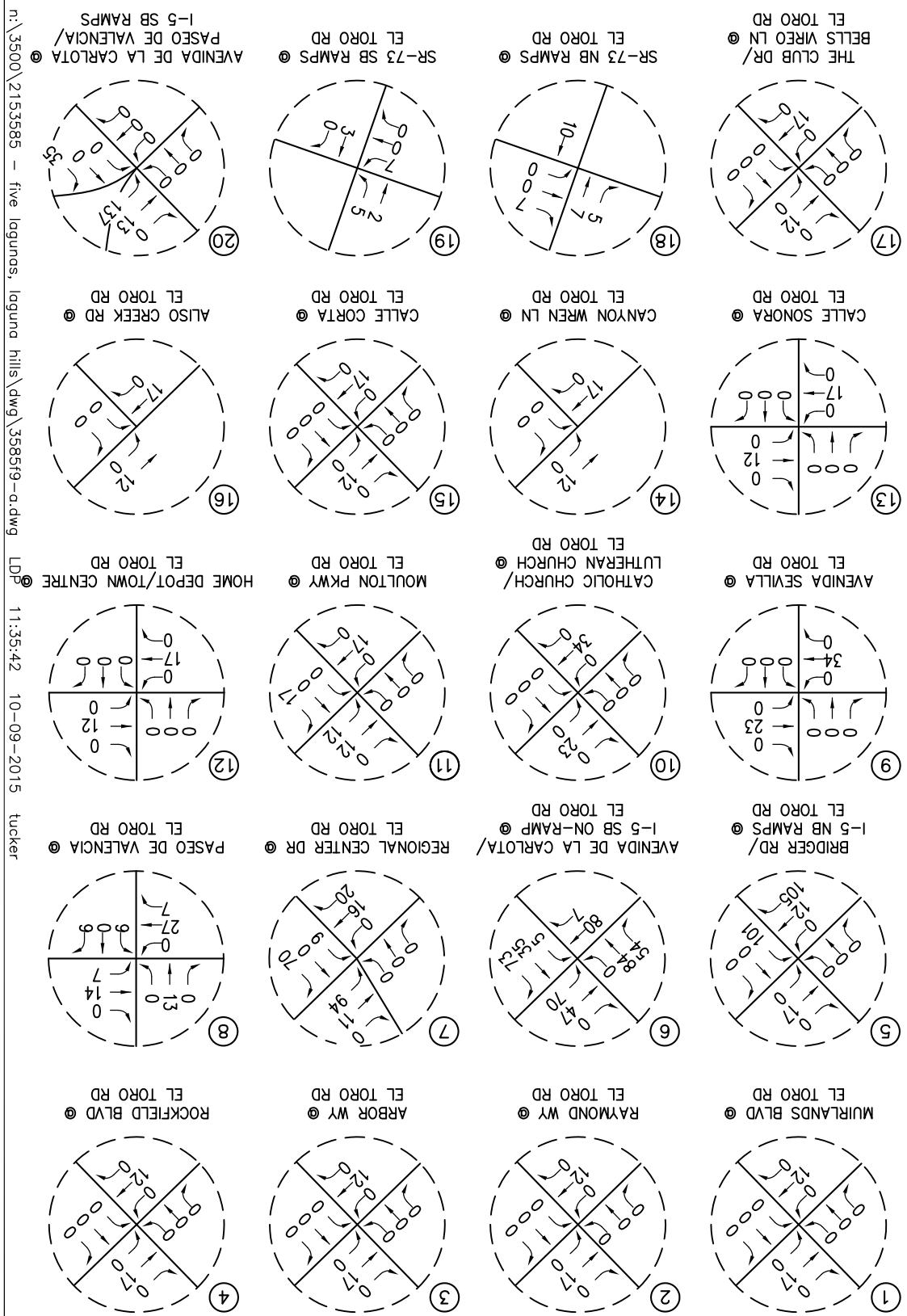
FIGURE 9A

PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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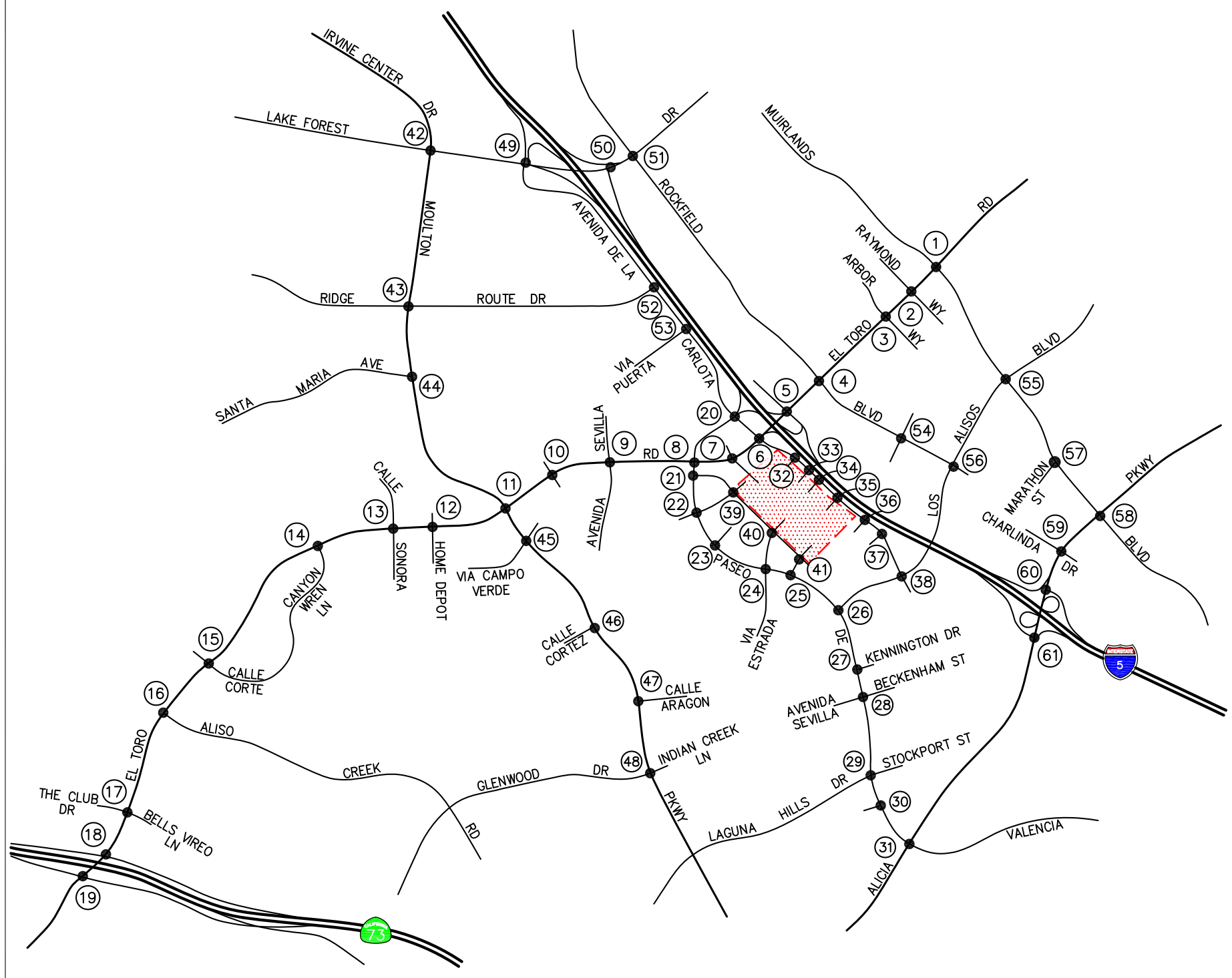

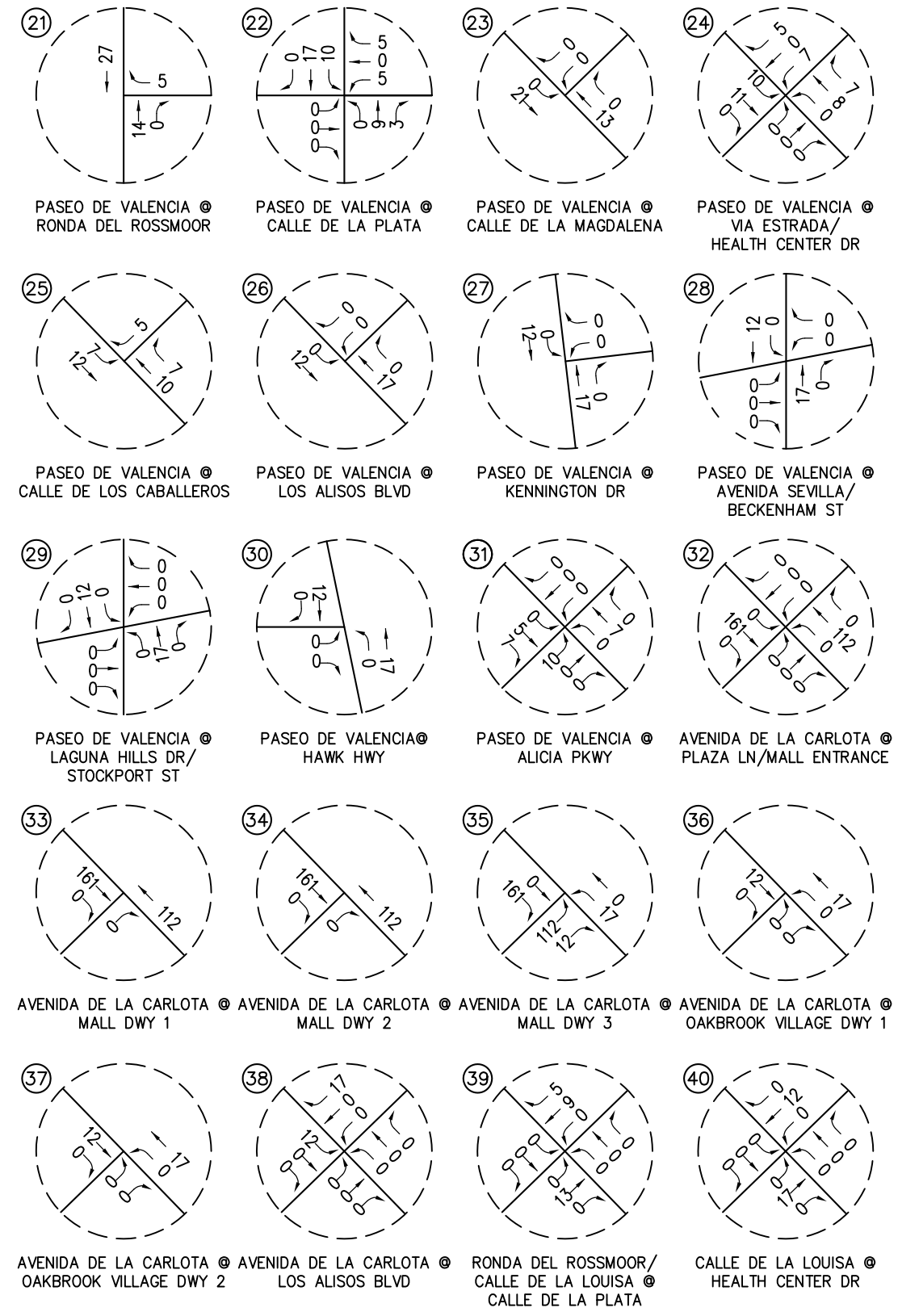

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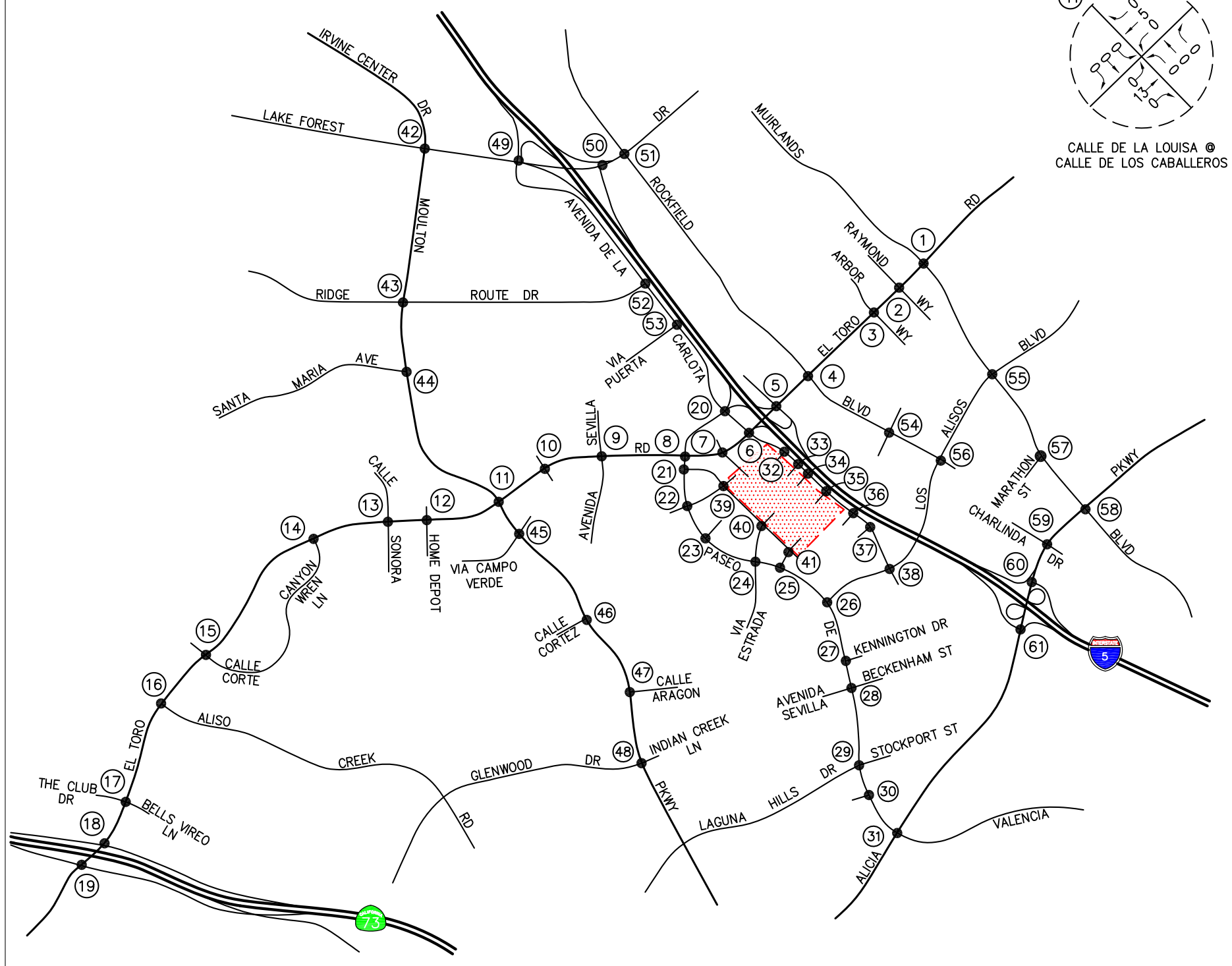
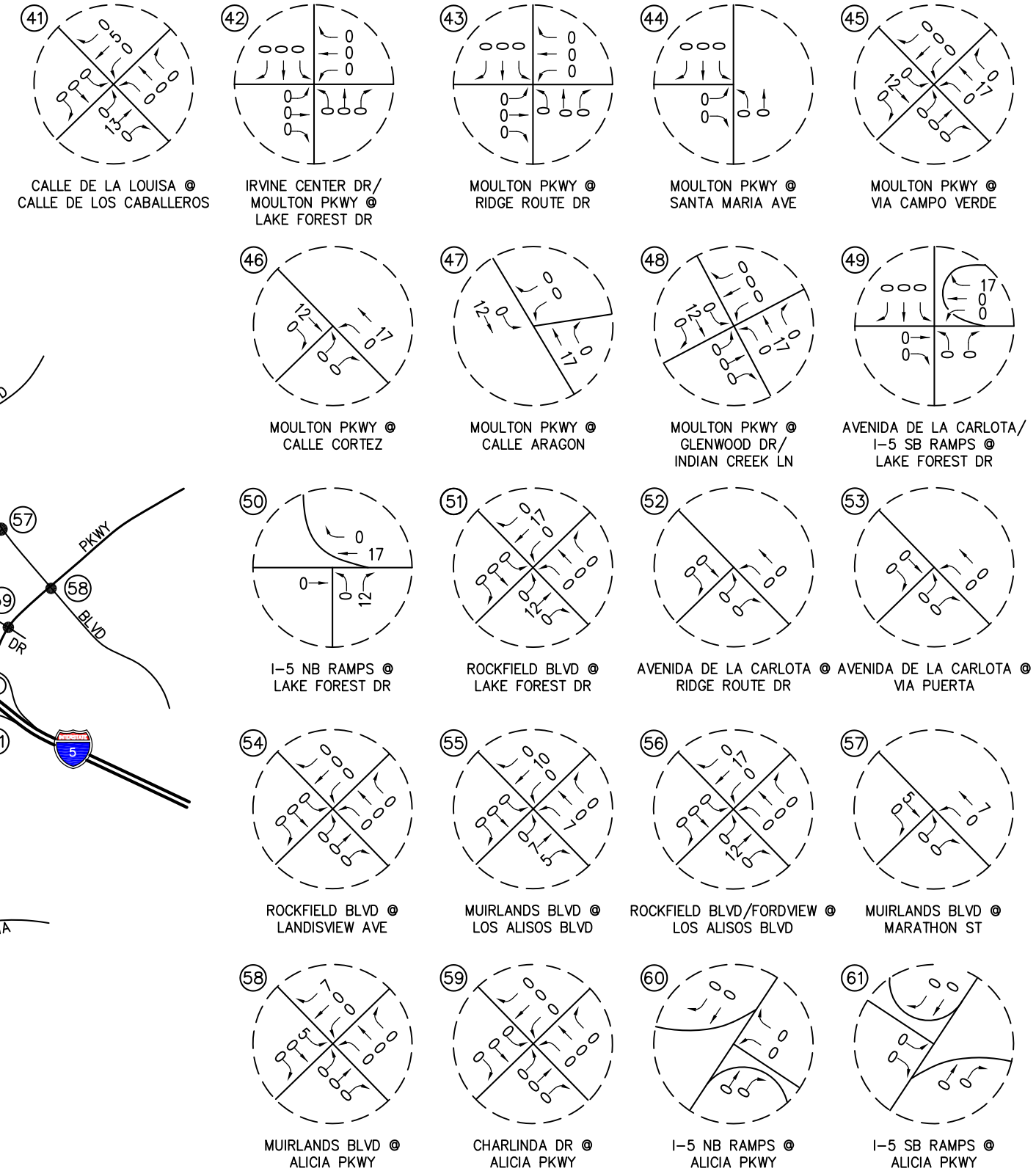
FIGURE 9B

PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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(#) = STUDY INTERSECTION

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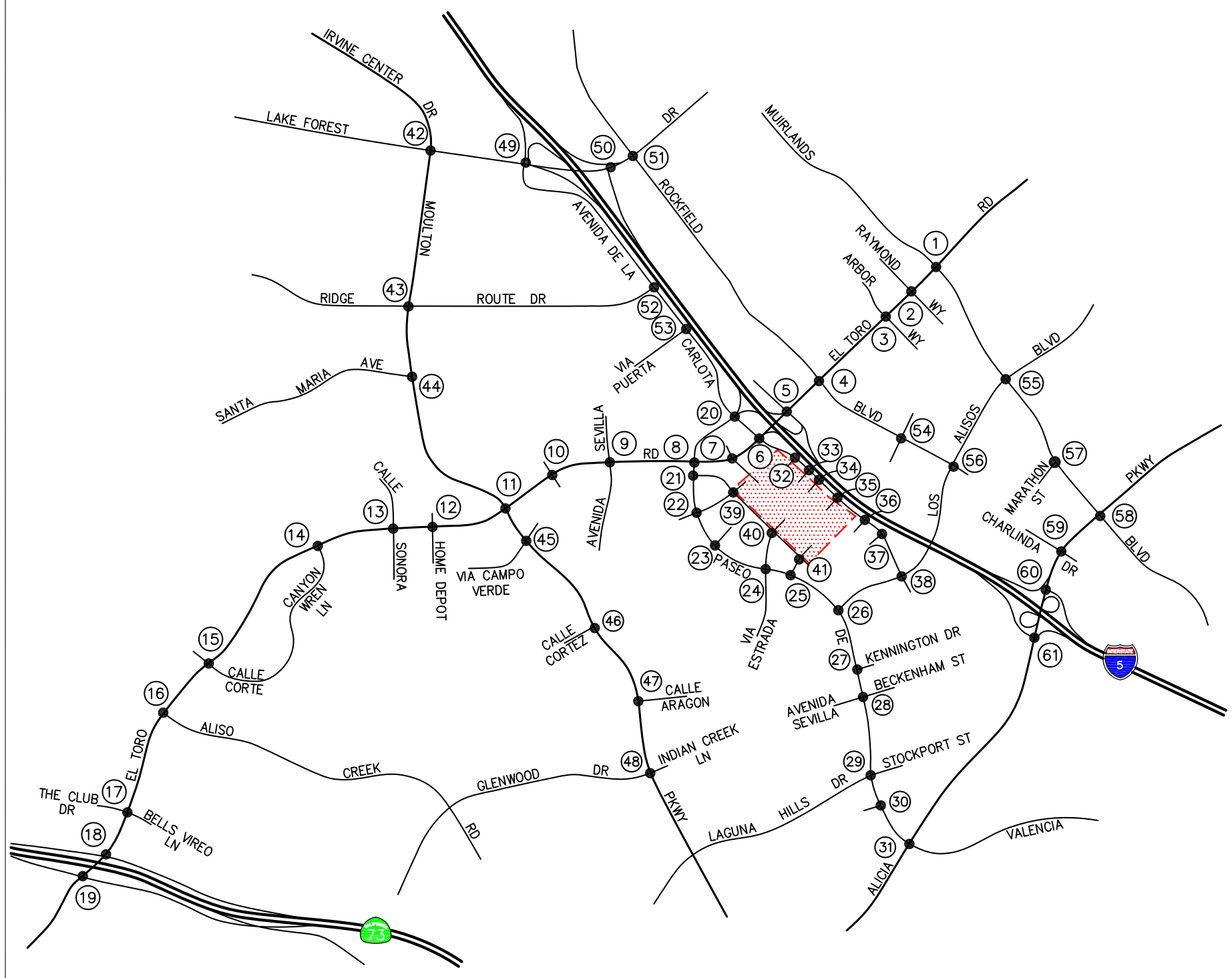
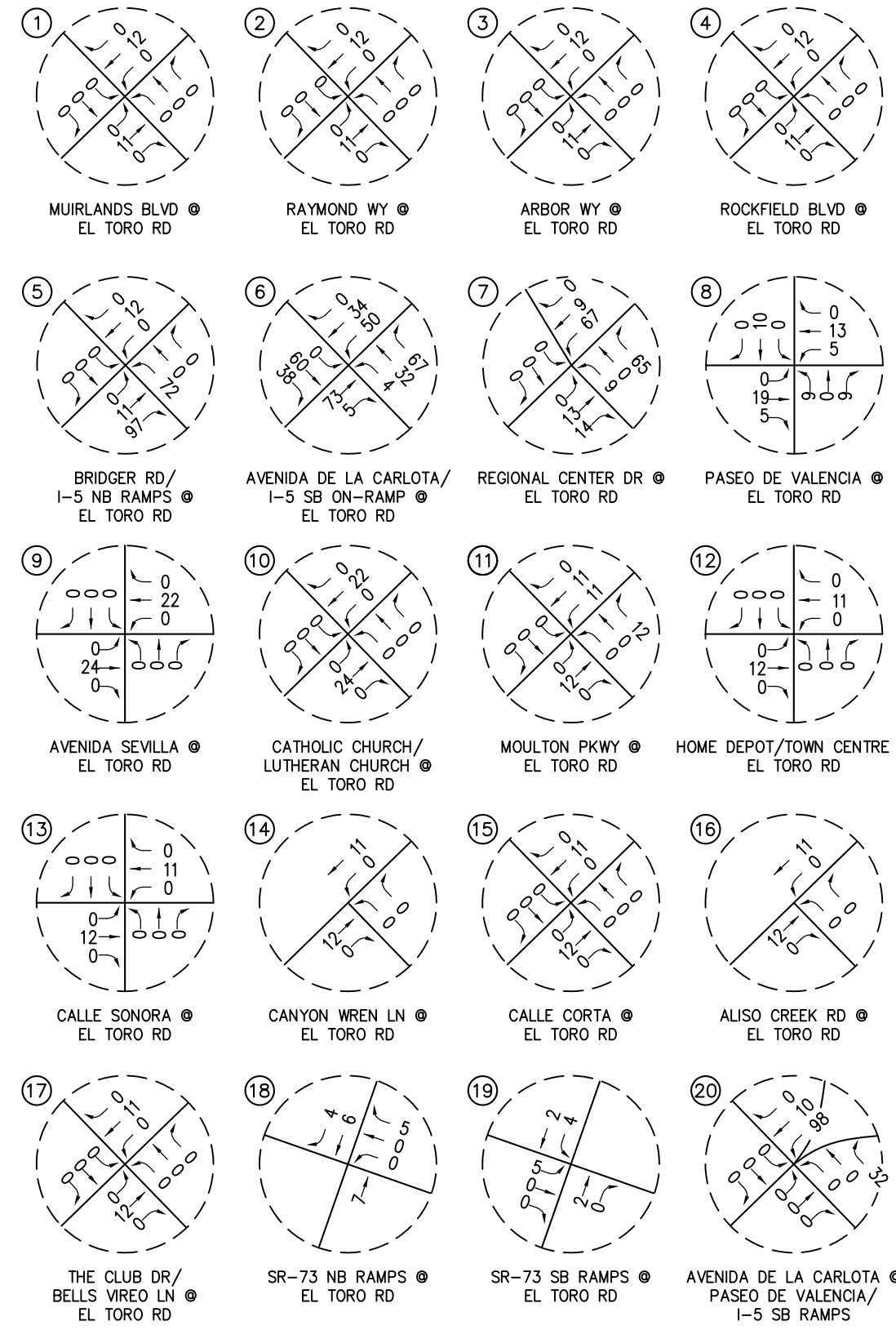
FIGURE 9C

PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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(#) = STUDY INTERSECTION

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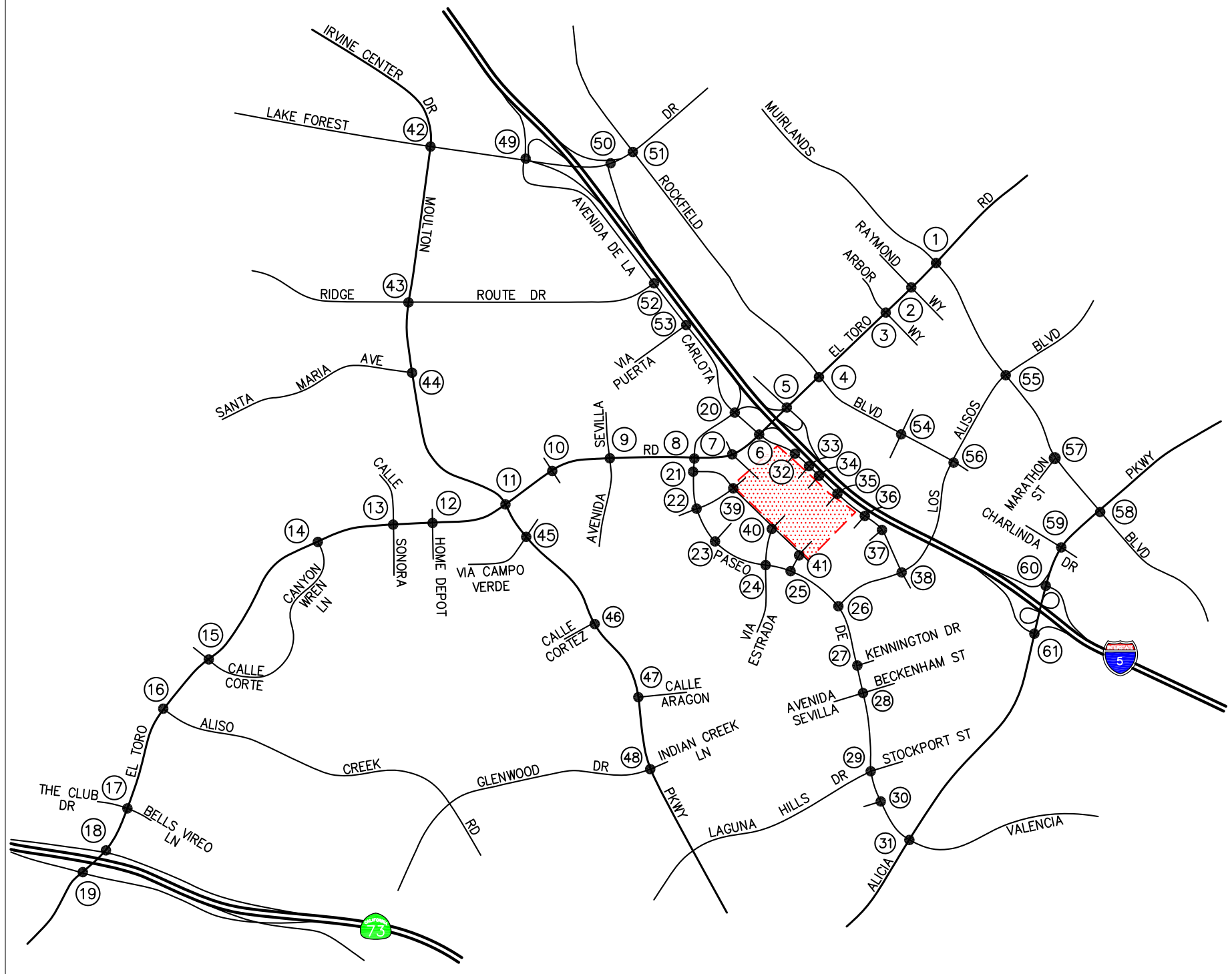
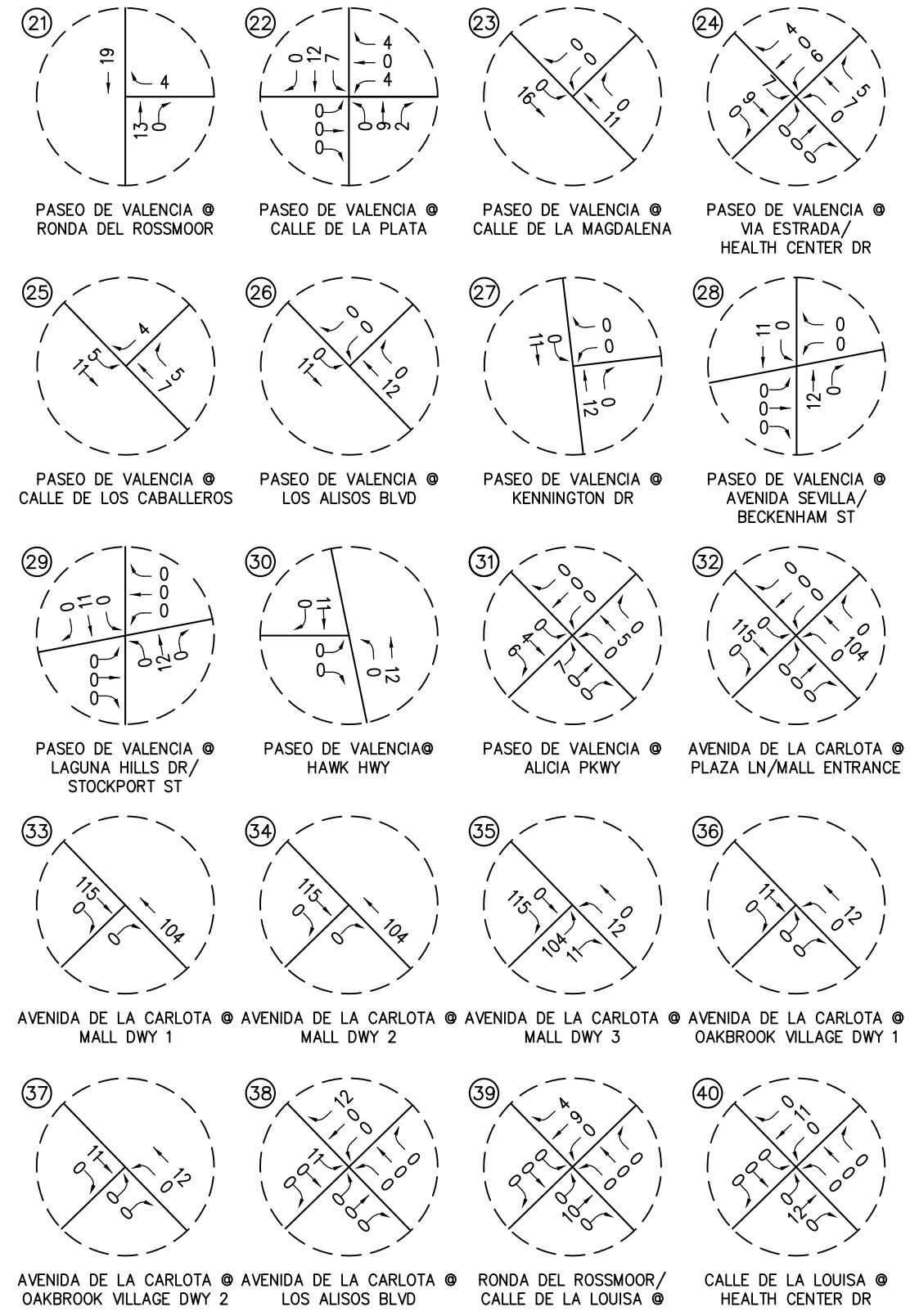
FIGURE 10A

PROJECT TRAFFIC VOLUMES
MIDDAY PEAK HOUR
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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(#) = STUDY INTERSECTION

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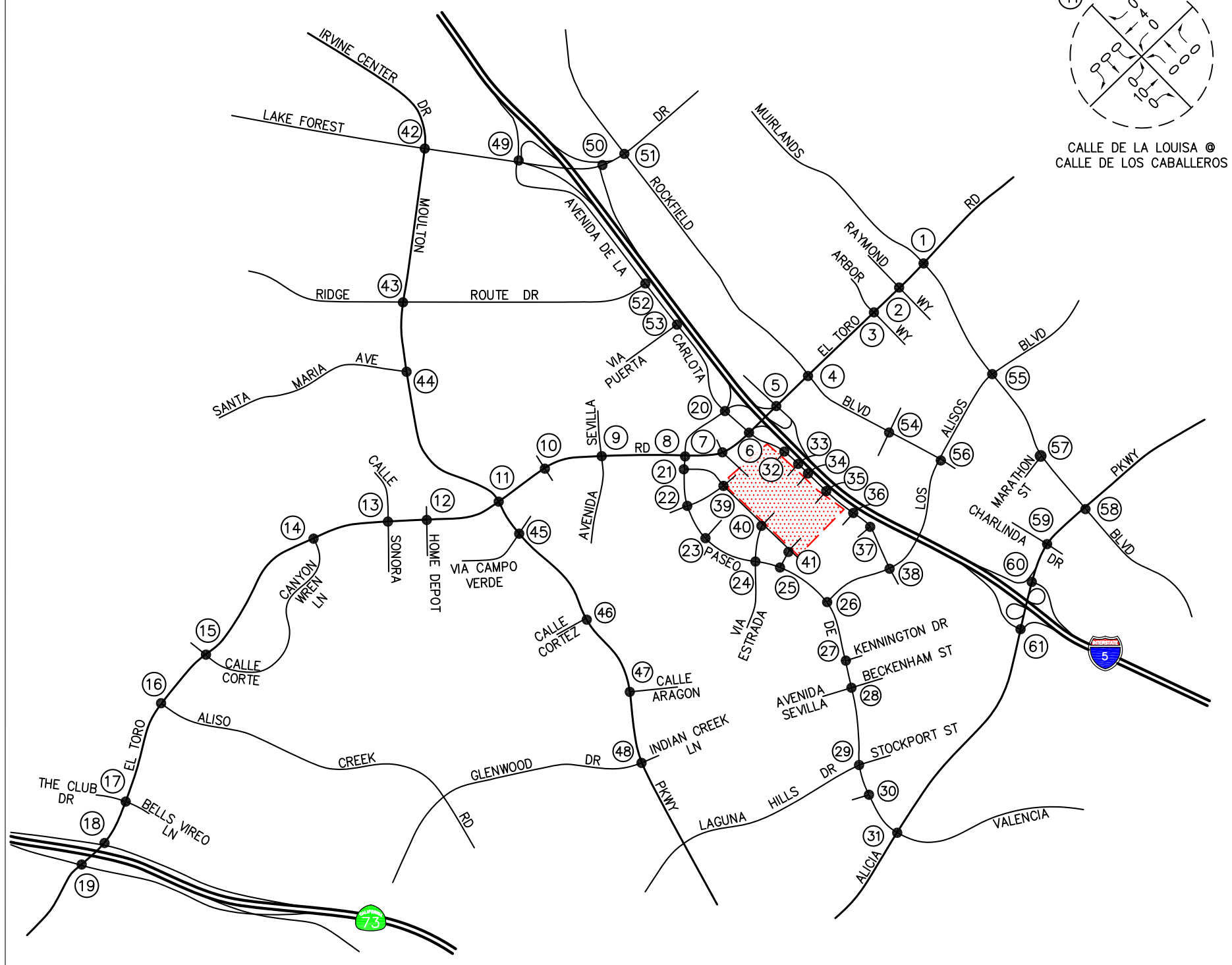
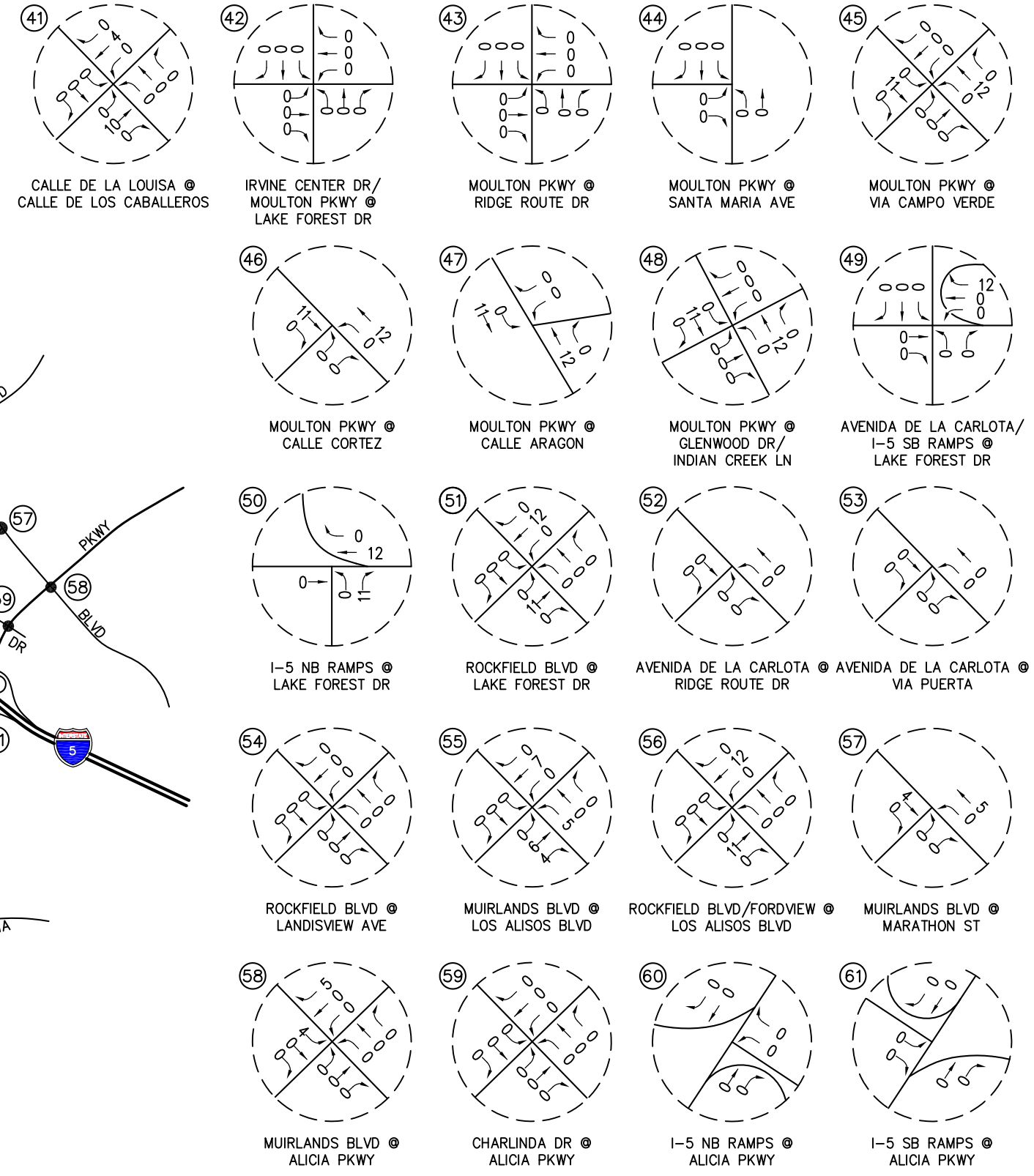
FIGURE 10B

PROJECT TRAFFIC VOLUMES
MIDDAY PEAK HOUR
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 10C

PROJECT TRAFFIC VOLUMES
MIDDAY PEAK HOUR

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

4.3 Existing Plus Project Traffic Forecasts

The Existing plus Project analysis adds project-generated forecasts to existing conditions. ***Figures 11A*** through ***13C*** present the Existing (2015) Plus Project traffic volumes at the 61 key intersections for the weekday AM, weekday PM, and Saturday midday, peak hours, respectively.

4.4 Year 2018 Cumulative Base

The Cumulative Base or "background" traffic projections account for existing traffic volumes, and include two growth elements over existing traffic volumes: (1) increase in the existing traffic volumes due to overall regional growth; and, (2) traffic generated by specific developments expected to be constructed by Year 2018 in the vicinity of the Project study area. The following sections describe these two growth elements in existing traffic volumes.

No physical, capacity-enhancing improvements to intersection geometry or roadway segments have been assumed under Year 2018 Cumulative Base conditions because no transportation system projects within the study area are expected to be fully developed/completed by Year 2018.

4.4.1 *Ambient Growth*

The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The Year 2018 background traffic volumes were estimated based on a 1% annual growth rate (based on other traffic studies completed in the City), corresponding to a total adjustment of 3% from 2015 conditions.

4.4.2 *Cumulative Projects*

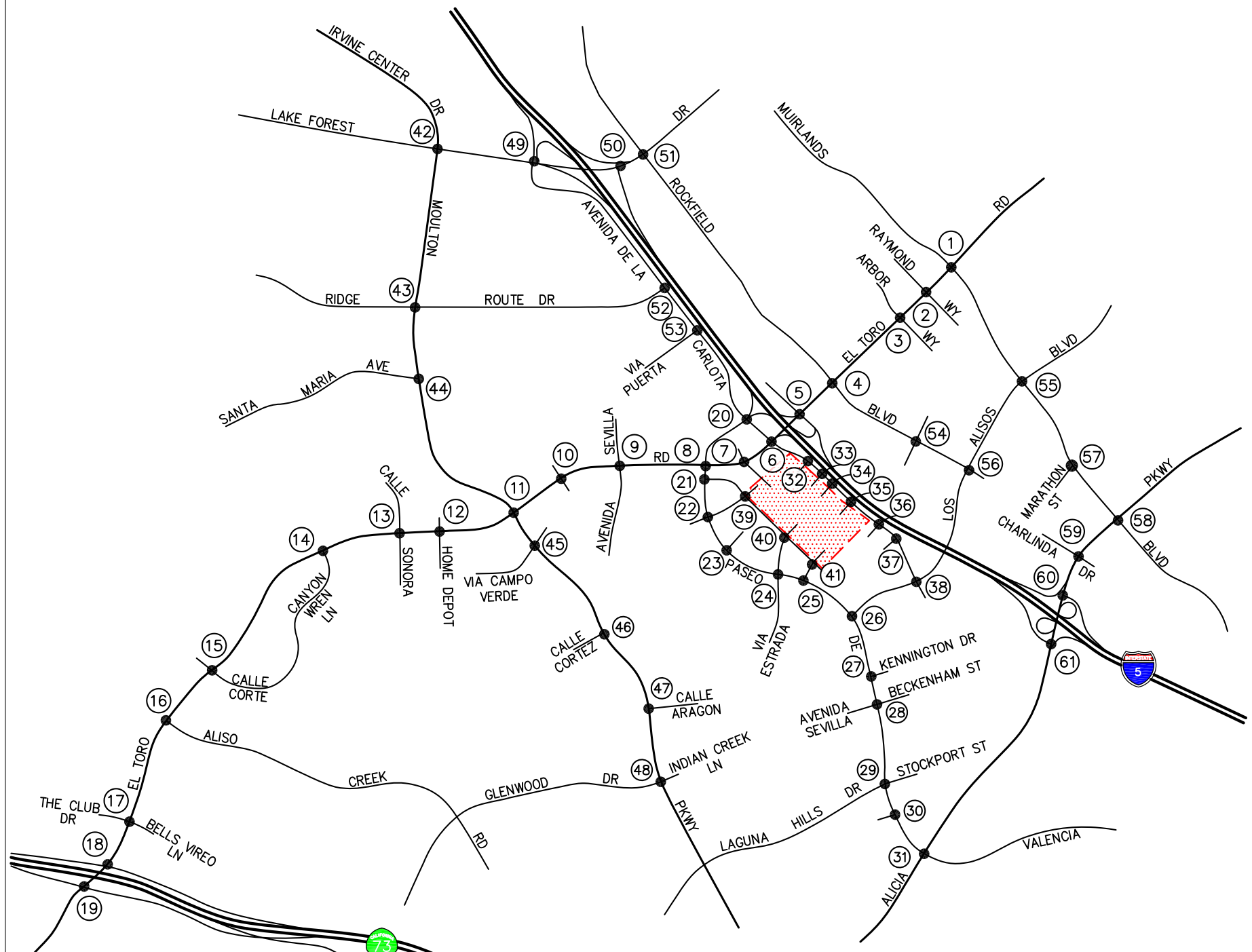
The traffic expected to be generated by future projects that are either under construction or proposed within the study area accounts for the second element of the Year 2018 Cumulative Base scenario. ***Table 8*** presents the trip generation estimates for cumulative projects, and ***Figure 14*** shows the location of these related projects. The list of cumulative projects was developed in conjunction with City staff.

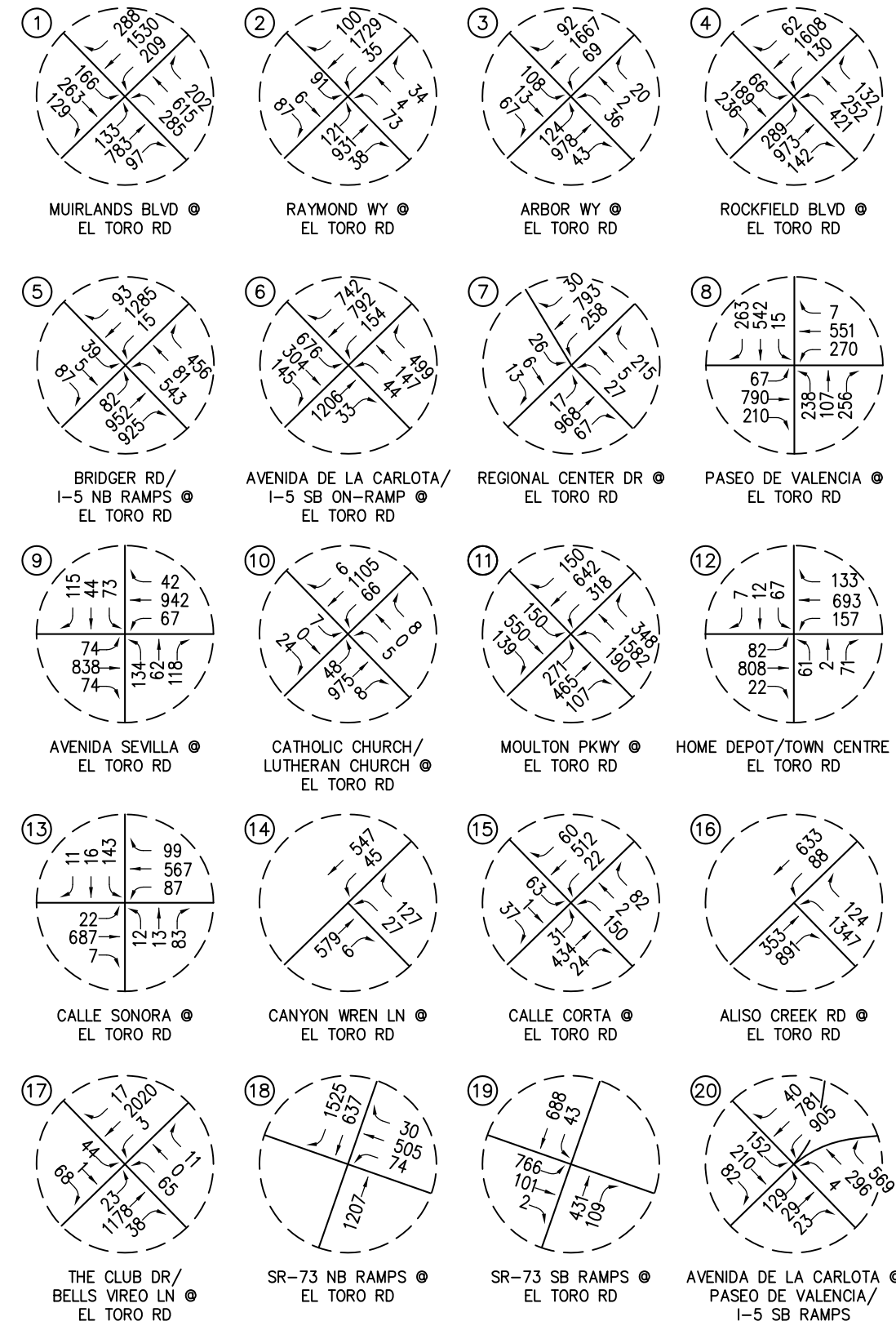
4.4.3 *Year 2018 Cumulative Base Traffic Volumes*

Figures 15A through ***17C*** present the Year 2018 Cumulative Base traffic volumes at the 61 key intersections during the weekday AM, weekday PM, and Saturday midday, peak hours, respectively.

4.5 Year 2018 Cumulative Plus Project Traffic Volumes

Figures 18A through ***20C*** illustrate the the Year 2018 Cumulative Plus Project traffic volumes at the 61 key intersections during the weekday AM, weekday PM, and Saturday midday, peak hours, respectively.





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

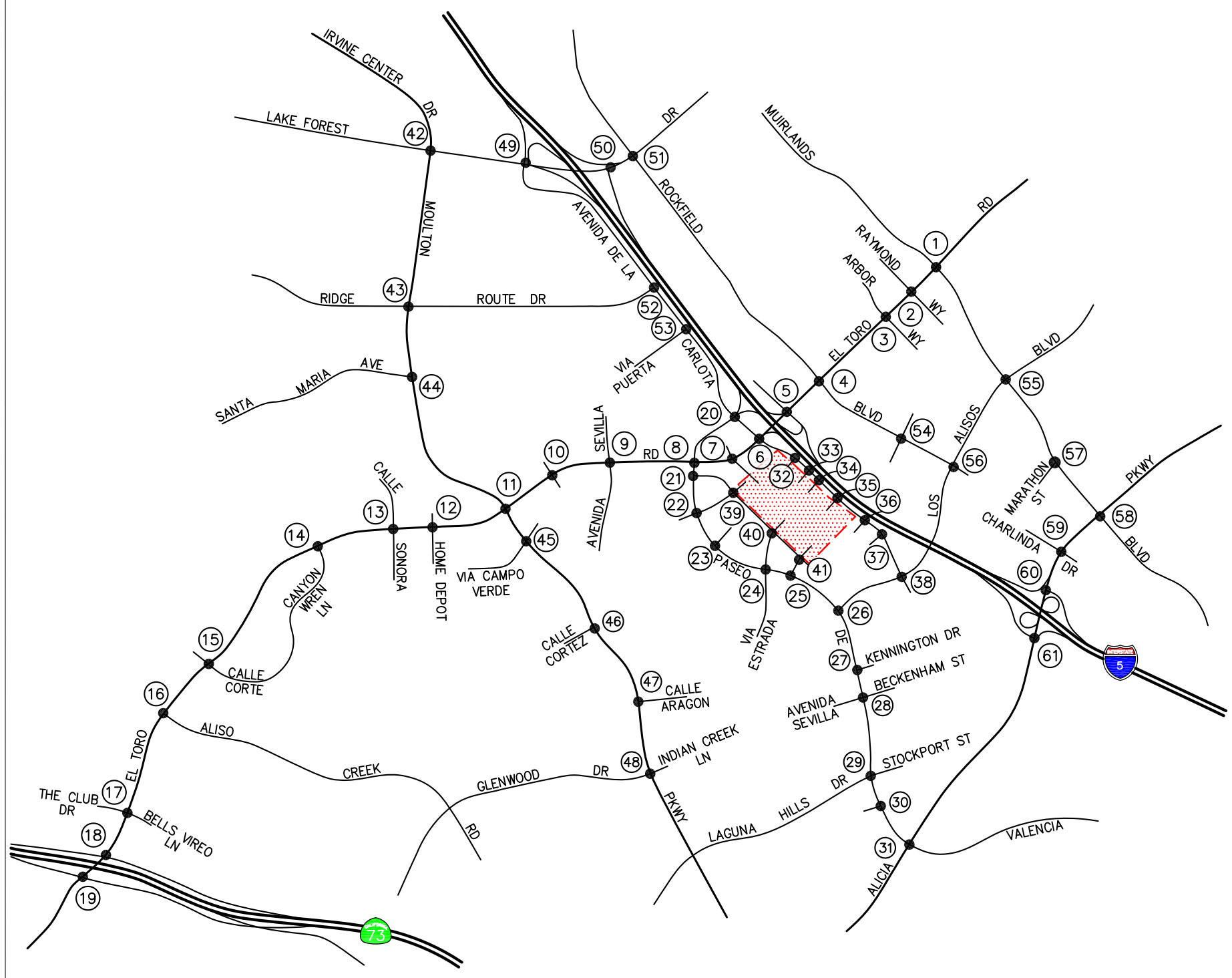
KEY

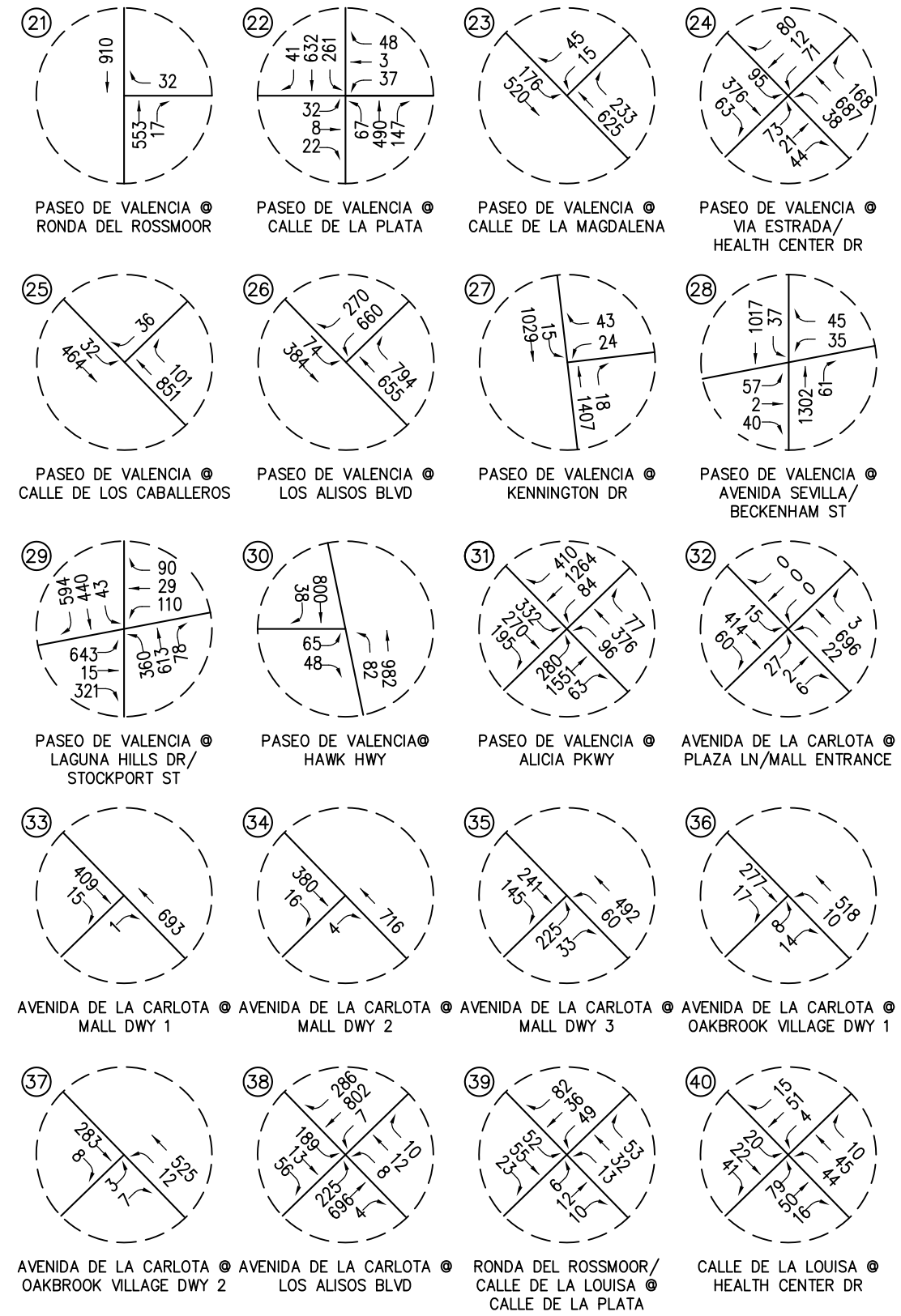
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 11A

EXISTING (2015) PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

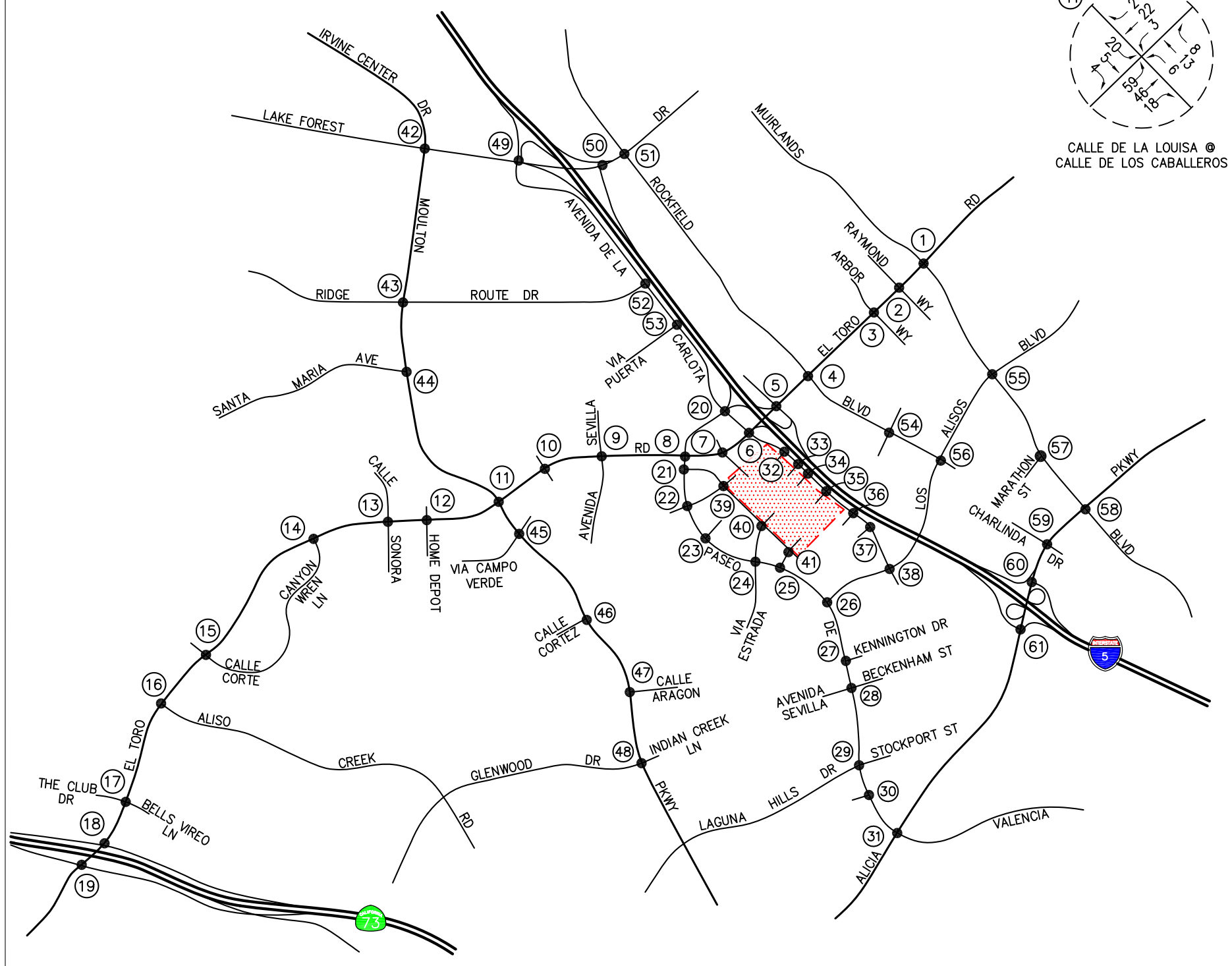
KEY

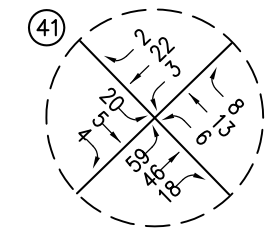
(#) = STUDY INTERSECTION

= PROJECT SITE

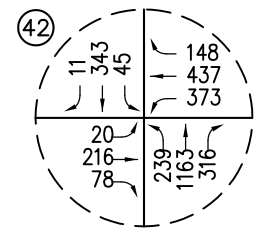
FIGURE 11B

EXISTING (2015) PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

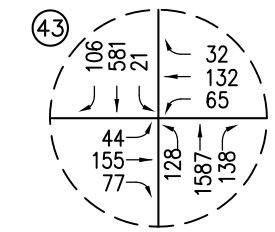




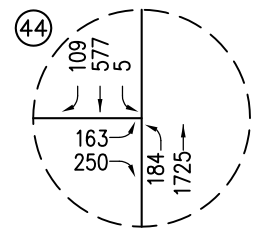
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



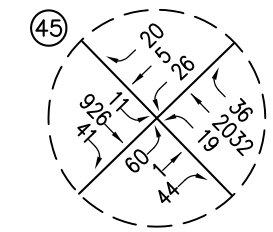
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



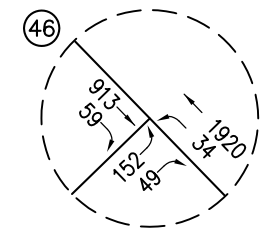
MOULTON PKWY @
RIDGE ROUTE DR



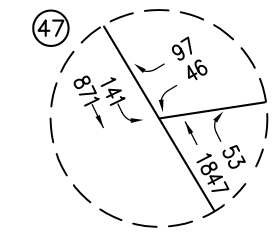
MOULTON PKWY @
SANTA MARIA AVE



MOULTON PKWY @
VIA CAMPO VERDE



MOULTON PKWY @
CALLE CORTEZ



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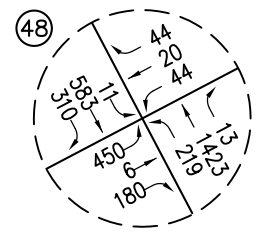
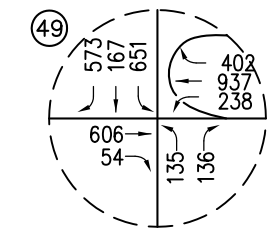
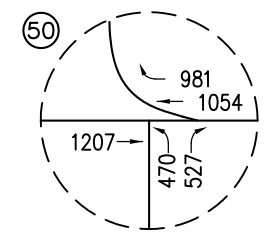
CALLE ARAGON



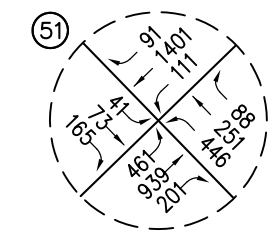
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



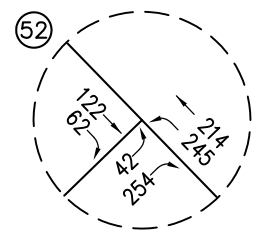
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



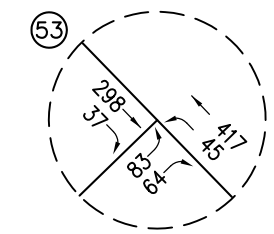
I-5 NB RAMPS @
LAKE FOREST DR



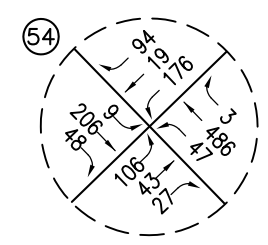
ROCKFIELD BLVD @
LAKE FOREST DR



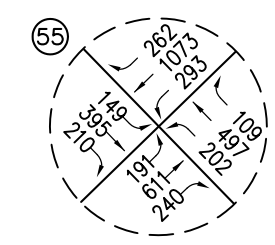
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



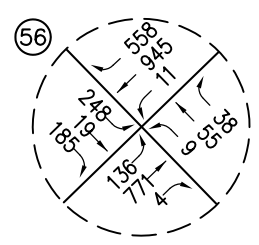
AVENIDA DE LA CARLOTA @
VIA PUERTA



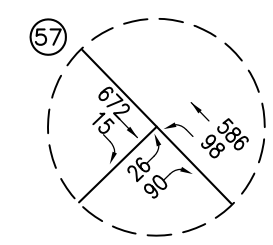
ROCKFIELD BLVD @
LANDISVIEW AVE



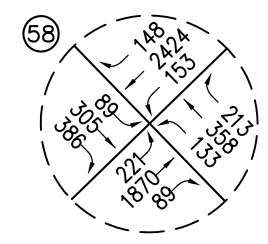
MUIRLANDS BLVD @
LOS ALISOS BLVD



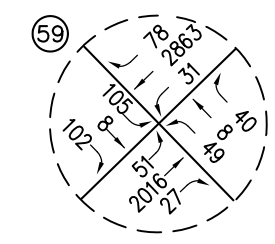
ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



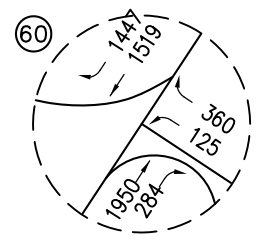
MUIRLANDS BLVD @
MARATHON ST



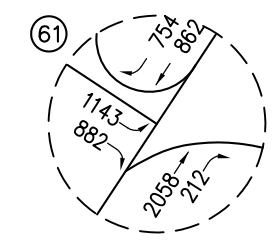
MUIRLANDS BLVD @
ALICIA PKWY



CHARLINDA DR @
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

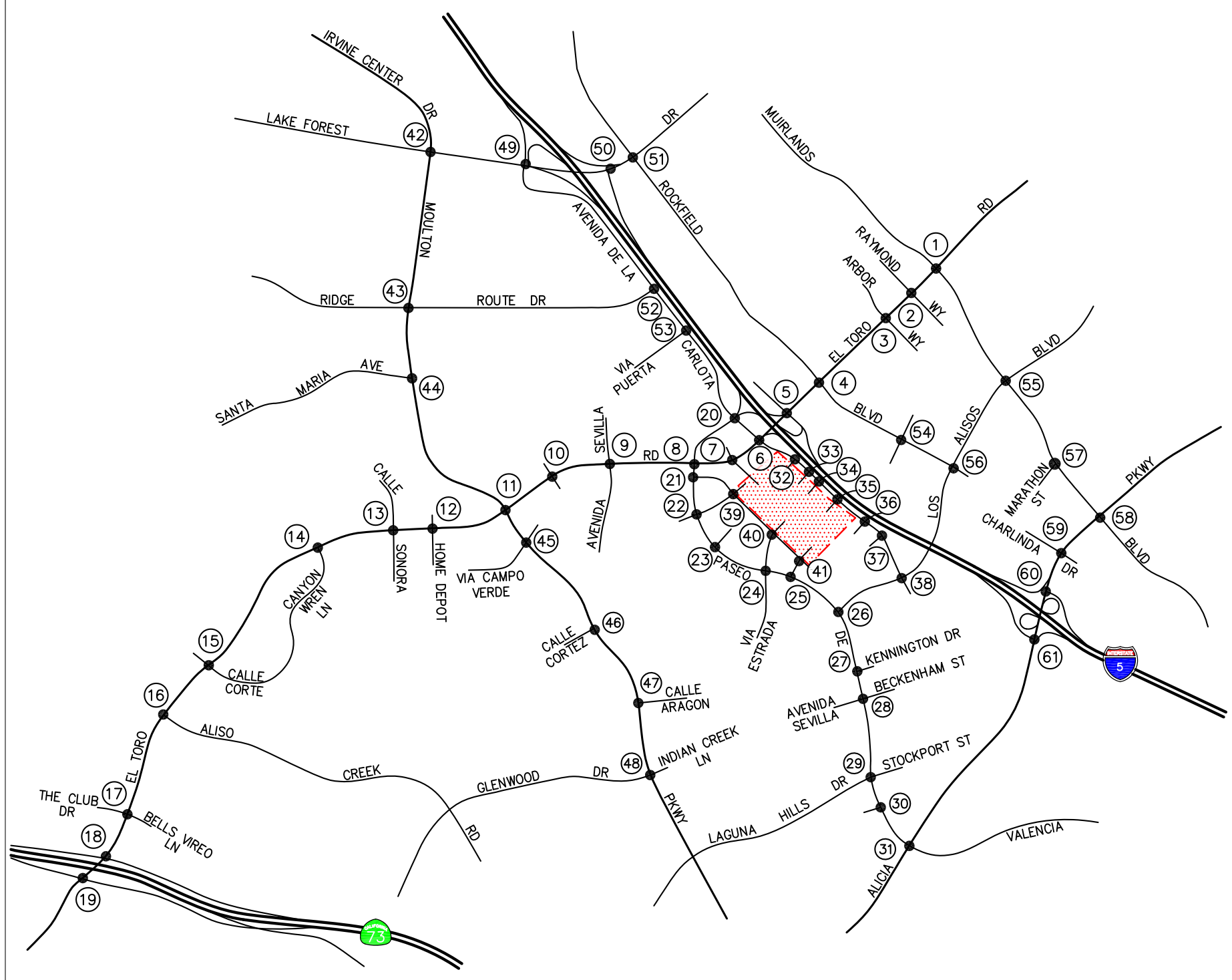
KEY

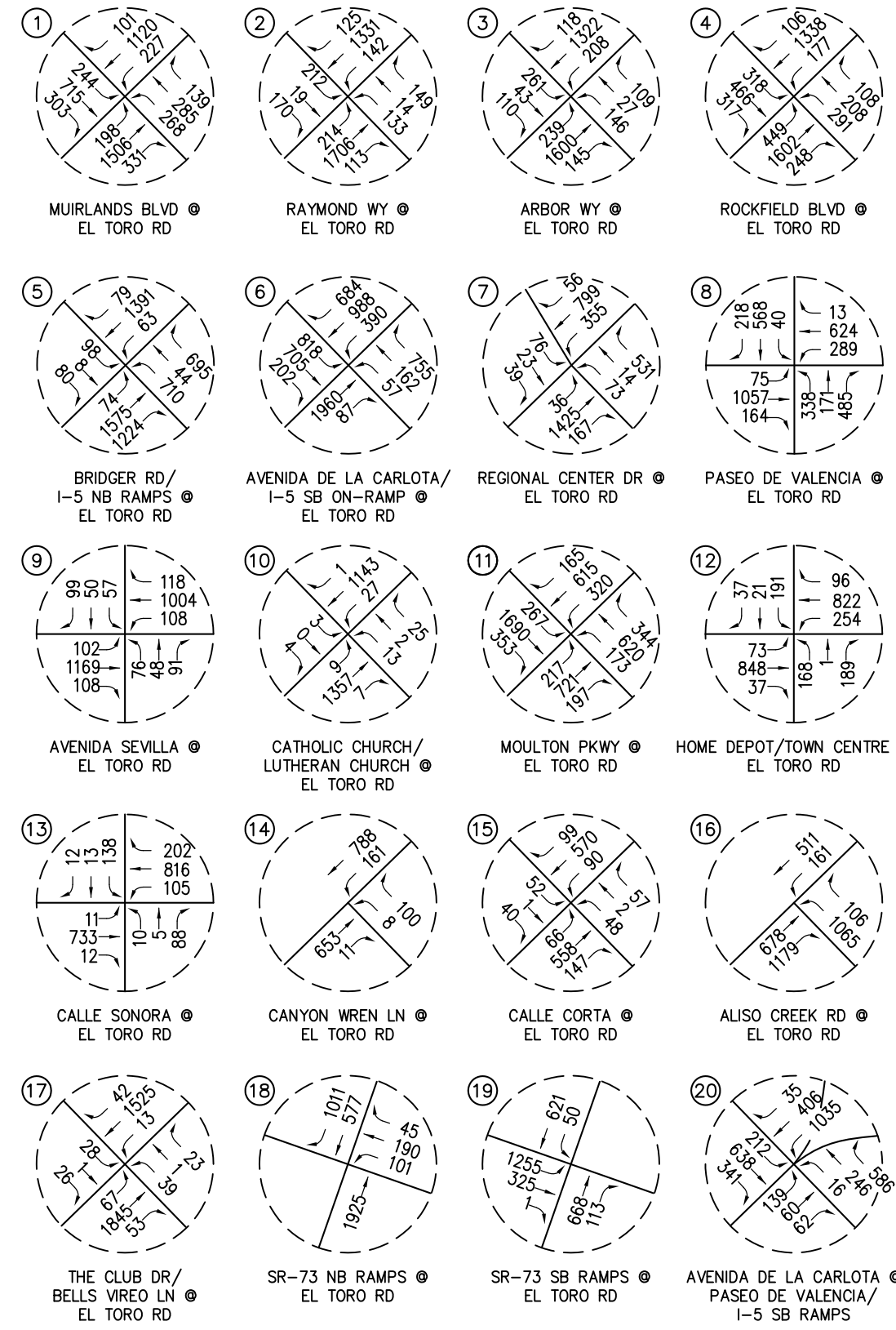
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 11C

EXISTING (2015) PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

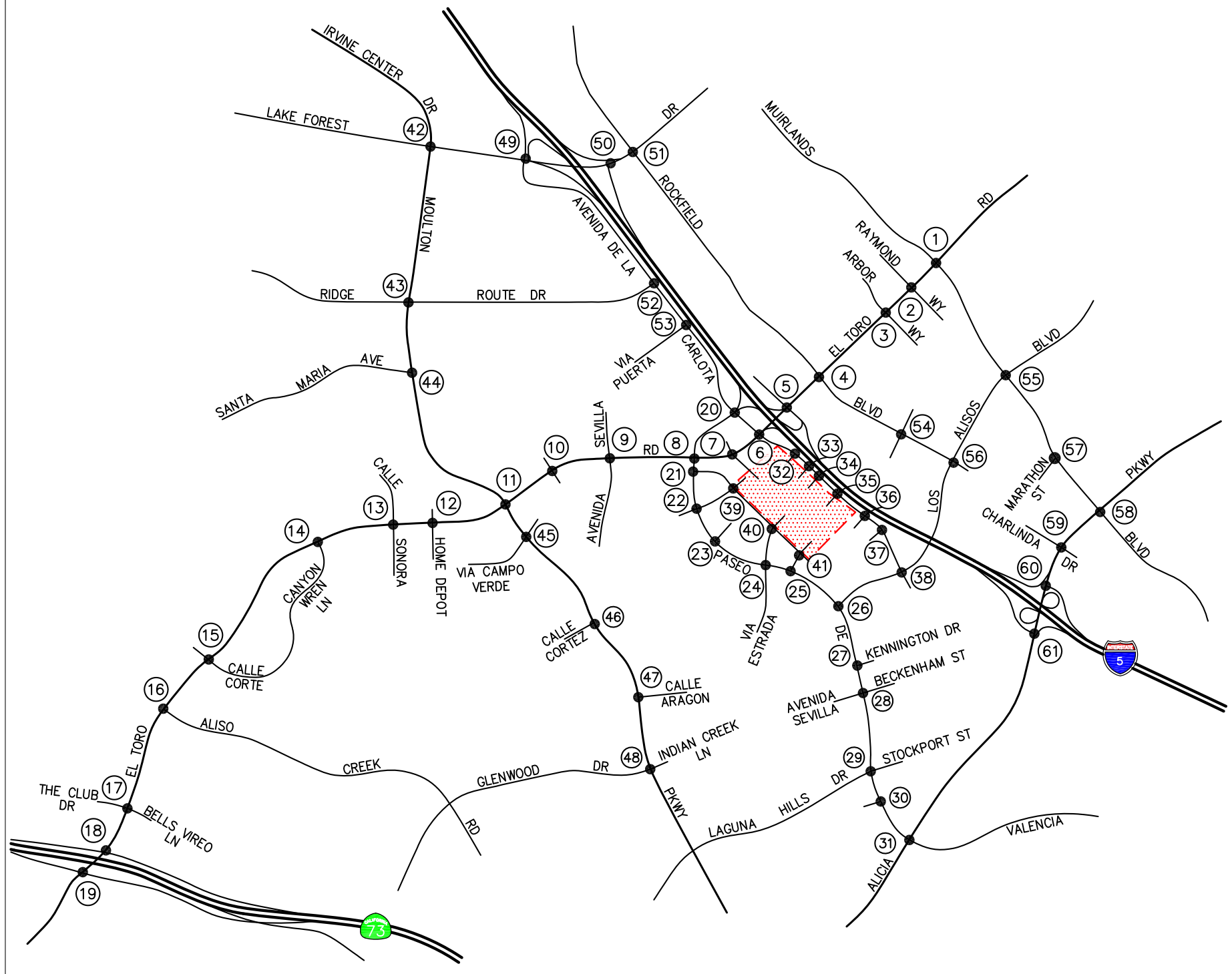
KEY

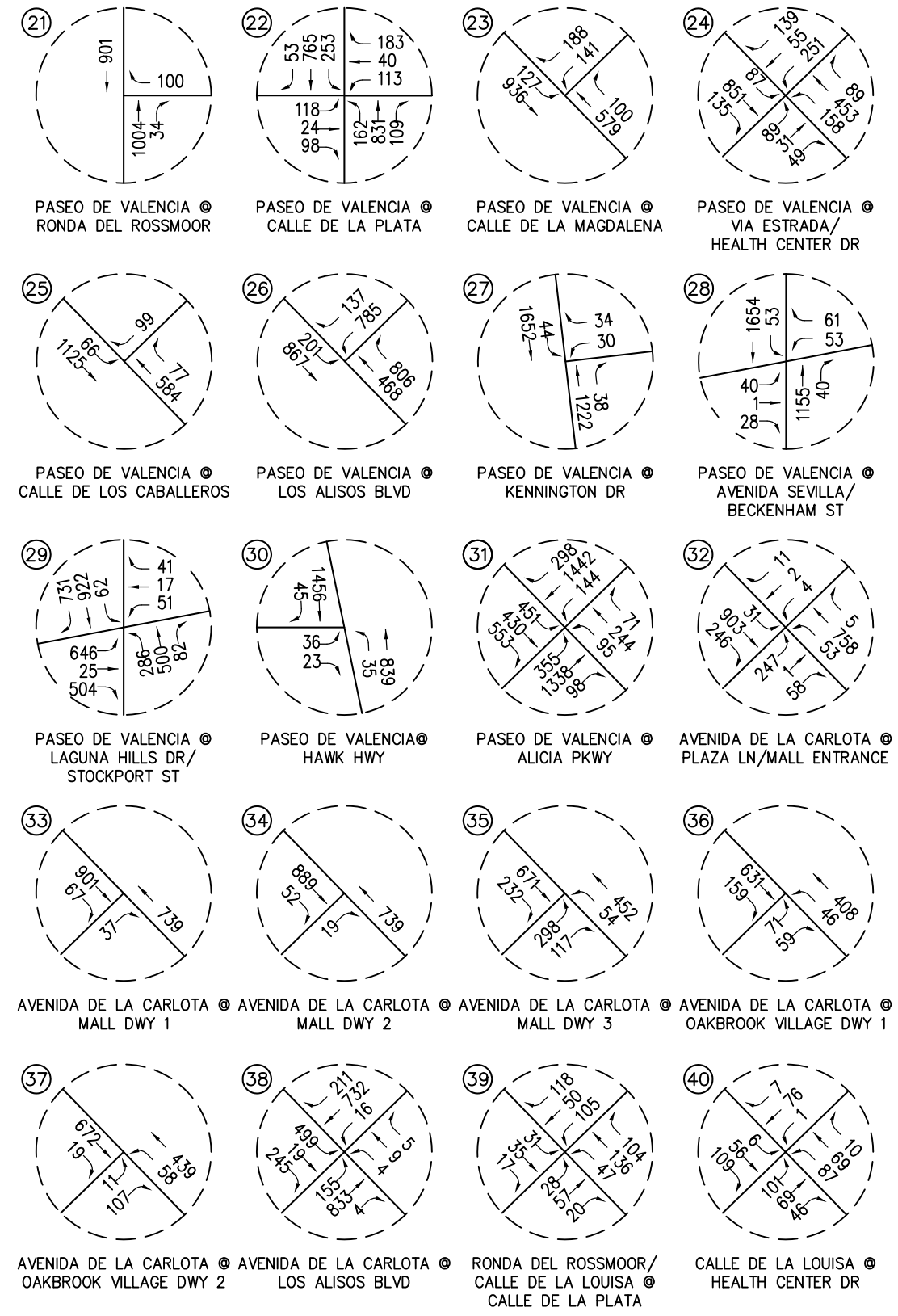
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 12A

EXISTING (2015) PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

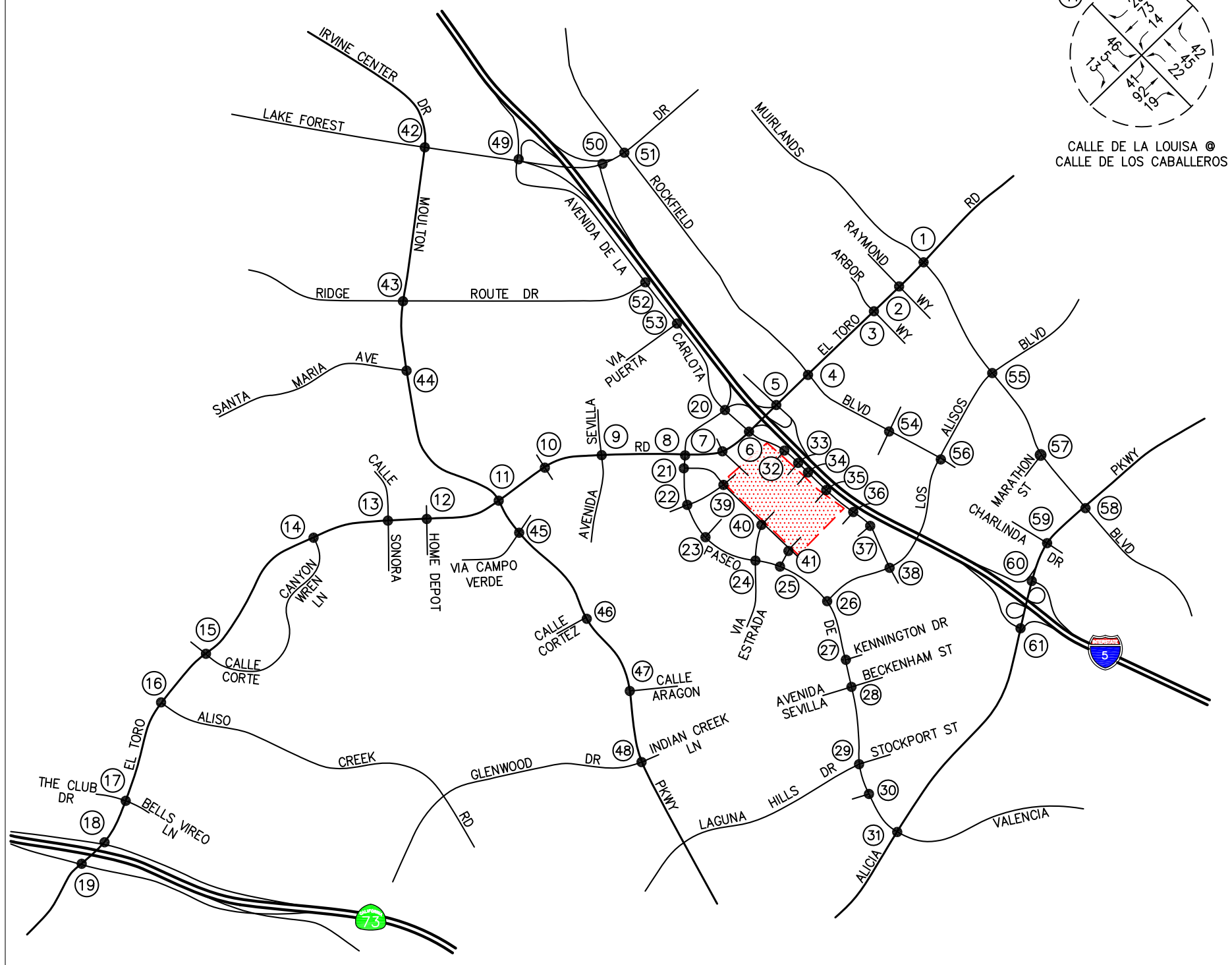
KEY

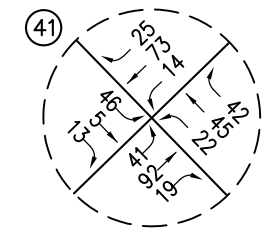
(#) = STUDY INTERSECTION

= PROJECT SITE

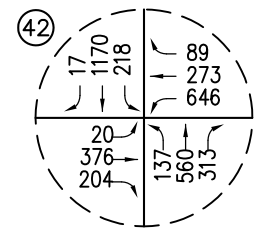
FIGURE 12B

EXISTING (2015) PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

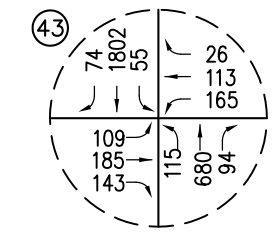




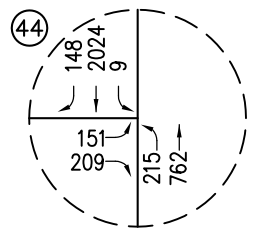
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



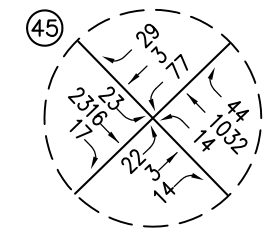
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



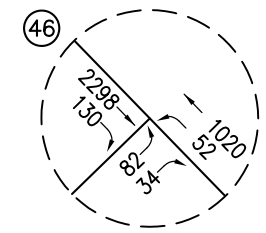
MOULTON PKWY @
RIDGE ROUTE DR



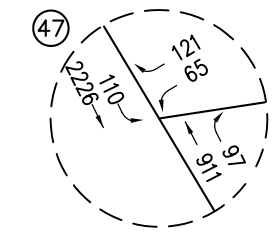
MOULTON PKWY @
SANTA MARIA AVE



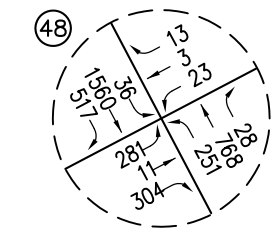
MOULTON PKWY @
VIA CAMPO VERDE



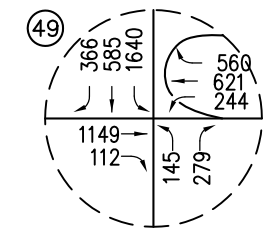
MOULTON PKWY @
CALLE CORTEZ



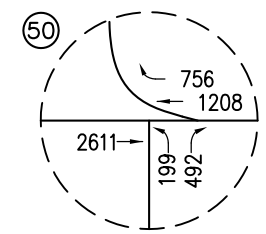
MOULTON PKWY @
CALLE ARAGON



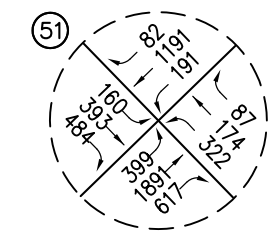
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



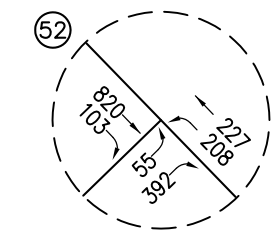
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



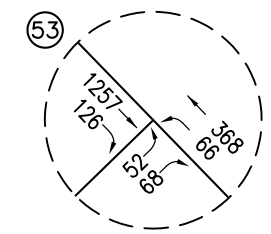
I-5 NB RAMPS @
LAKE FOREST DR



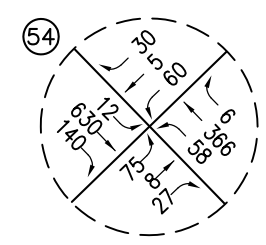
ROCKFIELD BLVD @
LAKE FOREST DR



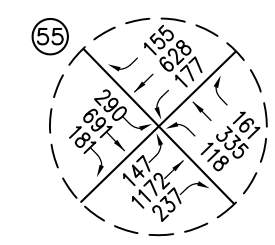
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



AVENIDA DE LA CARLOTA @
VIA PUERTA



ROCKFIELD BLVD @
LANDISVIEW AVE



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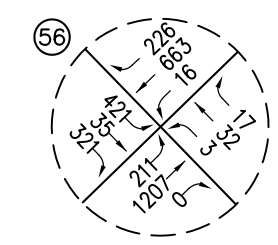
LOS ALISOS BLVD



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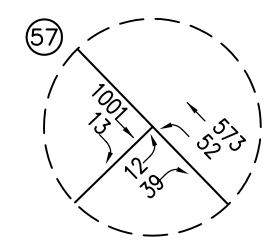
LOS ALISOS BLVD



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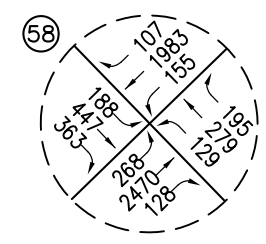
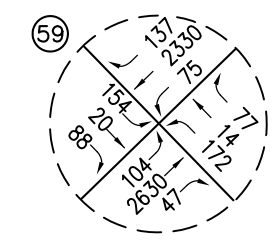
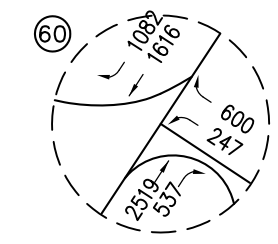


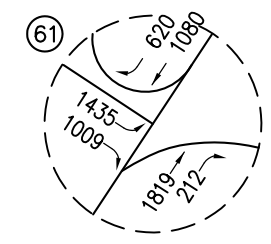
MUIRLANDS BLVD @
ALICIA PKWY



CHARLINDA DR @
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 12C

EXISTING (2015) PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

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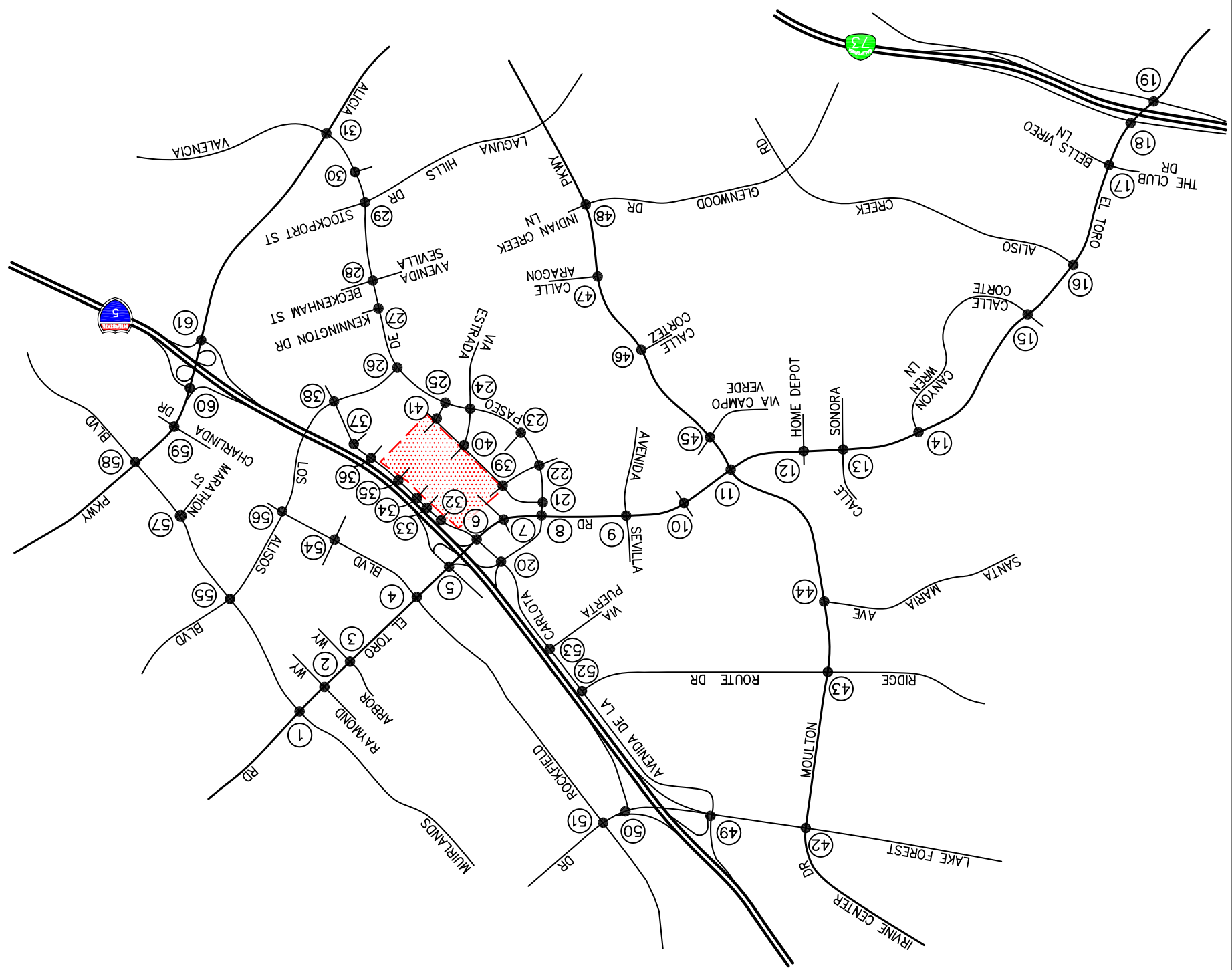
(#) = STUDY INTERSECTION

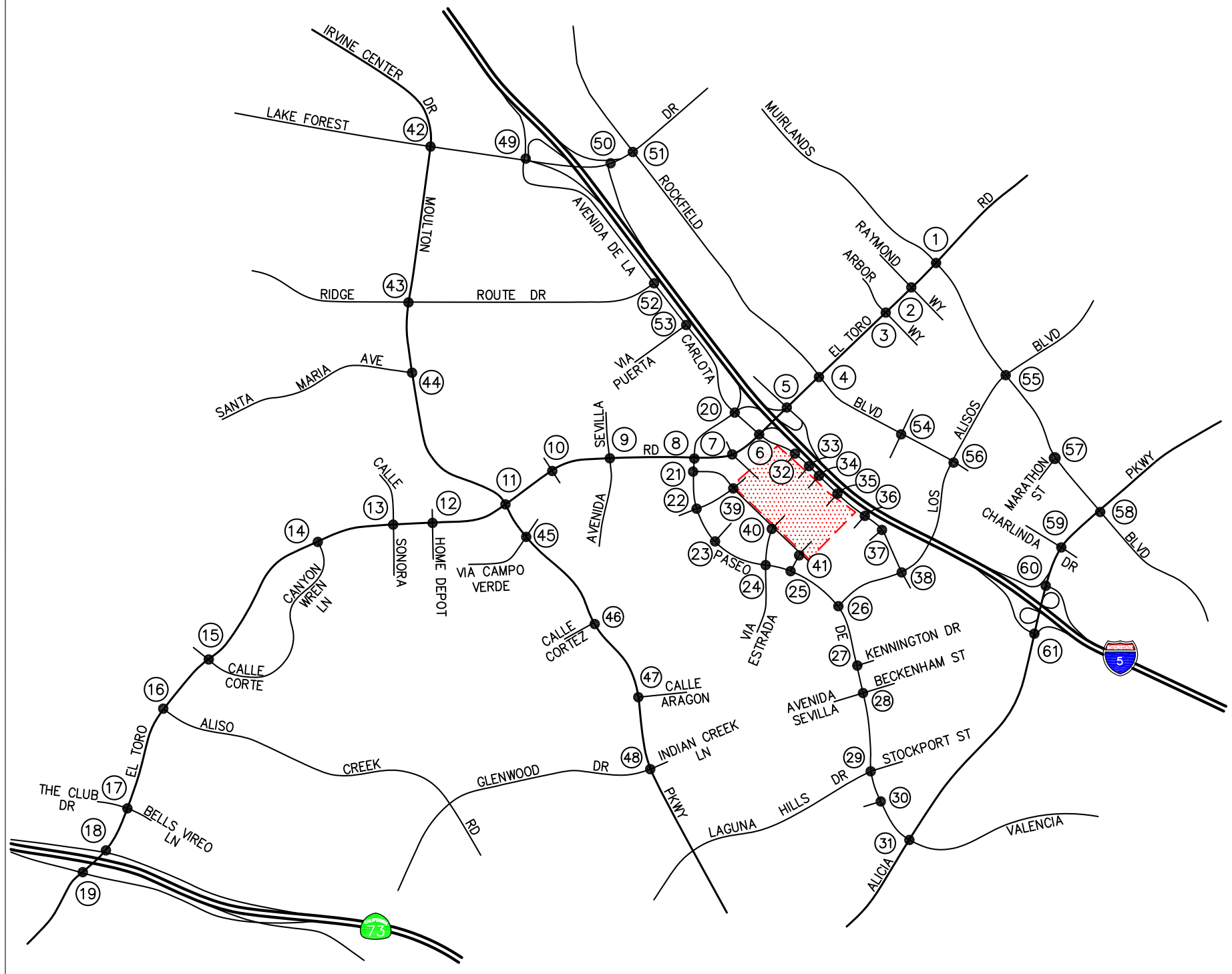
= PROJECT SITE

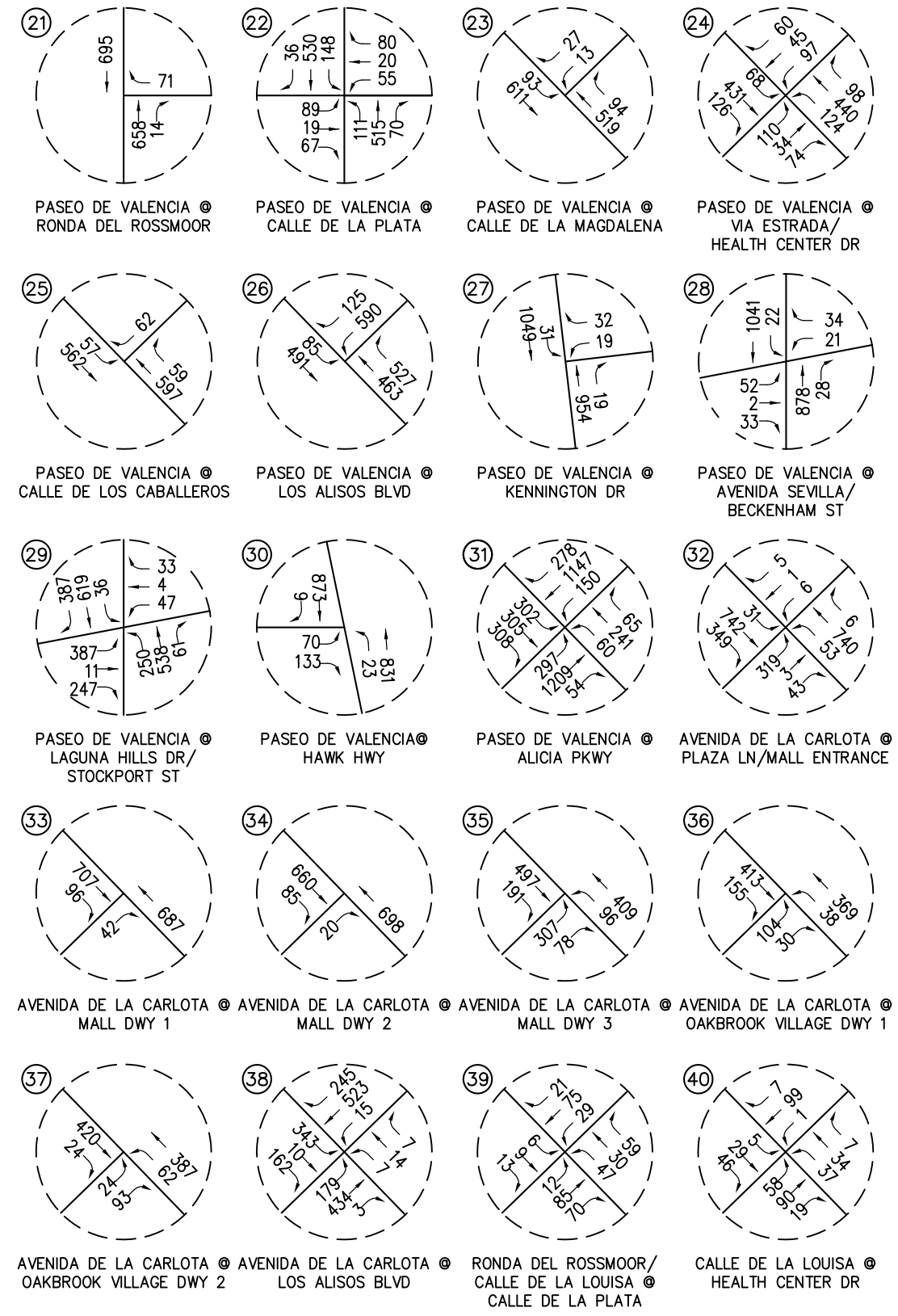
FIGURE 13A

EXISTING (2015) PLUS PROJECT MIDDAY PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS







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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

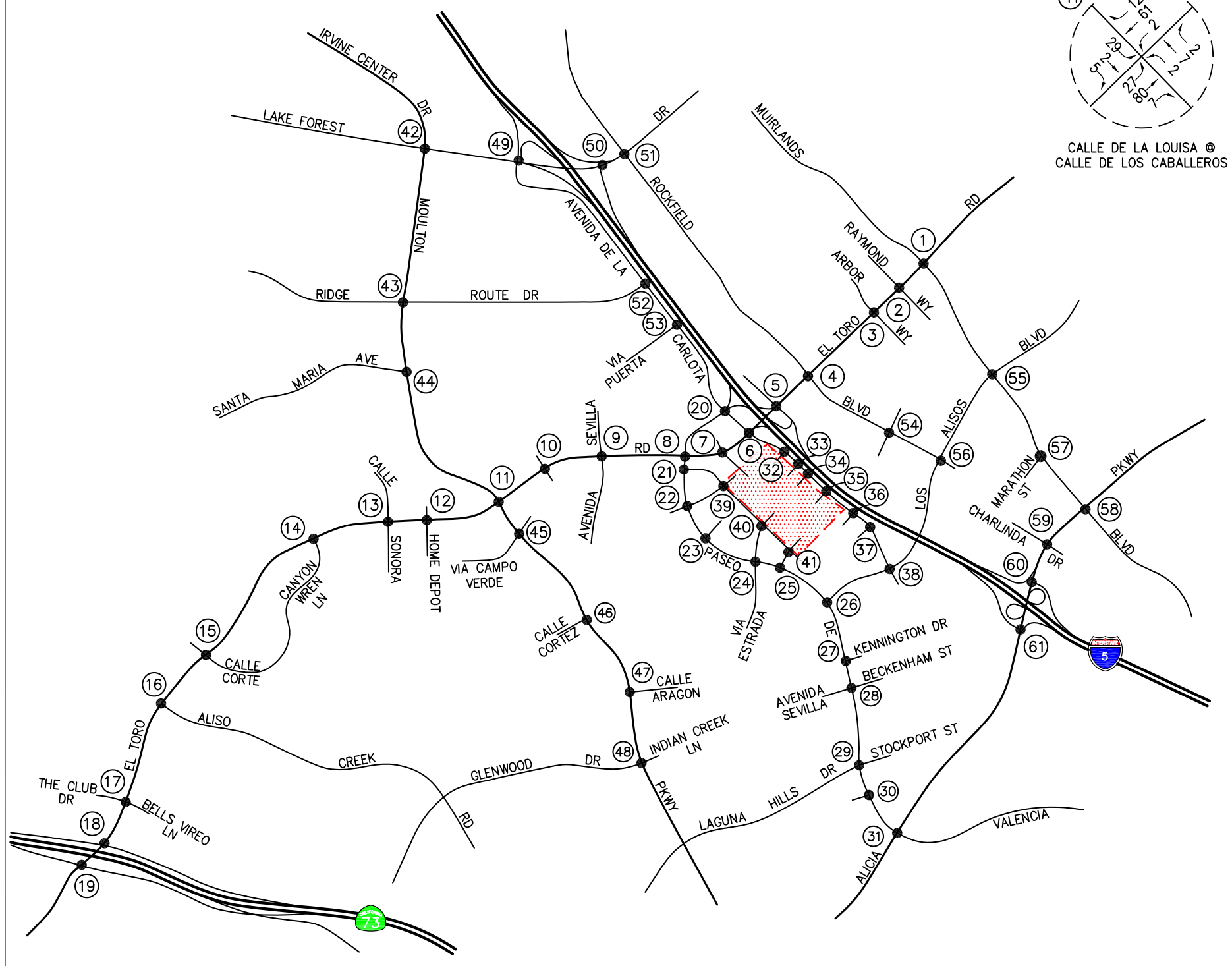
KEY

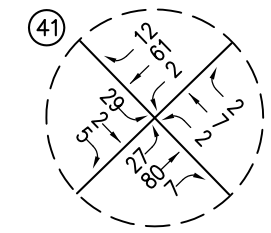
(#) = STUDY INTERSECTION

= PROJECT SITE

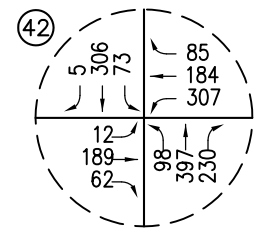
FIGURE 13B

EXISTING (2015) PLUS PROJECT
MIDDAY PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

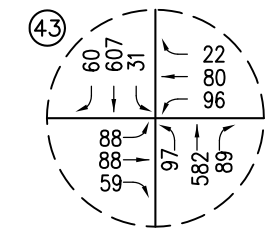




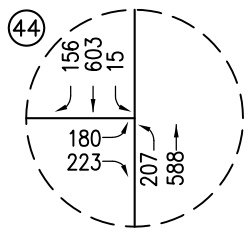
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



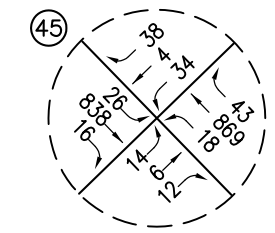
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



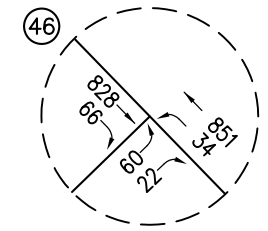
MOULTON PKWY @
RIDGE ROUTE DR



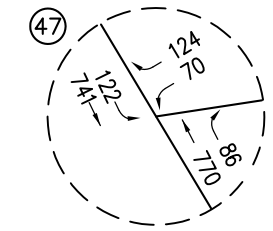
MOULTON PKWY @
SANTA MARIA AVE



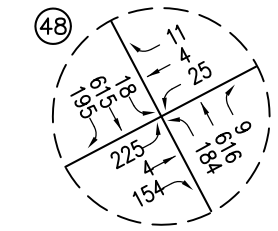
MOULTON PKWY @
VIA CAMPO VERDE



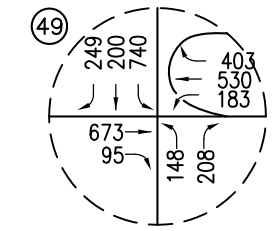
MOULTON PKWY @
CALLE CORTEZ



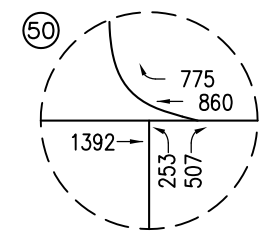
MOULTON PKWY @
CALLE ARAGON



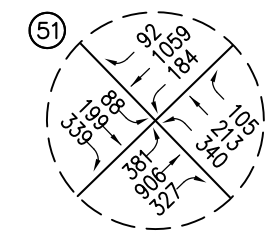
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



I-5 NB RAMPS @
LAKE FOREST DR



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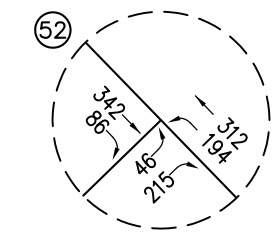
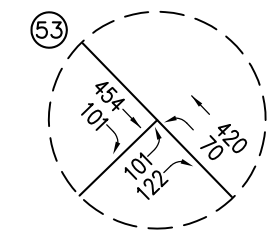
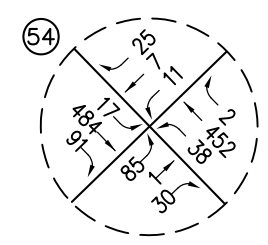
LAKE FOREST DR



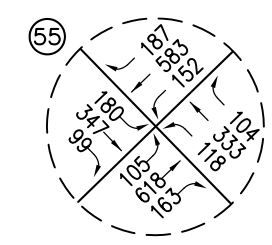
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



AVENIDA DE LA CARLOTA @
VIA PUERTA



ROCKFIELD BLVD @
LANDISVIEW AVE



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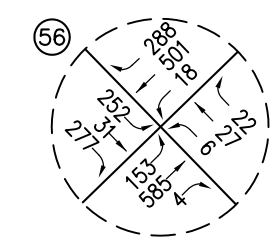
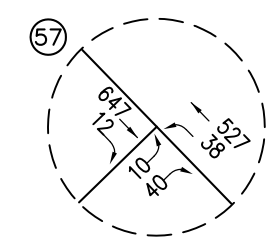
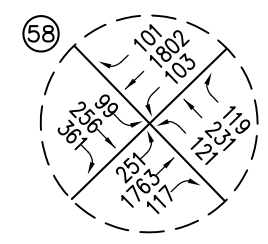
LOS ALISOS BLVD



ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



MUIRLANDS BLVD @
MARATHON ST



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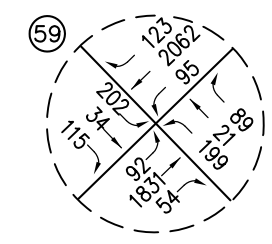
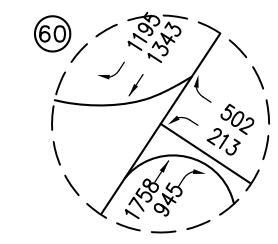
ALICIA PKWY



CHARLINDA DR @
ALICIA PKWY



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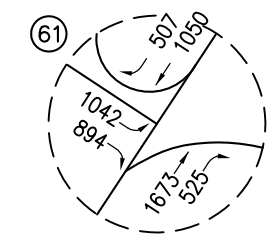

I-5 SB RAMPS @
ALICIA PKWY

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N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 13C

EXISTING (2015) PLUS PROJECT
MIDDAY PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

TABLE 8

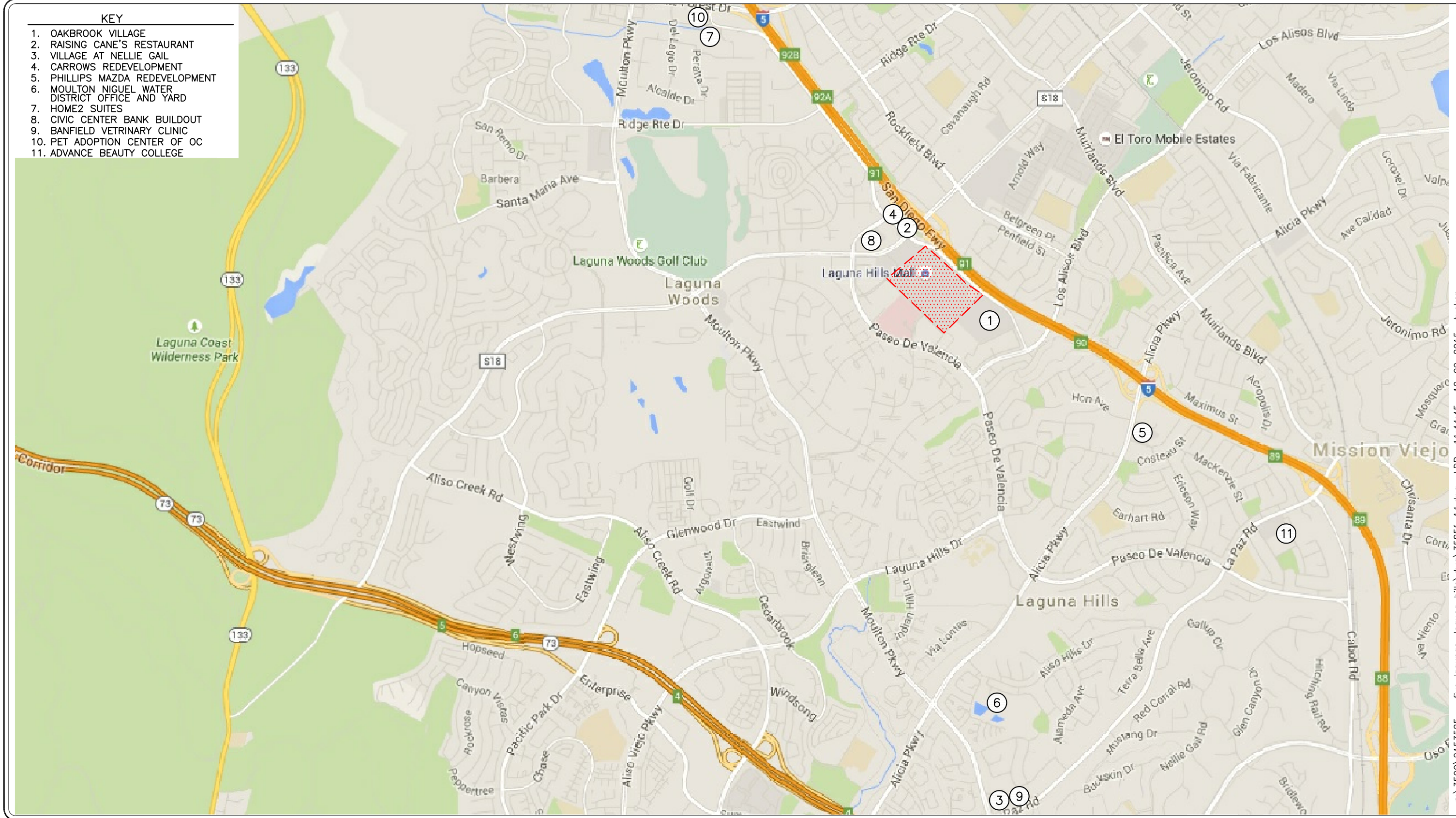
CUMULATIVE PROJECT TRIP GENERATION ESTIMATES

Cumulative Project / Location	Land Use	Size	Weekday Daily	Weekday AM Peak Hour In	Weekday AM Peak Hour Out	Weekday AM Peak Hour Total	Weekday PM Peak Hour In	Weekday PM Peak Hour Out	Weekday PM Peak Hour Total	Saturday Daily	Saturday Midday Peak Hour In	Saturday Midday Peak Hour Out	Saturday Midday Peak Hour Total
1 Oakbrook Village	Apartments	489 DU	3,087	156	264	244	548	478	287	3,125	135	119	254
South of Avenida de la Carlota, east	Retail	125 TSF	7,852			176			739	6,246	314	289	603
of Mall (Phase I and II)	Existing Retail	191 TSF	-10,343	-138	-88	-226	-481	-501	-982	-9,544	-479	-442	-921
(City of Laguna Hills)		**Sub-total:**	**596**	**18**	**176**	**194**	**67**	**-23**	**44**	**-173**	**-30**	**-34**	**-64**
2 Raising Cane's Restaurant	Existing Gas Station	8 Pumps	1,223	48	46	94	57	54	111	--	78	78	156
North of El Toro Road, east of	*Pass-by Reduction*		-121	-30	-29	-59	-32	-30	-62	--	-8	-8	-16
Avenida de la Carlota			*1,102*	*18*	*17*	*35*	*25*	*24*	*49*	*0*	*70*	*70*	*140*
(City of Laguna Hills)	Fast Food w/ Drive-Thru	2.882 TSF	1,430	67	64	131	49	45	94	2,081	87	83	170
	Pass-by Reduction		-112	-33	-31	-64	-25	-23	-48	-208	-9	-8	-17
	Proposed Minus Existing		*1,318*	*34*	*33*	*67*	*24*	*22*	*46*	*1,873*	*78*	*75*	*153*
		Sub-total:	**216**	**16**	**16**	**32**	**-1**	**-2**	**-3**	**0**	**70**	**70**	**140**
3 Village at Nellie Gail Ranch	Grocery	20.4 TSF	2,086	43	26	69	98	95	193	3,623	111	106	217
26538 Moulton Parkway	Store Retail	8.7 TSF	371	5	3	8	15	17	32	435	22	20	42
(City of Laguna Hills)	*Grocery Store Pass-by Reduction*		-209	-4	-3	-7	-35	-34	-69	-362	-11	-11	-22
	Retail Pass-by Reduction		-37	-1	0	-1	-5	-6	-11	-44	-6	-5	-11
		Sub-total:	**2,211**	**43**	**26**	**69**	**73**	**72**	**145**	**3,696**	**122**	**115**	**237**
4 Carrows Redevelopment	Remodel Restaurant	5.9 TSF	750	35	29	64	35	23	58	934	44	39	83
23952 Avenida de la Carlota	*Pass-by Reduction*		-75	-4	-2	-6	-15	-10	-25	-93	-4	-4	-8
(City of Laguna Hills)													
		Sub-total:	**675**	**31**	**27**	**58**	**20**	**13**	**33**	**841**	**40**	**35**	**75**
5 Phillips Mazda Redevelopment	Townhomes	54 DU	314	4	20	24	19	9	28	306	14	11	25
24888 Alicia Parkway	Pharmacy/Drugstore	17 TSF	1,647	30	28	58	84	84	168	--	68	71	139
(City of Laguna Hills)	Day Care	10 TSF	741	65	57	122	58	65	123	62	11	6	17
	Fast Food w/ Drive-Thru	2.5 TSF	1,240	58	56	114	42	39	81	1,805	75	73	148
	Pass-by Reduction		-310	-15	-14	-29	-11	-10	-21	-451	-19	-18	-37
	Existing Land Use		-629	-28	-9	-37	-20	-31	-51	-580	-39	-39	-78
		Sub-total:	**3,003**	**114**	**138**	**252**	**172**	**156**	**328**	**1,142**	**110**	**104**	**214**
6 Moulton Niguel Water District Office	Office	45 TSF	496	62	8	70	11	56	67	111	10	9	19
and Yard	Warehouse	21 TSF											
26161 Gordon Road	Fleet	4.8 TSF	267	31	4	35	4	33	37	51	2	3	5
(City of Laguna Hills)	Machine Shop	12.5 TSF											
		Sub-total:	**763**	**93**	**12**	**105**	**15**	**89**	**104**	**162**	**12**	**12**	**24**

TABLE 8 (CONTINUED)
CUMULATIVE PROJECT TRIP GENERATION ESTIMATES

Cumulative Project / Location	Land Use	Size	Weekday Daily	Weekday AM Peak Hour In	Weekday AM Peak Hour Out	Weekday AM Peak Hour Total	Weekday PM Peak Hour In	Weekday PM Peak Hour Out	Weekday PM Peak Hour Total	Saturday Daily	Saturday Midday Peak Hour In	Saturday Midday Peak Hour Out	Saturday Midday Peak Hour Total
7 Home2 Suites	Hotel Addition	22 Rooms	180	7	5	12	7	6	13	180	9	7	16
23061 Avenida de la Carlota													
(City of Laguna Hills)													
		Sub-total:	**180**	**7**	**5**	**12**	**7**	**6**	**13**	**180**	**9**	**7**	**16**
8 Civic Center Bank Buildout	Walk-In Bank	2.4 TSF	--	--	--	--	13	16	29	--	--	--	--
24035 El Toro Road													
(City of Laguna Hills)													
		Sub-total:	**0**	**0**	**0**	**0**	**13**	**16**	**29**	**0**	**0**	**0**	**0**
9 Banfield Vetrinary Clinic	Veterinary Clinic	2.8 TSF	--	8	3	11	5	8	13	--	--	--	--
26538 Moulton Parkway													
(City of Laguna Hills)													
		Sub-total:	**0**	**8**	**3**	**11**	**5**	**8**	**13**	**0**	**0**	**0**	**0**
10 Pet Adoption Center of OC	Pet Adoption Center	2.3 TSF	98	1	1	2	4	5	9	115	6	5	11
23024 Lake Forest Drive	*Pass-by Reduction*		-10	0	0	0	-1	-2	-3	-12	-1	0	-1
(City of Laguna Hills)													
		Sub-total:	**88**	**1**	**1**	**2**	**3**	**3**	**6**	**103**	**5**	**5**	**10**
11 Advace Beauty College	Beauty College	8.6 TSF	236	19	7	26	13	9	22	97	7	5	12
25332 Mclntyre Street													
(City of Laguna Hills)													
		Sub-total:	**236**	**19**	**7**	**26**	**13**	**9**	**22**	**97**	**7**	**5**	**12**
Cumulative Projects Trip Generation Potential			**7,968**	**350**	**411**	**761**	**387**	**347**	**734**	**6,048**	**345**	**319**	**664**

Note:
[a] Source: *Trip Generation, 9th Edition, Institue of Transportation Engineers (ITE), Washington, D.C. (2012).*



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N NO SCALE

KEY

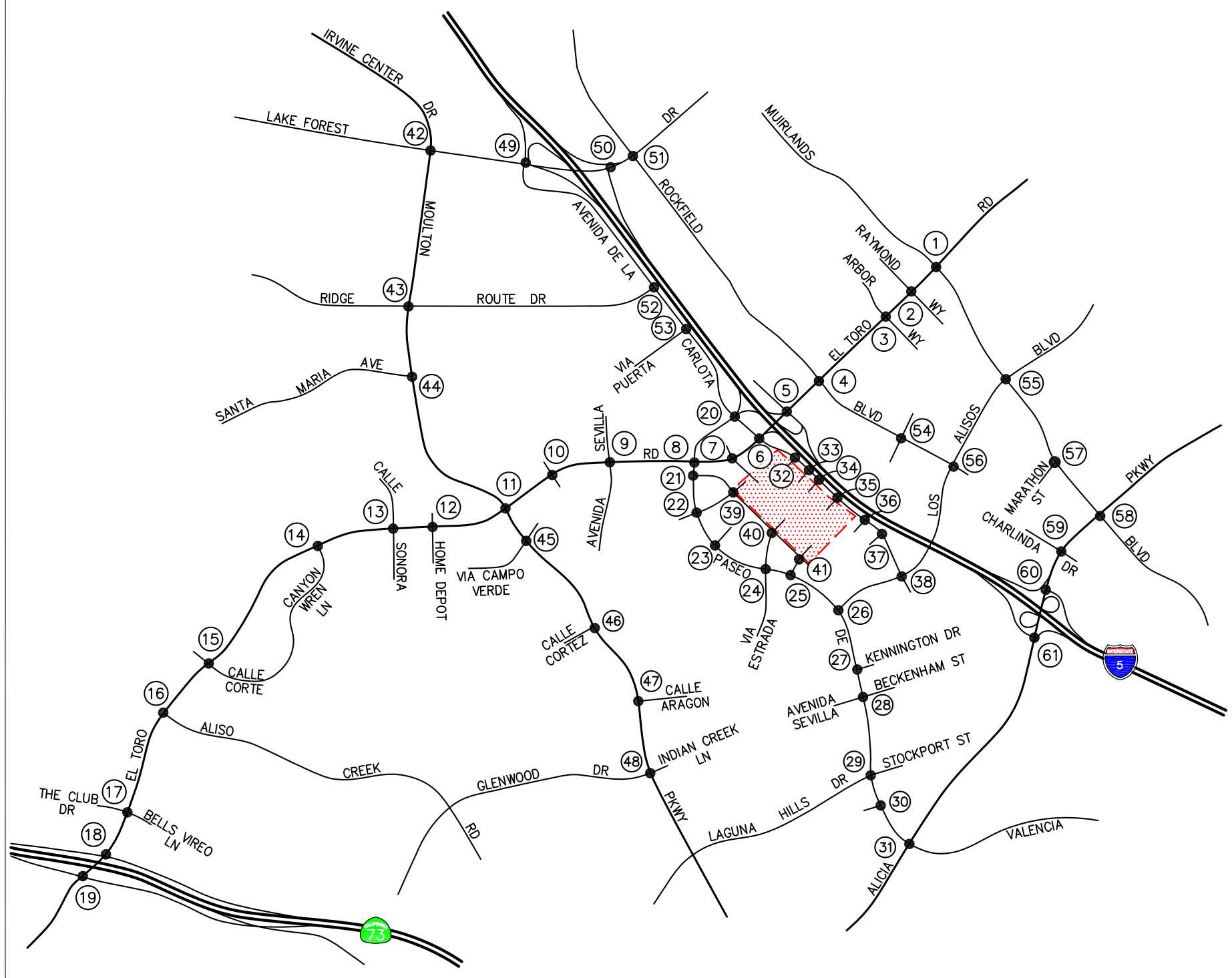
(#) = RELATED PROJECT LOCATION

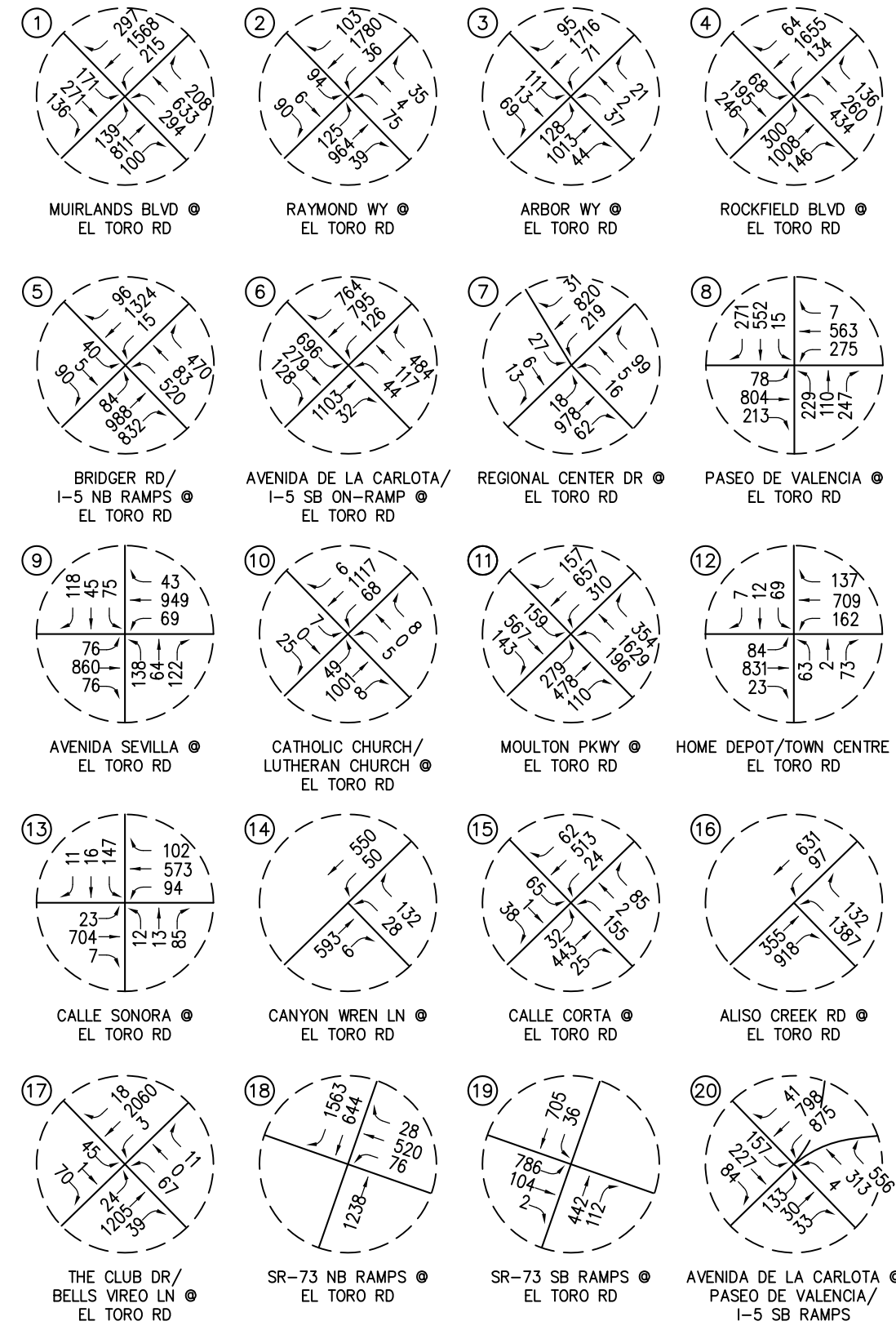
= PROJECT SITE

FIGURE 14

LOCATION OF CUMULATIVE PROJECTS

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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KEY

(#) = STUDY INTERSECTION

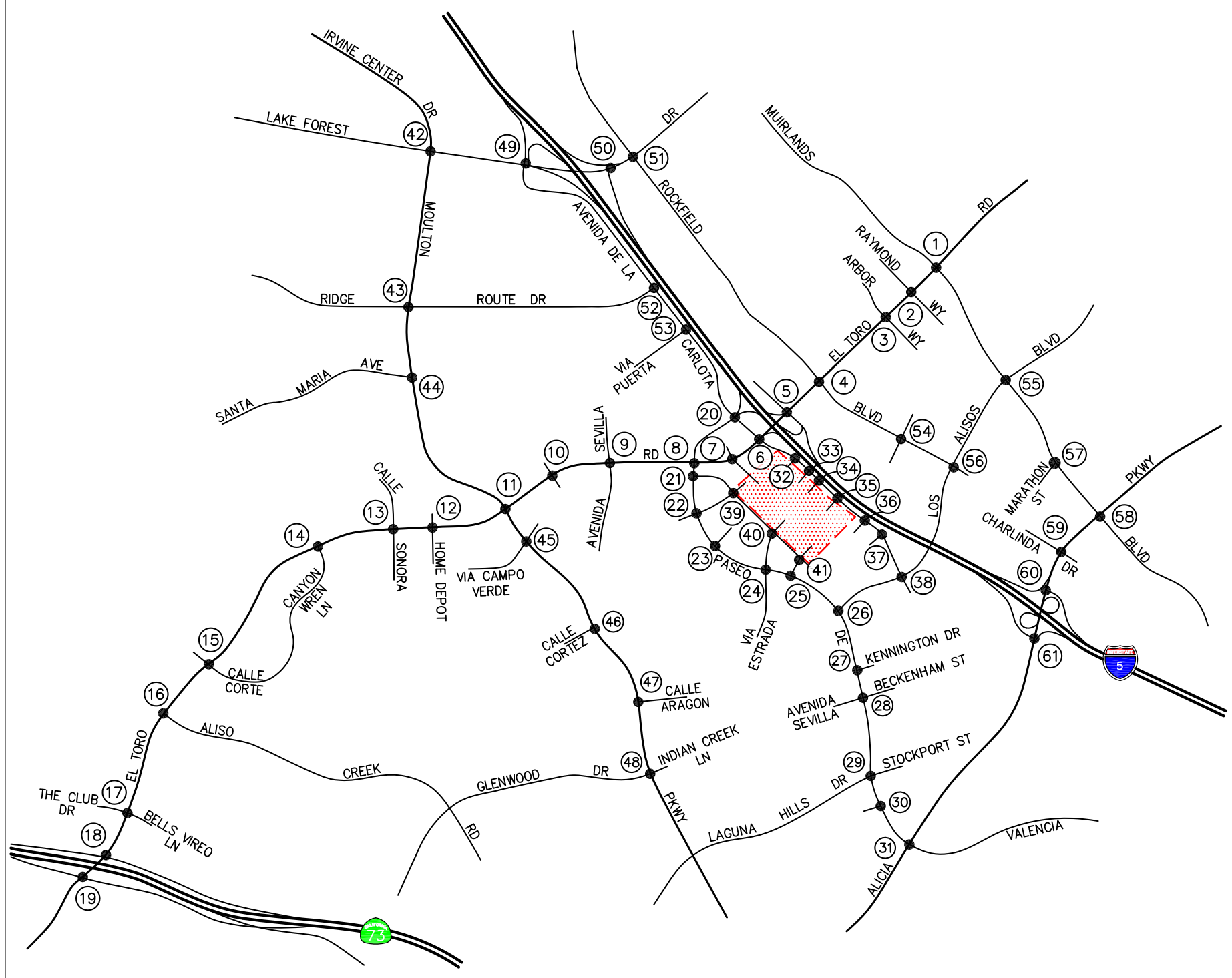
= PROJECT SITE

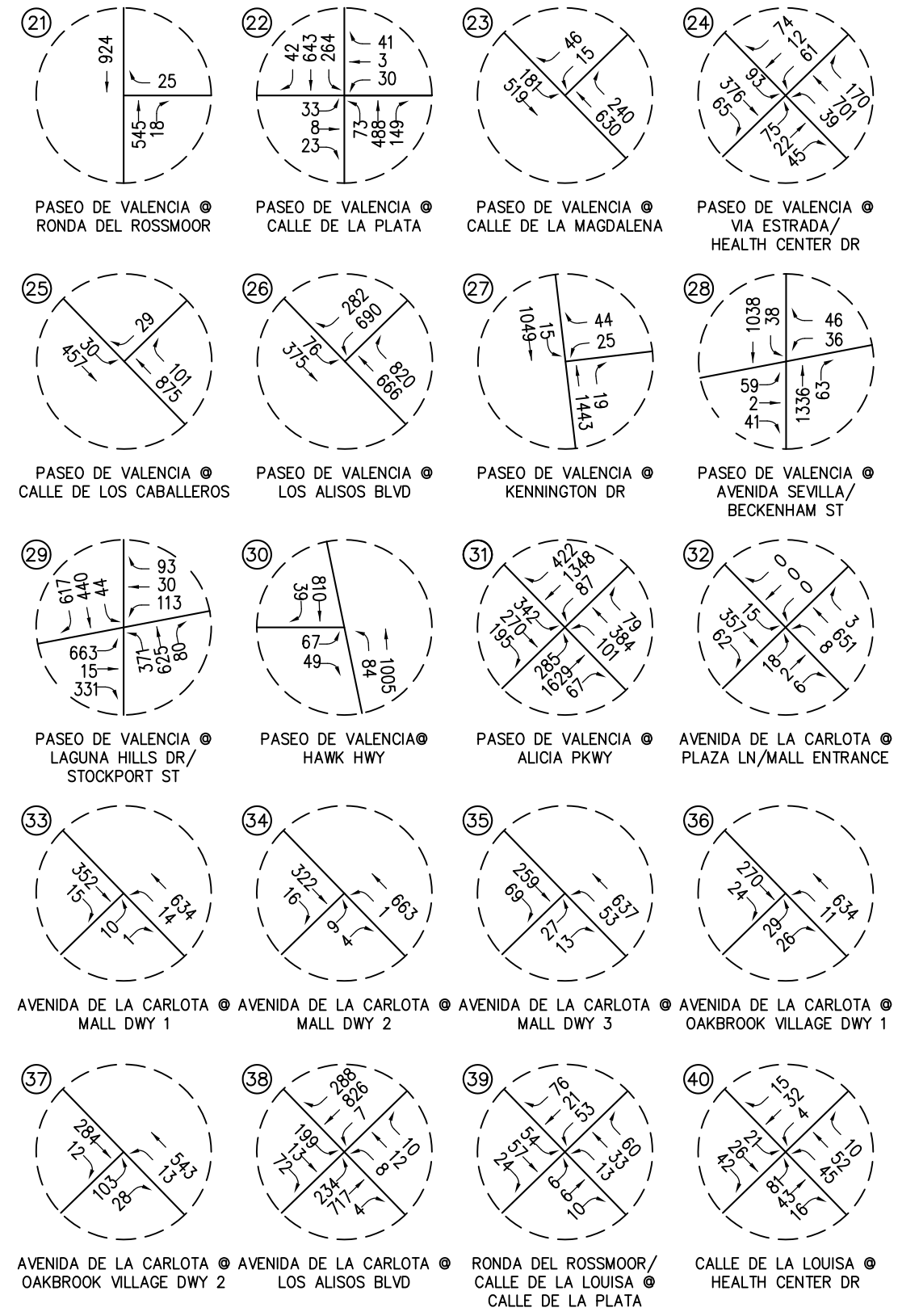
FIGURE 15A

YEAR 2018

AM PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

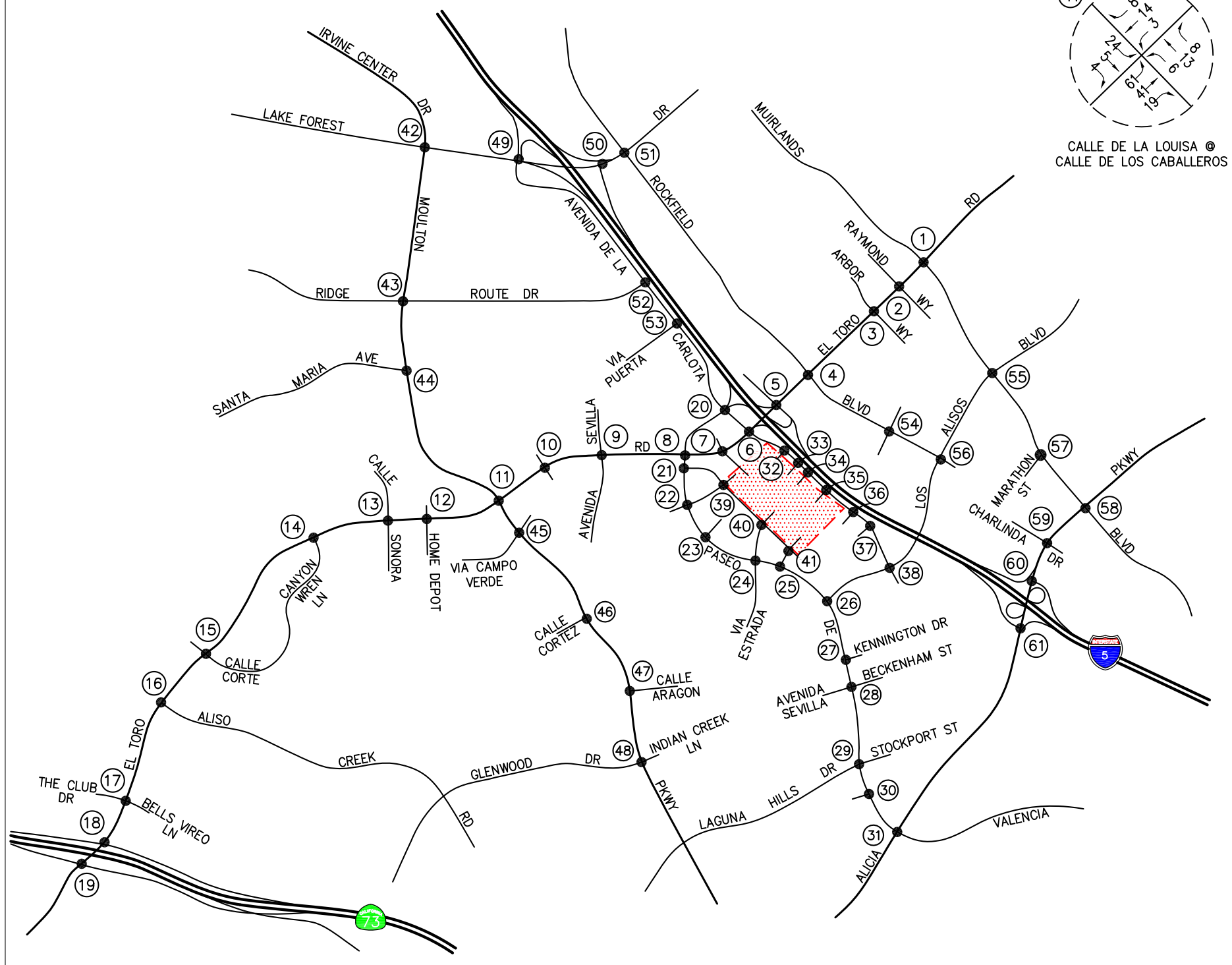
= PROJECT SITE

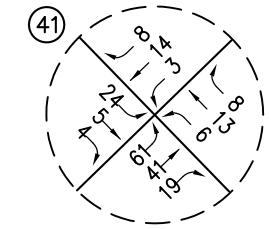
FIGURE 15B

YEAR 2018

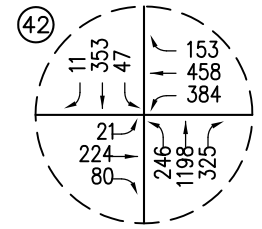
AM PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

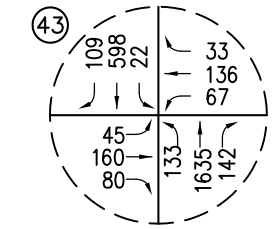




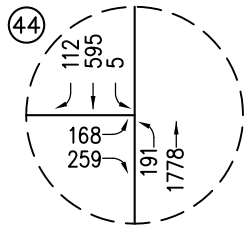
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



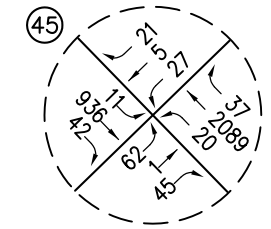
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



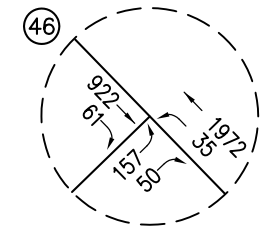
MOULTON PKWY @
RIDGE ROUTE DR



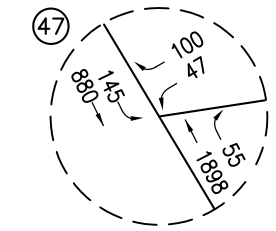
MOULTON PKWY @
SANTA MARIA AVE



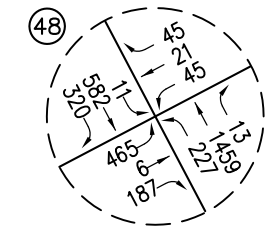
MOULTON PKWY @
VIA CAMPO VERDE



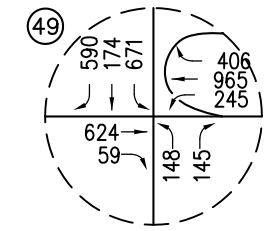
MOULTON PKWY @
CALLE CORTEZ



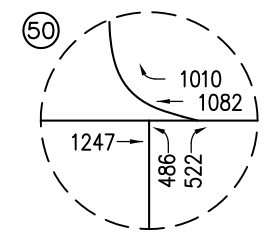
MOULTON PKWY @
CALLE ARAGON



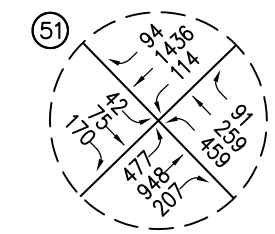
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



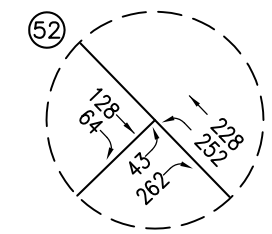
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



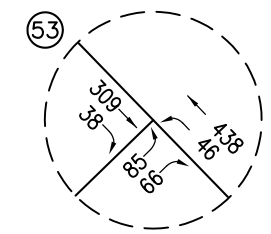
I-5 NB RAMPS @
LAKE FOREST DR



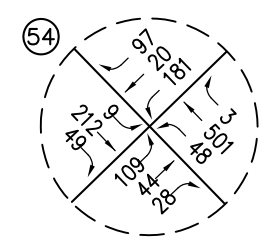
ROCKFIELD BLVD @
LAKE FOREST DR



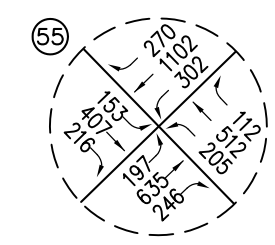
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



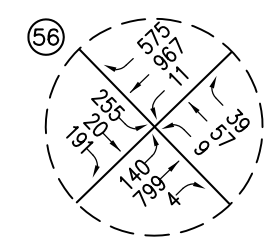
AVENIDA DE LA CARLOTA @
VIA PUERTA



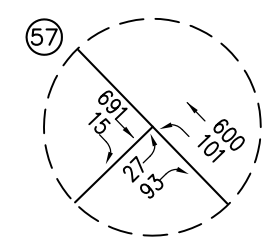
ROCKFIELD BLVD @
LANDISVIEW AVE



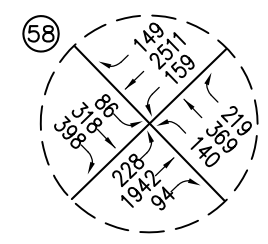
MUIRLANDS BLVD @
LOS ALISOS BLVD



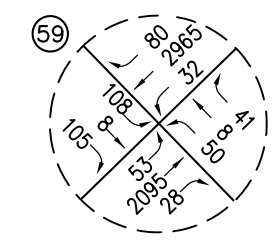
ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



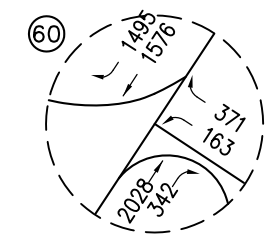
MUIRLANDS BLVD @
MARATHON ST



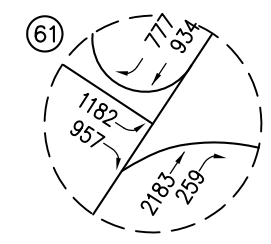
MUIRLANDS BLVD @
ALICIA PKWY



CHARLINDA DR @
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

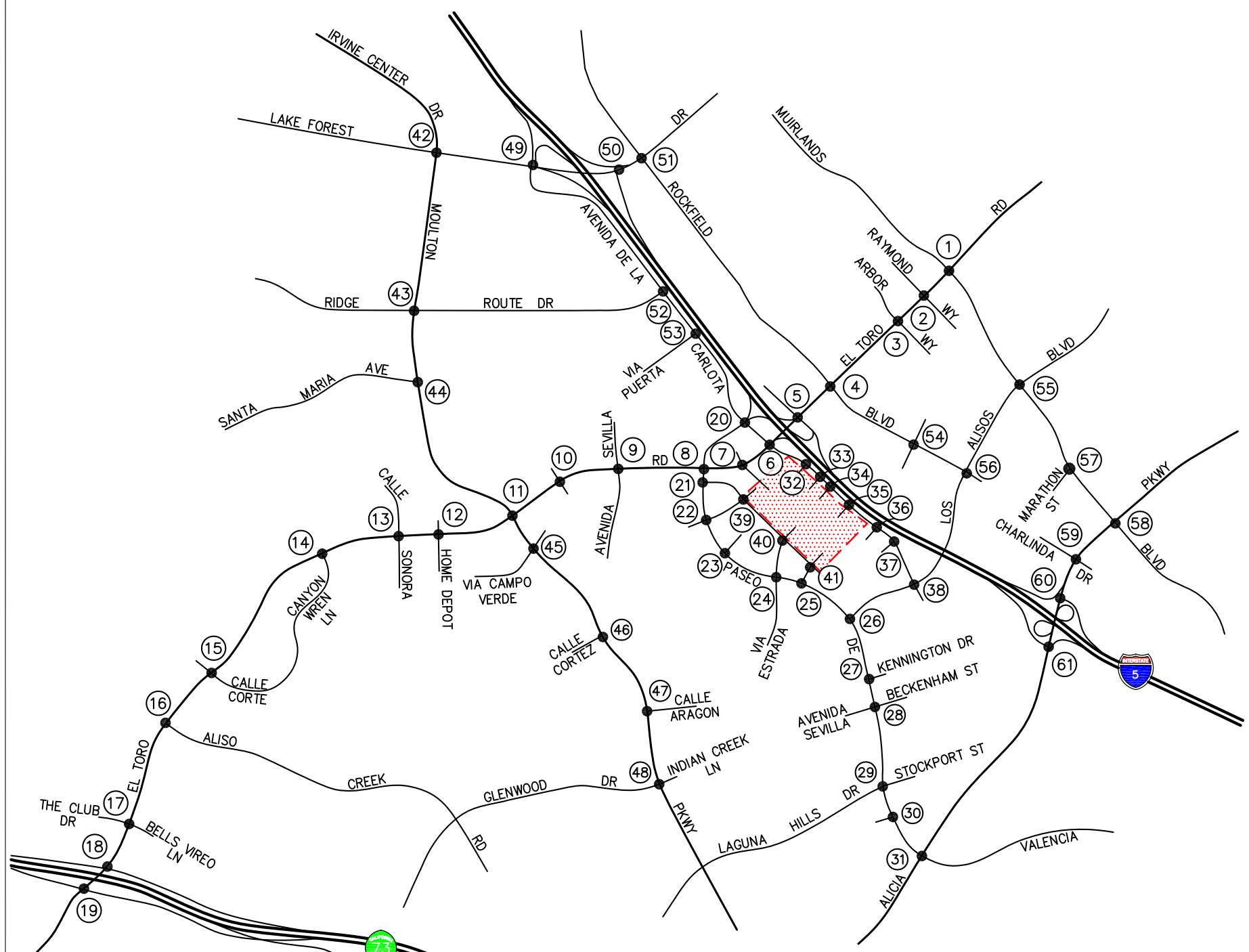
KEY

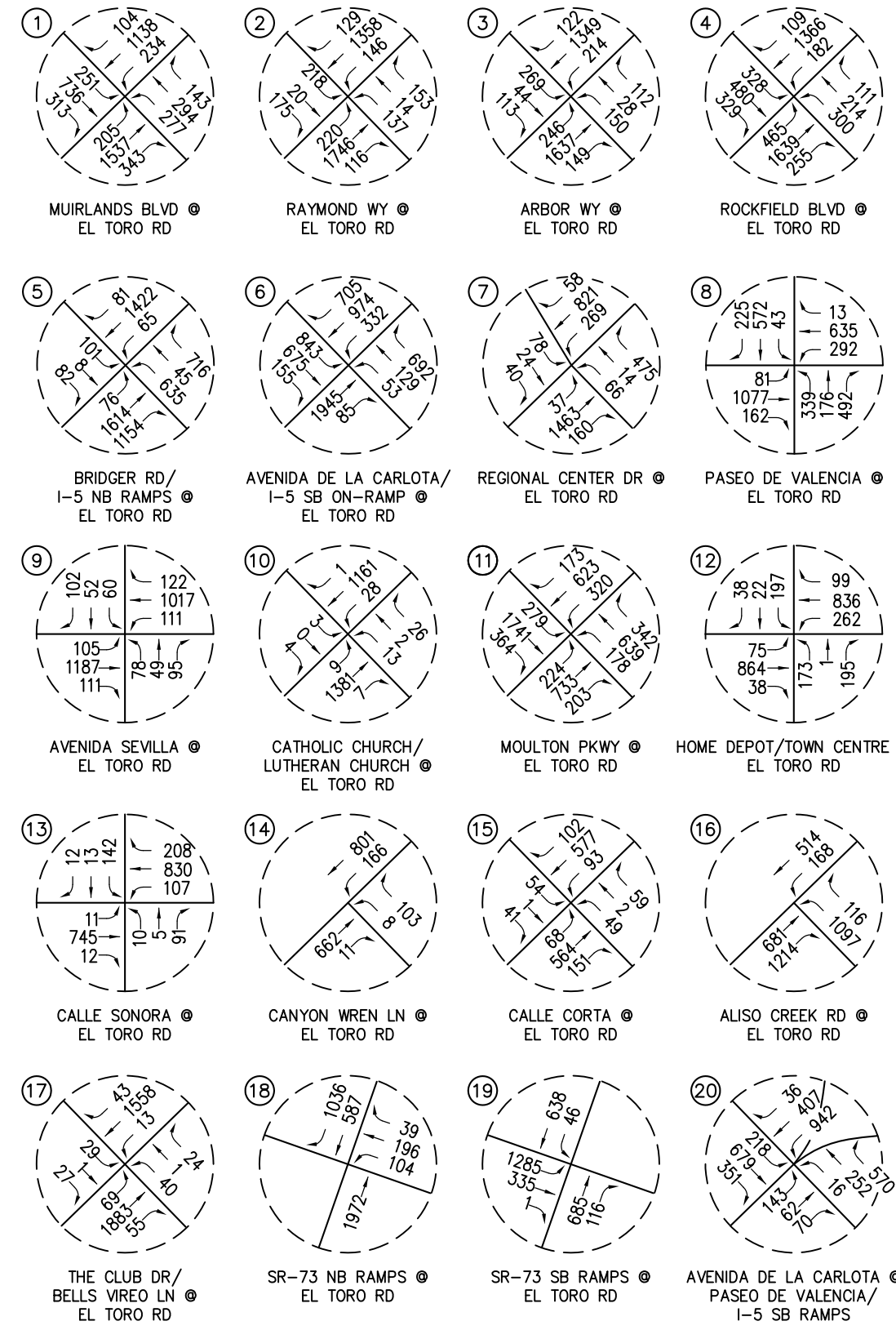
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 15C

YEAR 2018
AM PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

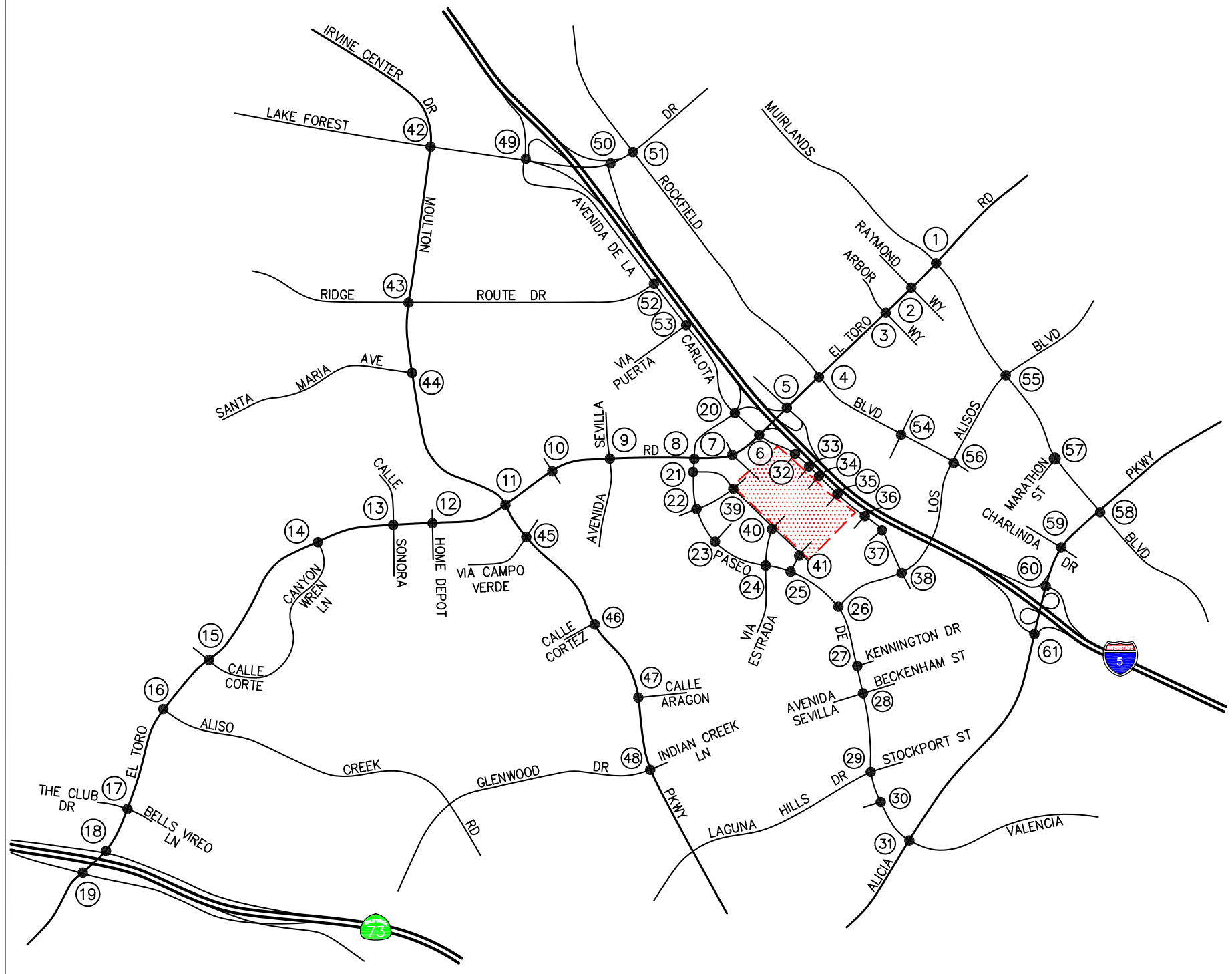
= PROJECT SITE

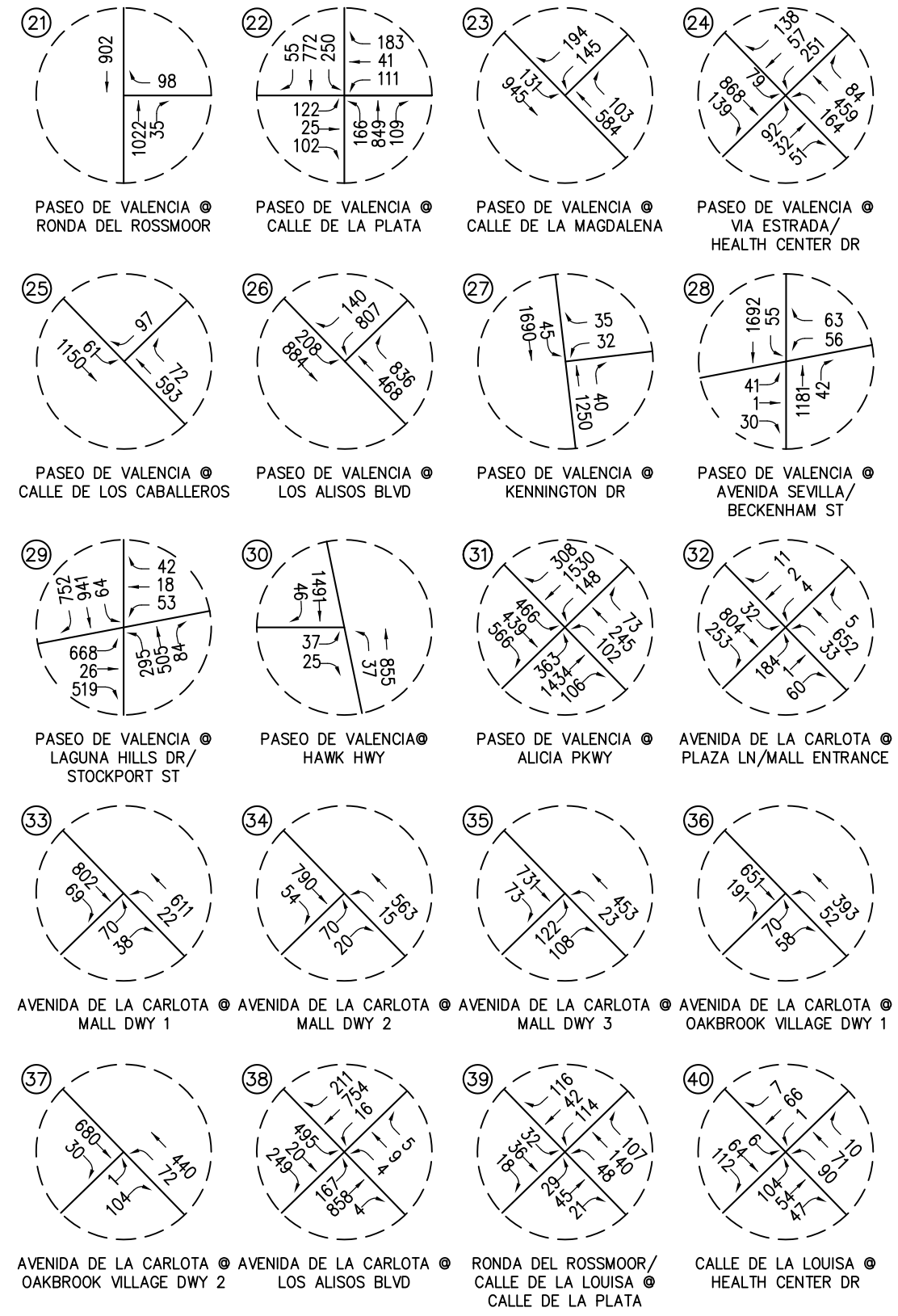
FIGURE 16A

YEAR 2018

PM PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

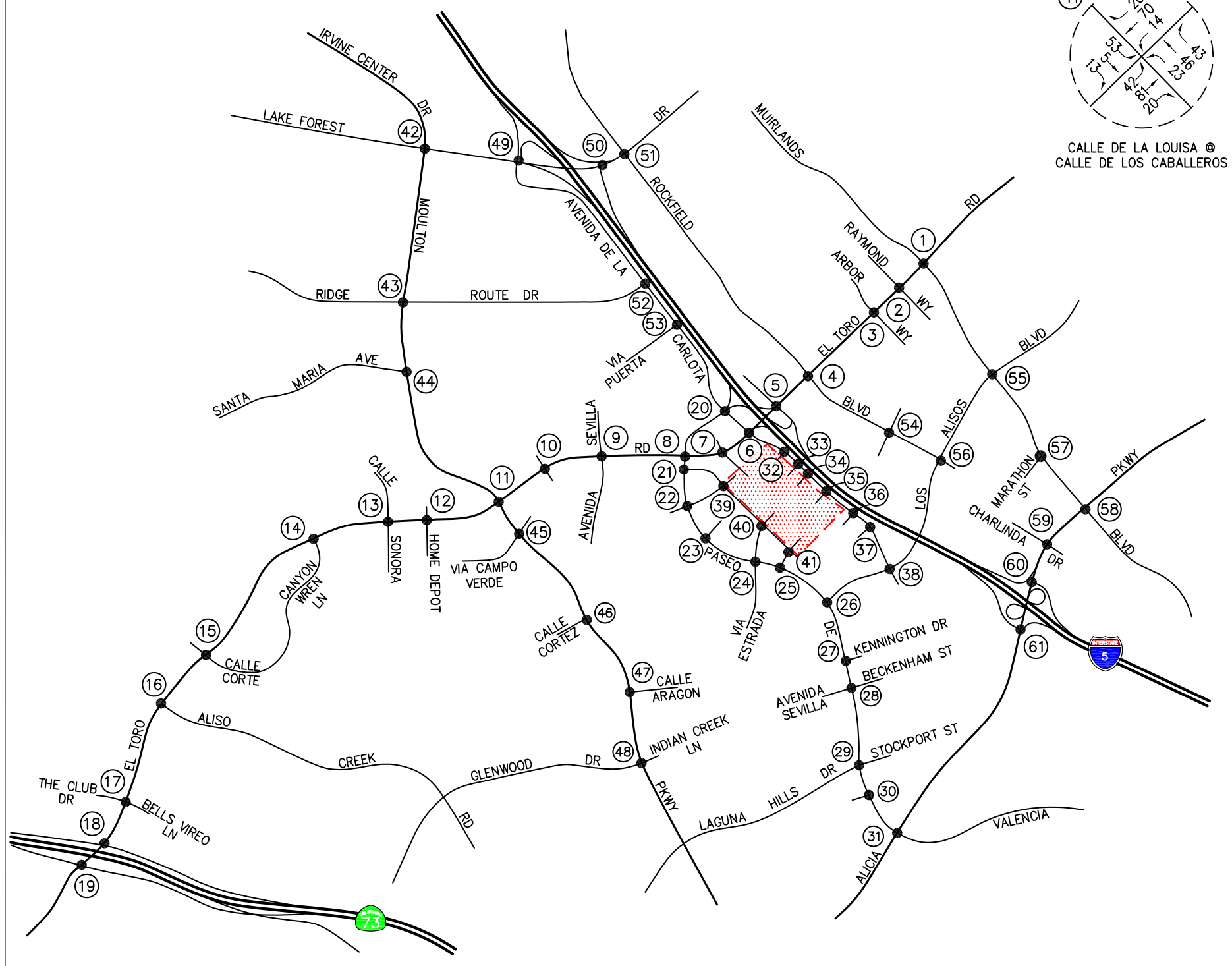
= PROJECT SITE

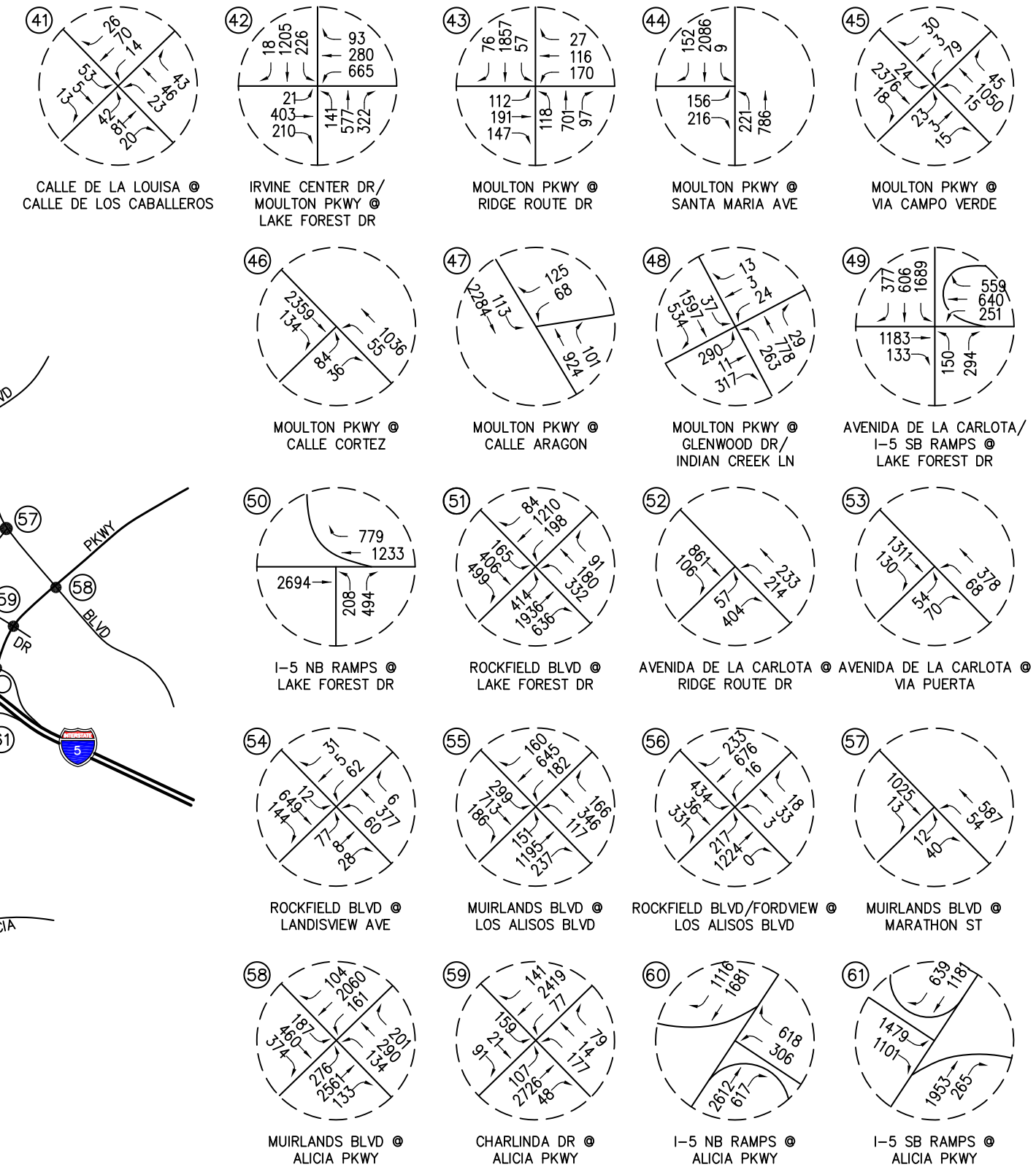
FIGURE 16B

YEAR 2018

PM PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

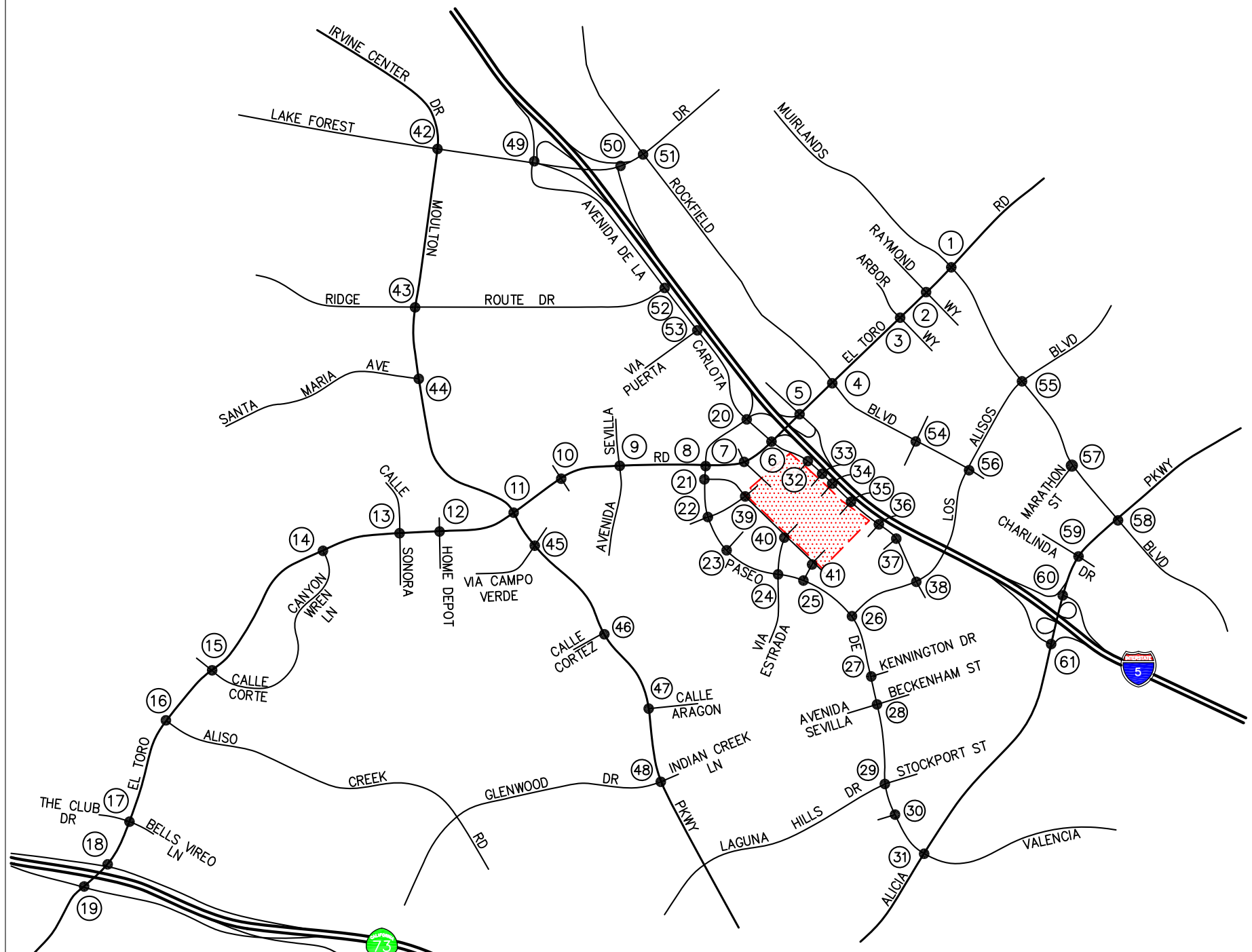
= PROJECT SITE

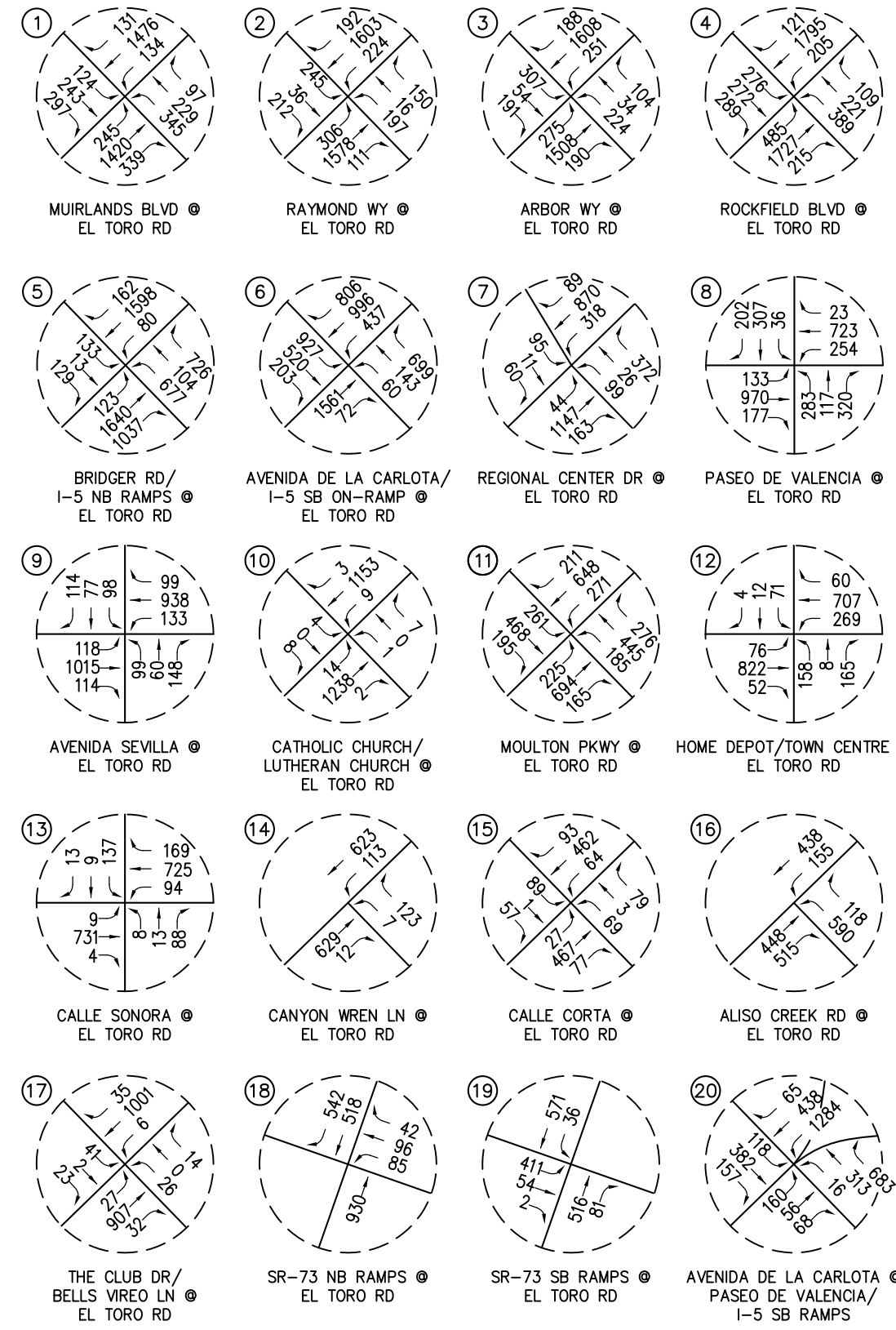
FIGURE 16C

YEAR 2018

PM PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

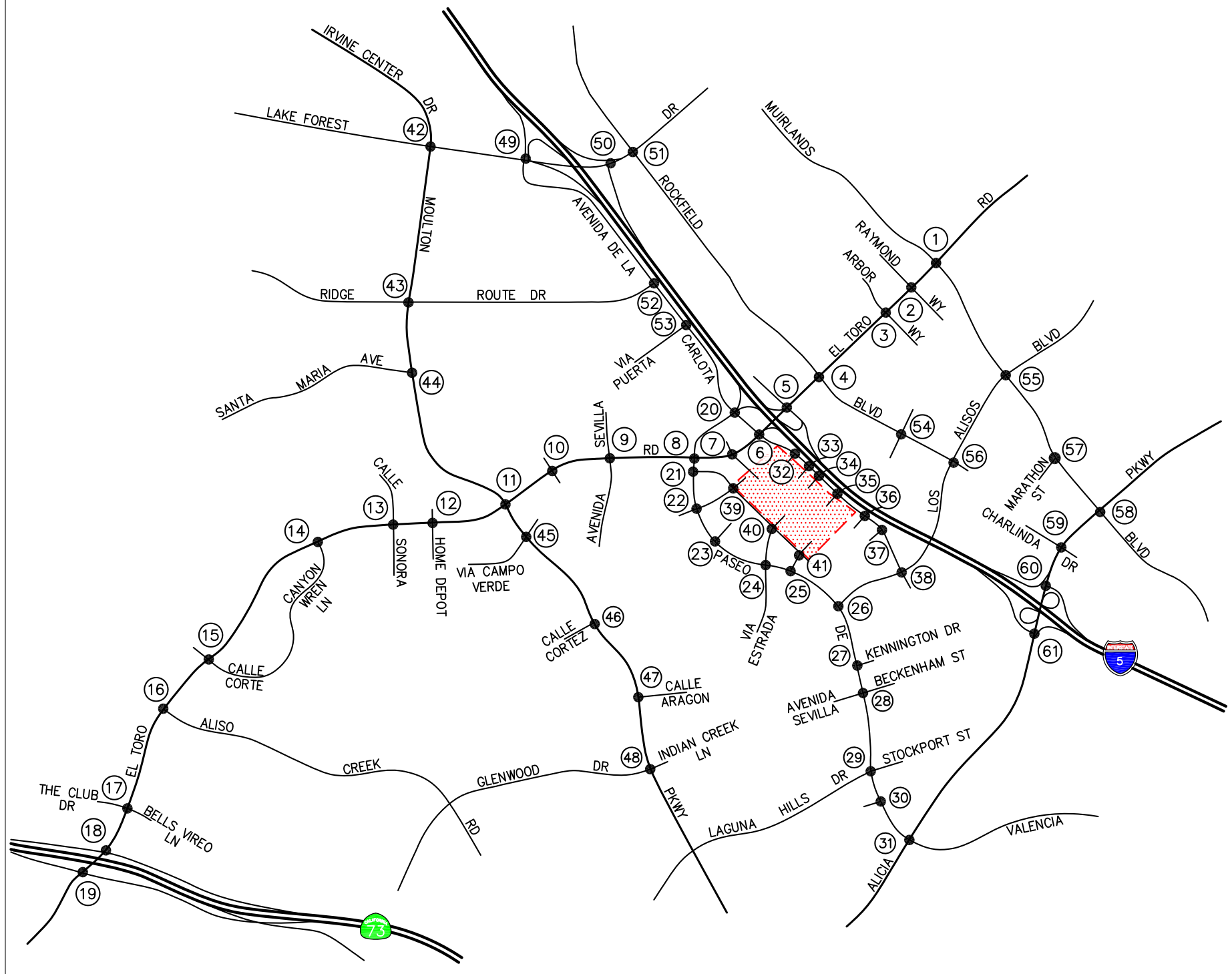
= PROJECT SITE

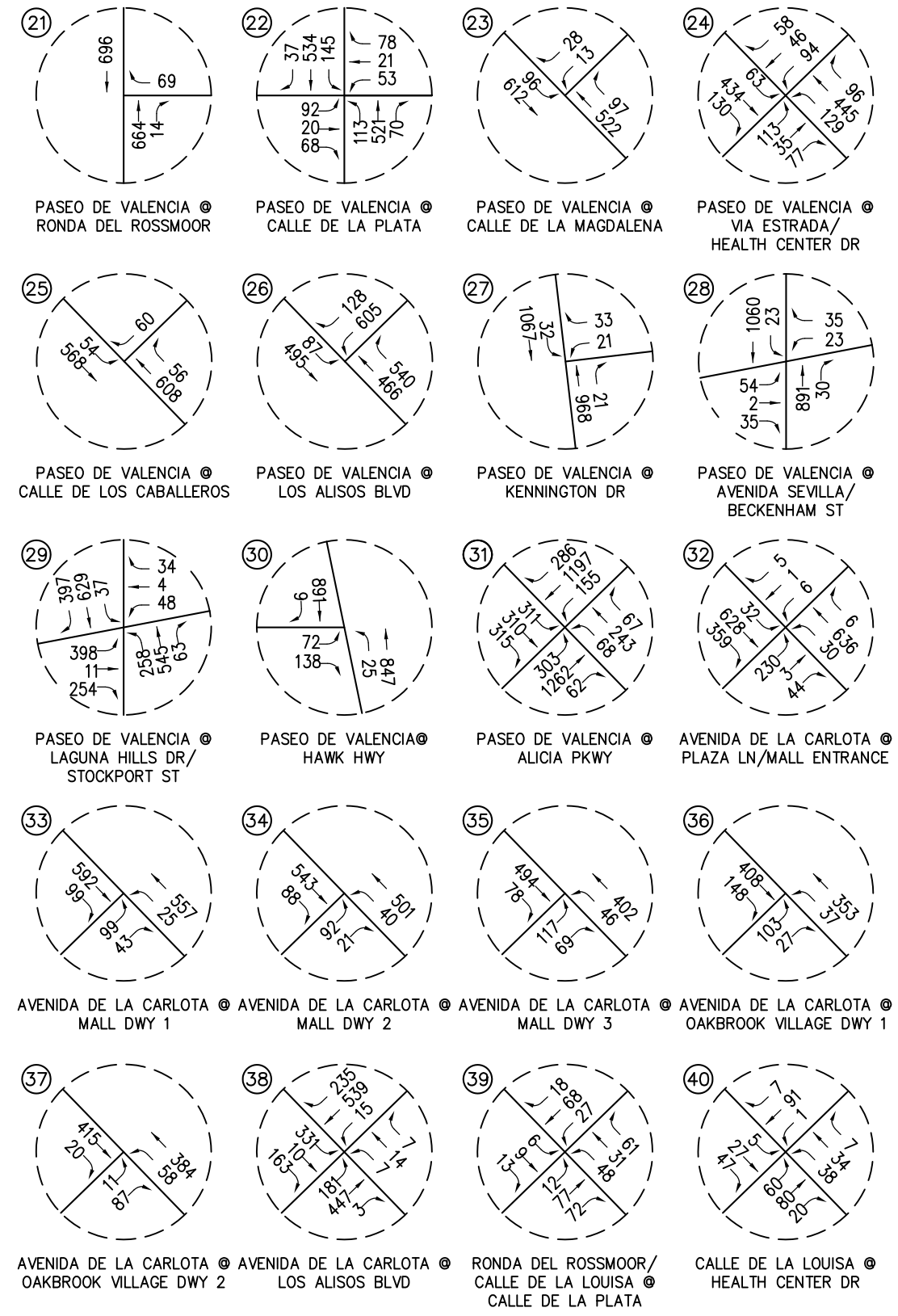
FIGURE 17A

YEAR 2018

MIDDAY PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

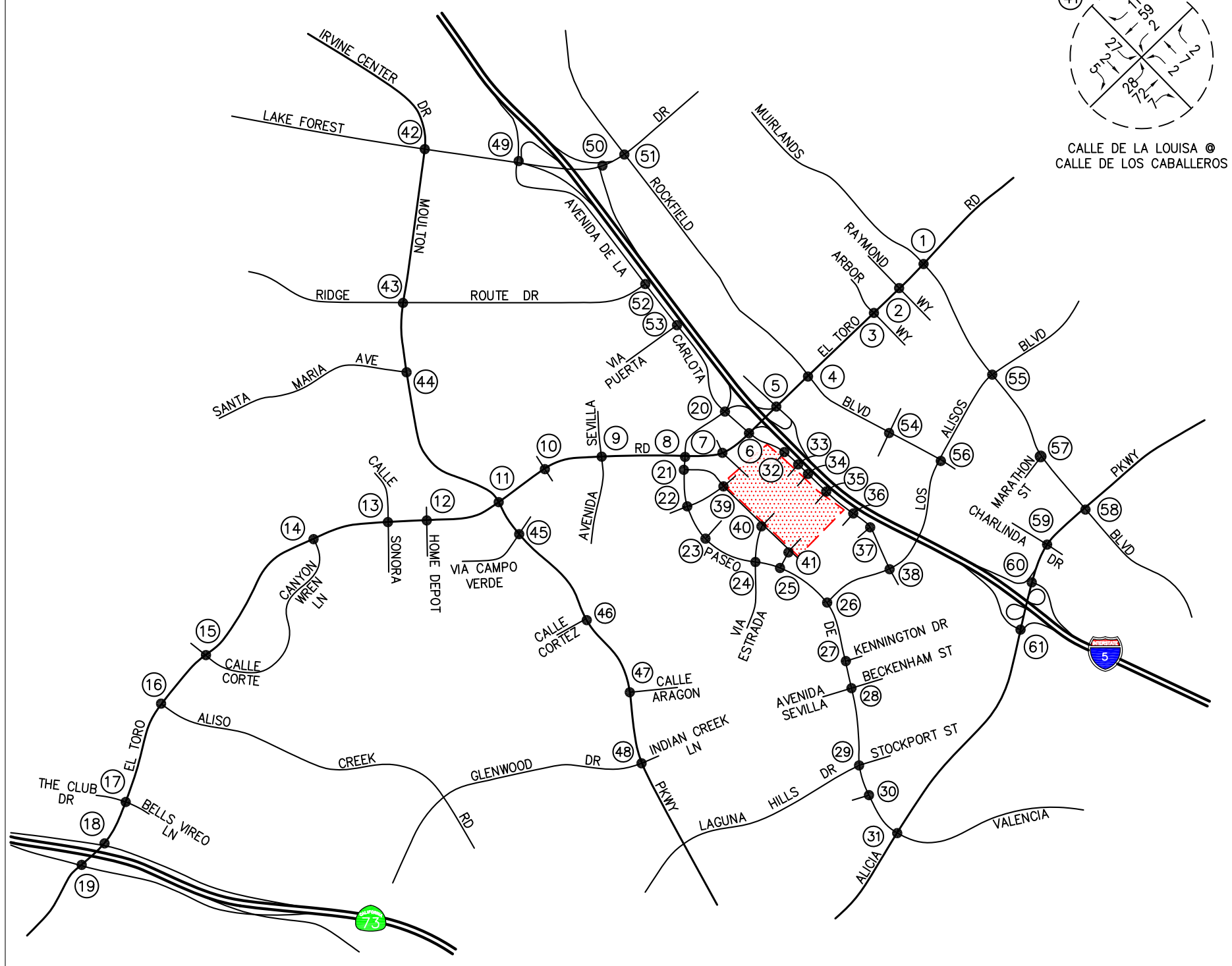
= PROJECT SITE

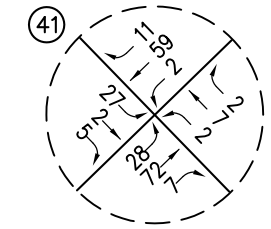
FIGURE 17B

YEAR 2018

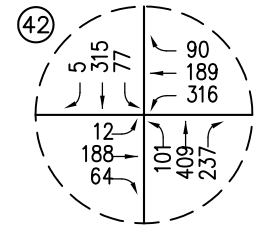
MIDDAY PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

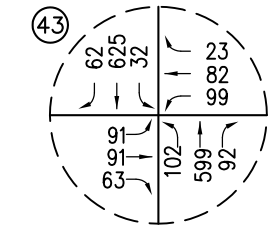




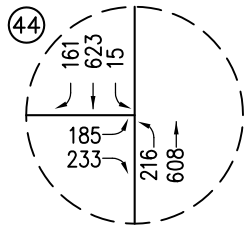
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



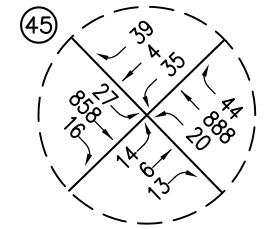
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



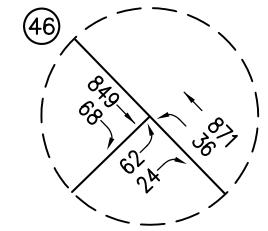
MOULTON PKWY @
RIDGE ROUTE DR



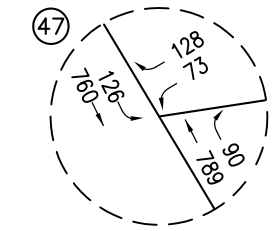
MOULTON PKWY @
SANTA MARIA AVE



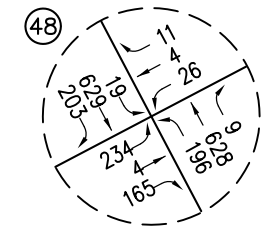
MOULTON PKWY @
VIA CAMPO VERDE



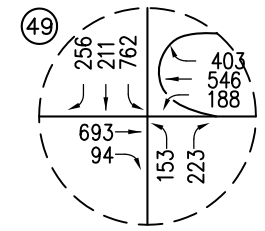
MOULTON PKWY @
CALLE CORTEZ



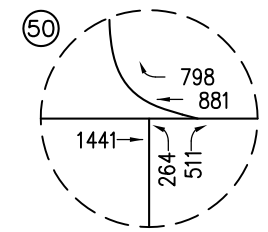
MOULTON PKWY @
CALLE ARAGON



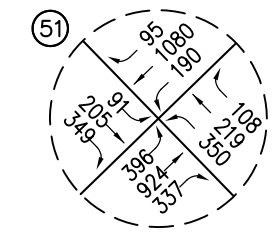
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



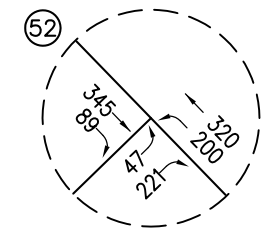
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



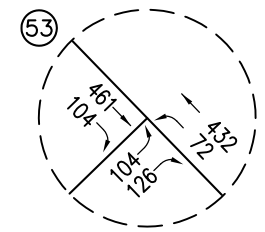
I-5 NB RAMPS @
LAKE FOREST DR



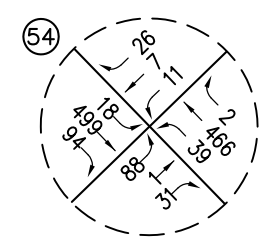
ROCKFIELD BLVD @
LAKE FOREST DR



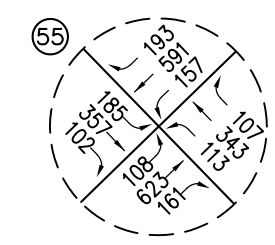
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



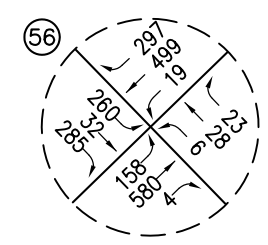
AVENIDA DE LA CARLOTA @
VIA PUERTA



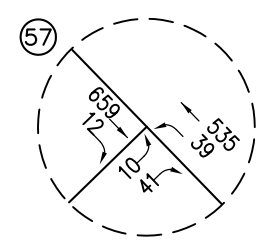
ROCKFIELD BLVD @
LANDISVIEW AVE



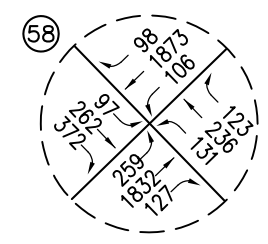
MUIRLANDS BLVD @
LOS ALISOS BLVD



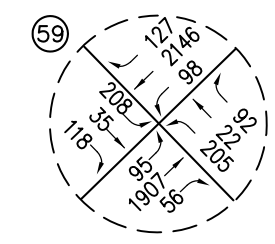
ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



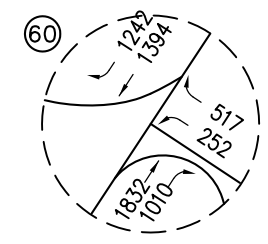
MUIRLANDS BLVD @
MARATHON ST



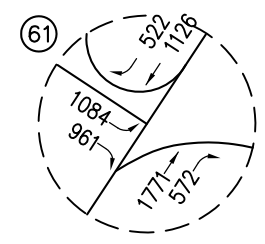
MUIRLANDS BLVD @
ALICIA PKWY



CHARLINDA DR @
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

n:\3500\2153585 – five lagunas, laguna hills\dwg\3585117-c.dwg LDP 11:49:45 10-09-2015 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

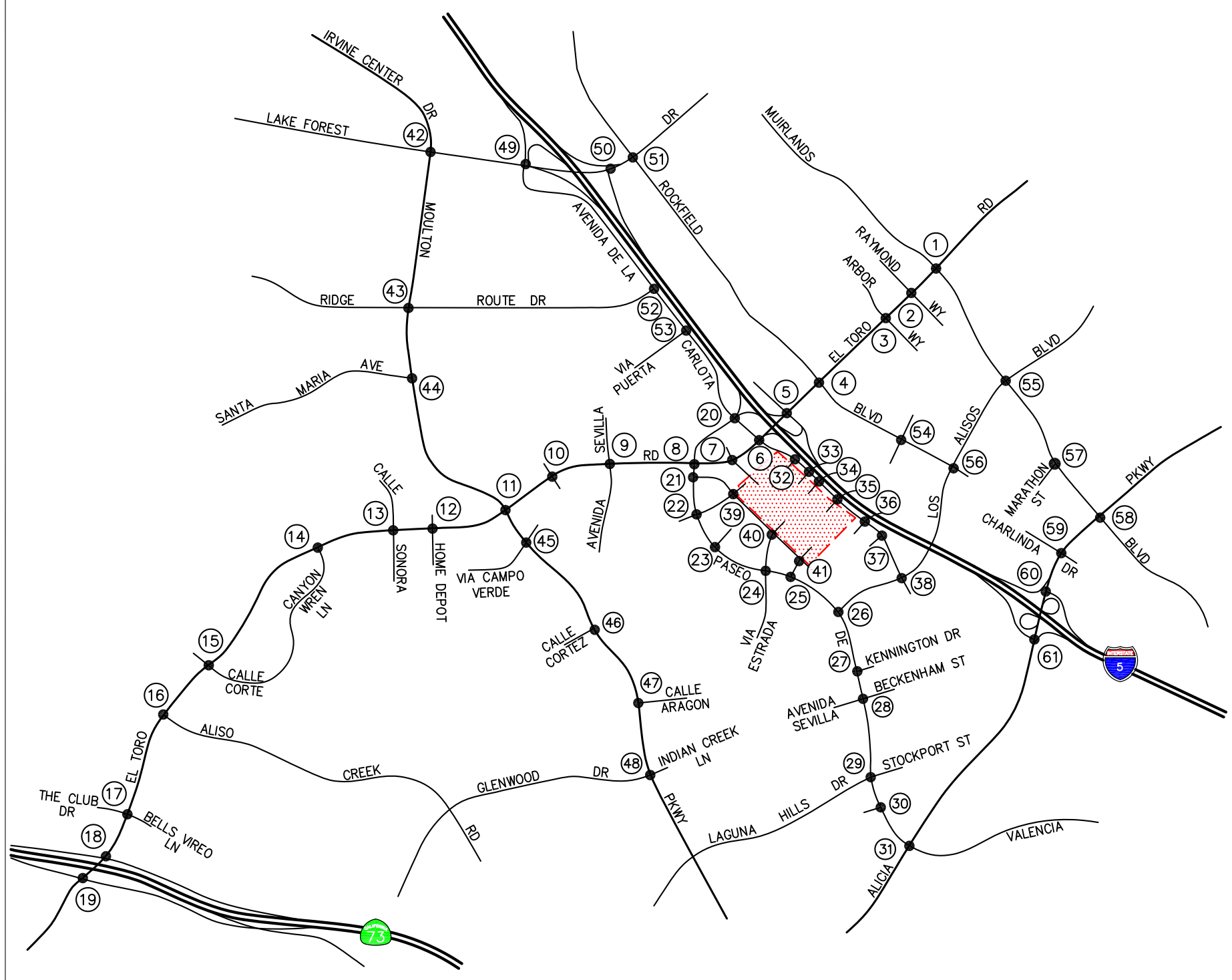
KEY

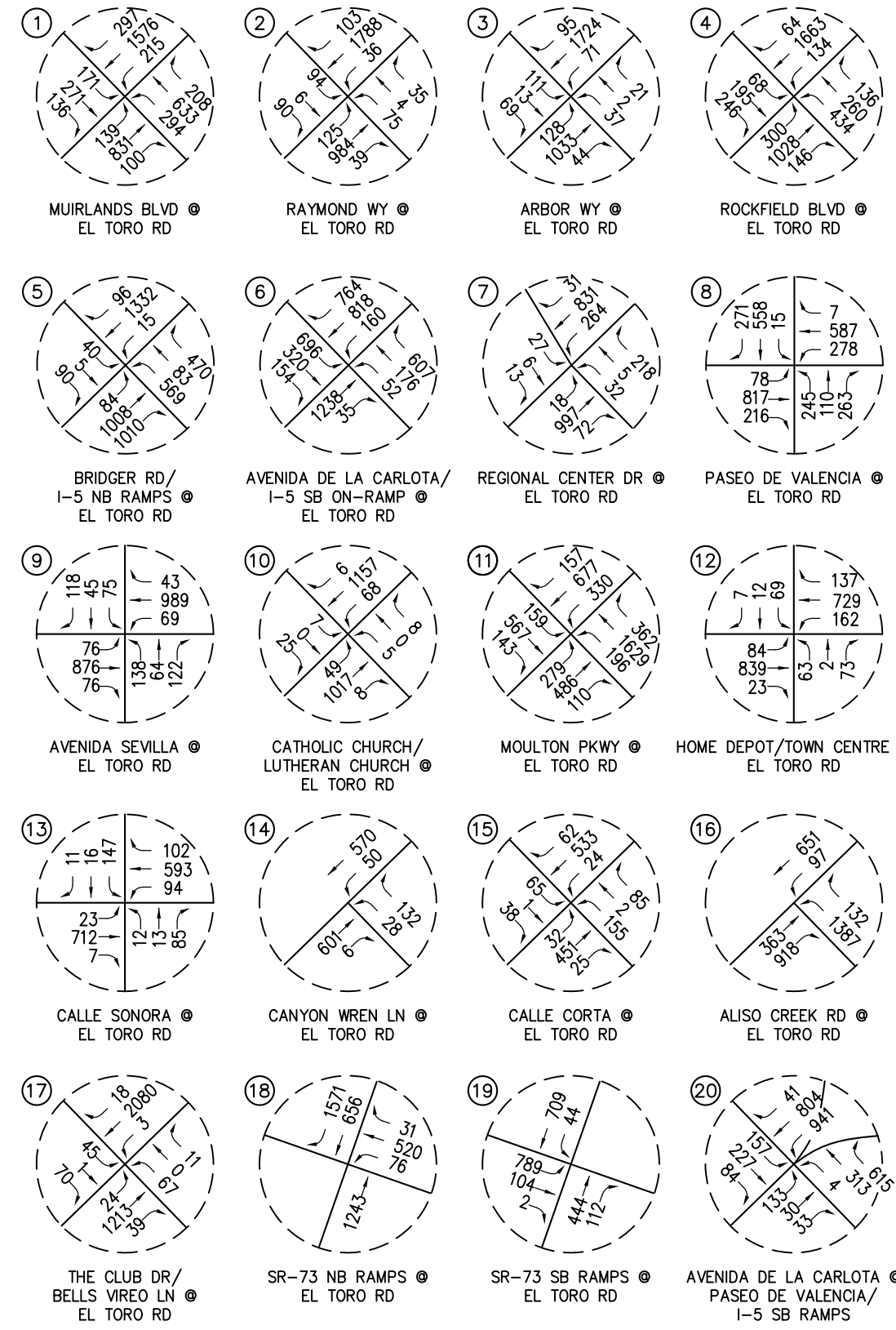
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 17C

YEAR 2018
MIDDAY PEAK HOUR CUMULATIVE BASE TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





n:\3500\2153585 – five lagunas, laguna hills\dwg\3585118-a.dwg LDP 11:50:17 10-09-2015 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

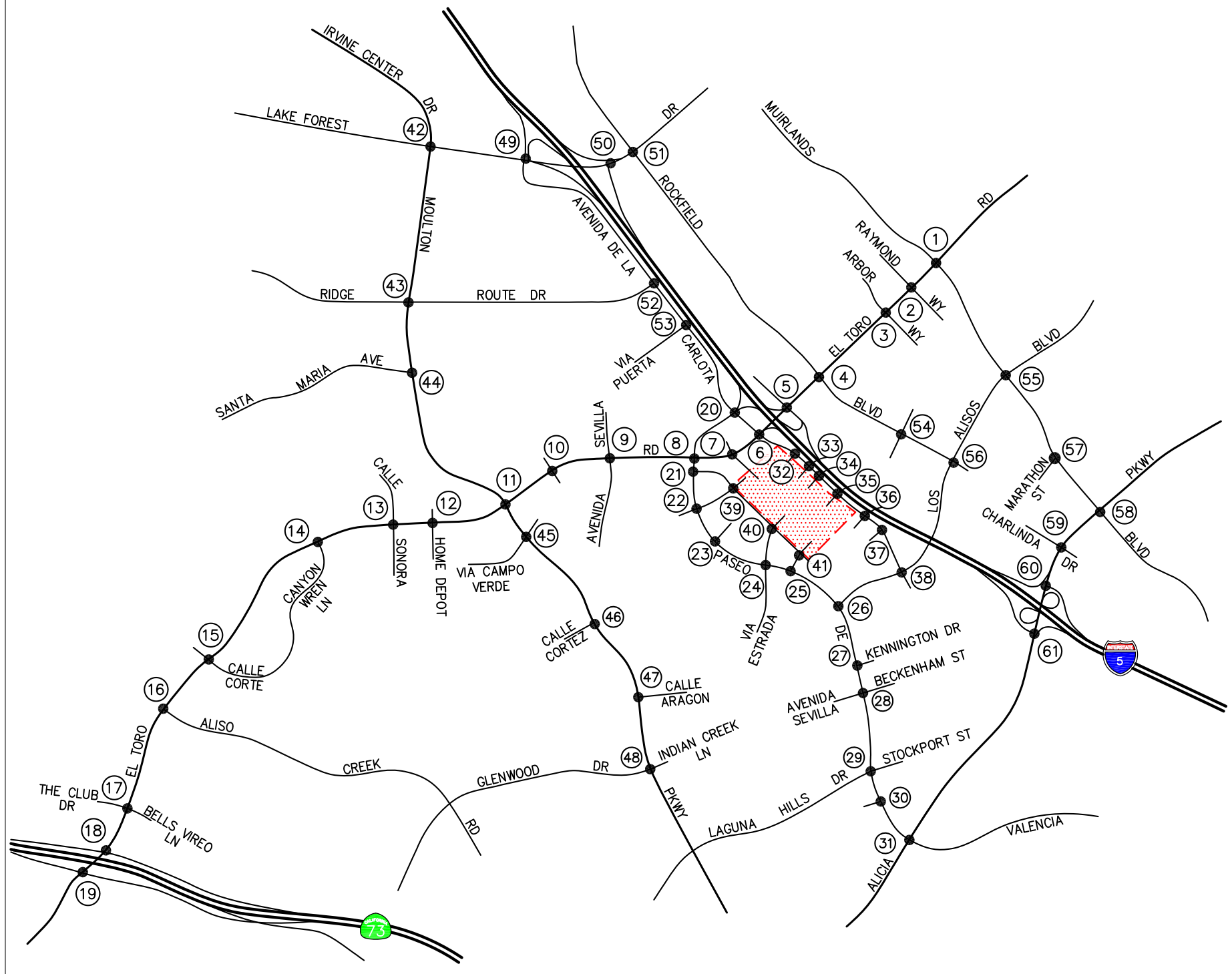
KEY

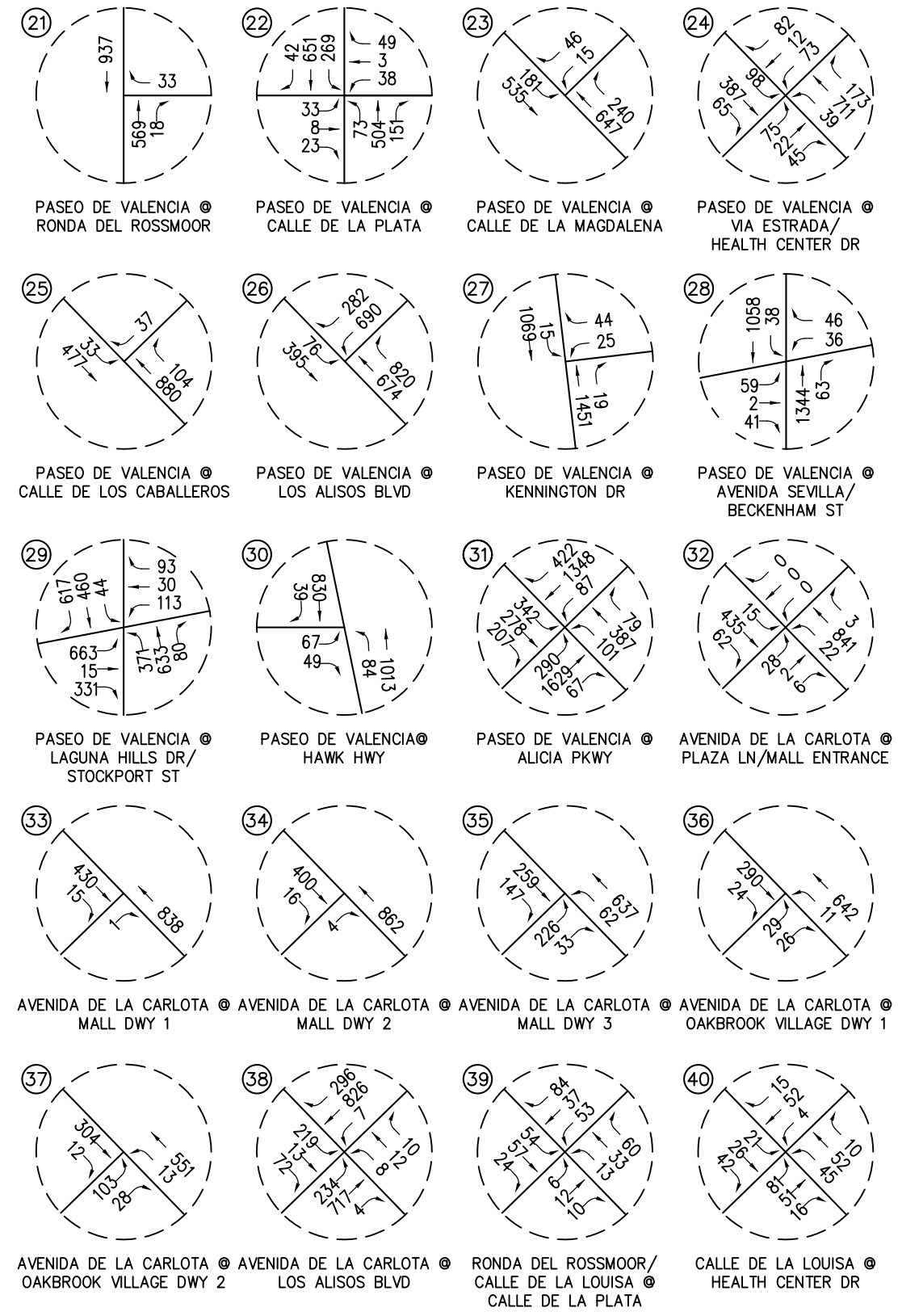
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 18A

YEAR 2018 CUMULATIVE PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





n:\3500\2153585 – five lagunas, laguna hills\dwg\3585118–b.dwg LDP 18:21:19 11–10–2015 tucker

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

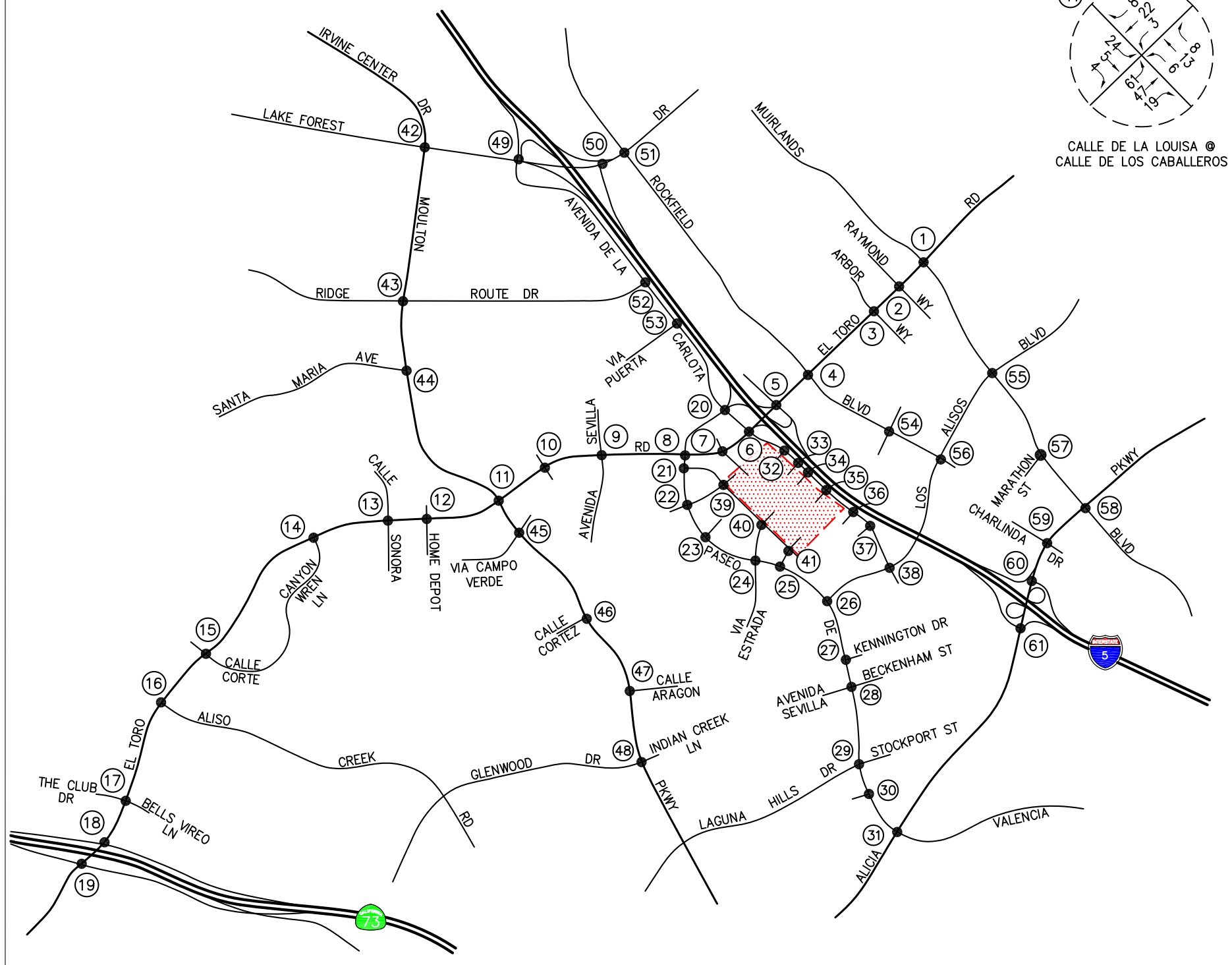
(#) = STUDY INTERSECTION

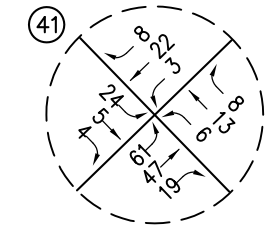
= PROJECT SITE

FIGURE 18B

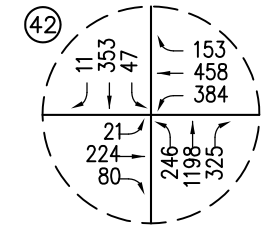
YEAR 2018 CUMULATIVE PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

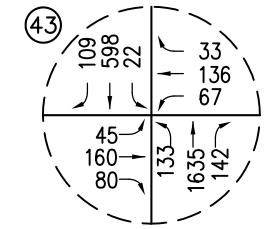




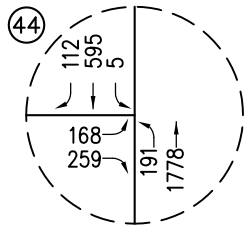
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



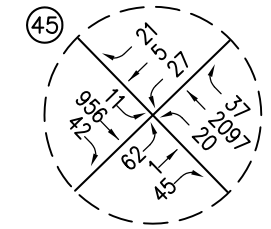
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



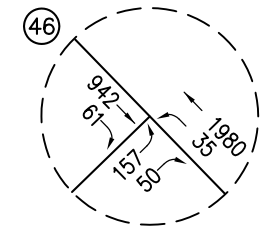
MOULTON PKWY @
RIDGE ROUTE DR



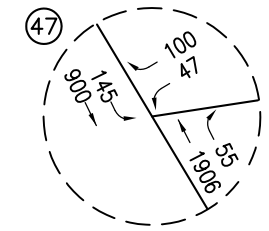
MOULTON PKWY @
SANTA MARIA AVE



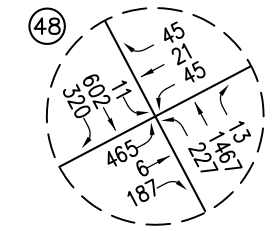
MOULTON PKWY @
VIA CAMPO VERDE



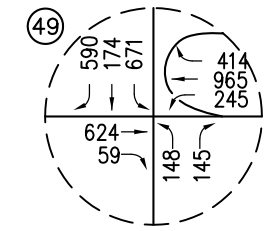
MOULTON PKWY @
CALLE CORTEZ



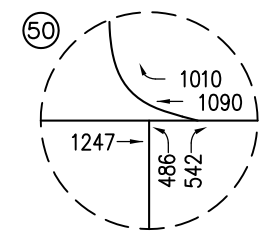
MOULTON PKWY @
CALLE ARAGON



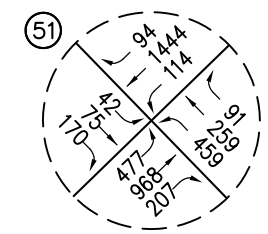
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



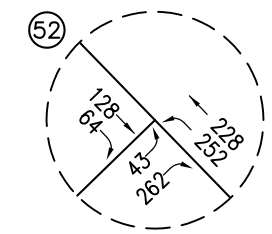
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



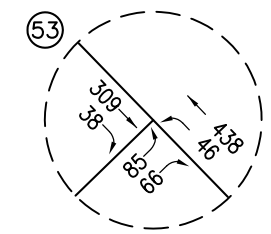
I-5 NB RAMPS @
LAKE FOREST DR



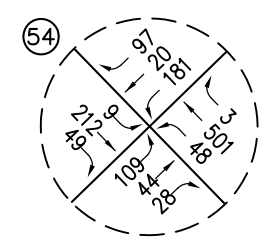
ROCKFIELD BLVD @
LAKE FOREST DR



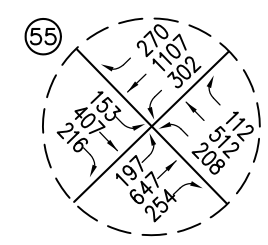
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



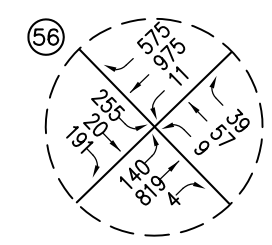
AVENIDA DE LA CARLOTA @
VIA PUERTA



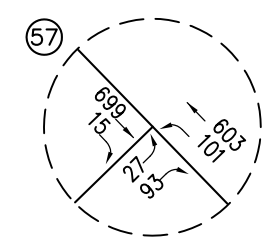
ROCKFIELD BLVD @
LANDISVIEW AVE



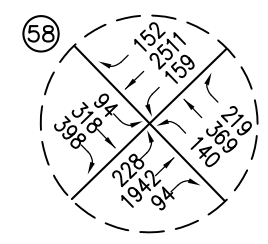
MUIRLANDS BLVD @
LOS ALISOS BLVD



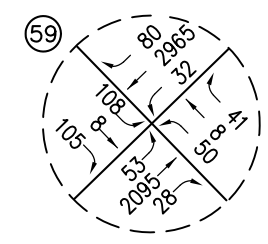
ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



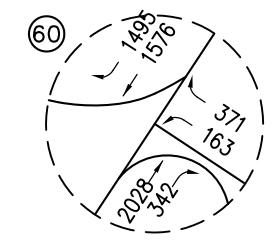
MUIRLANDS BLVD @
MARATHON ST



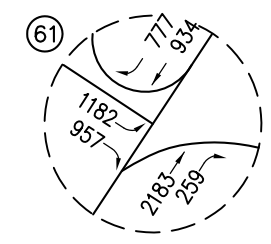
MUIRLANDS BLVD @
ALICIA PKWY



CHARLINDA DR @
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 18C

YEAR 2018 CUMULATIVE PLUS PROJECT
AM PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

LINSCOTT LAW & GREENSPAN engineers

NO SCALE

KEY

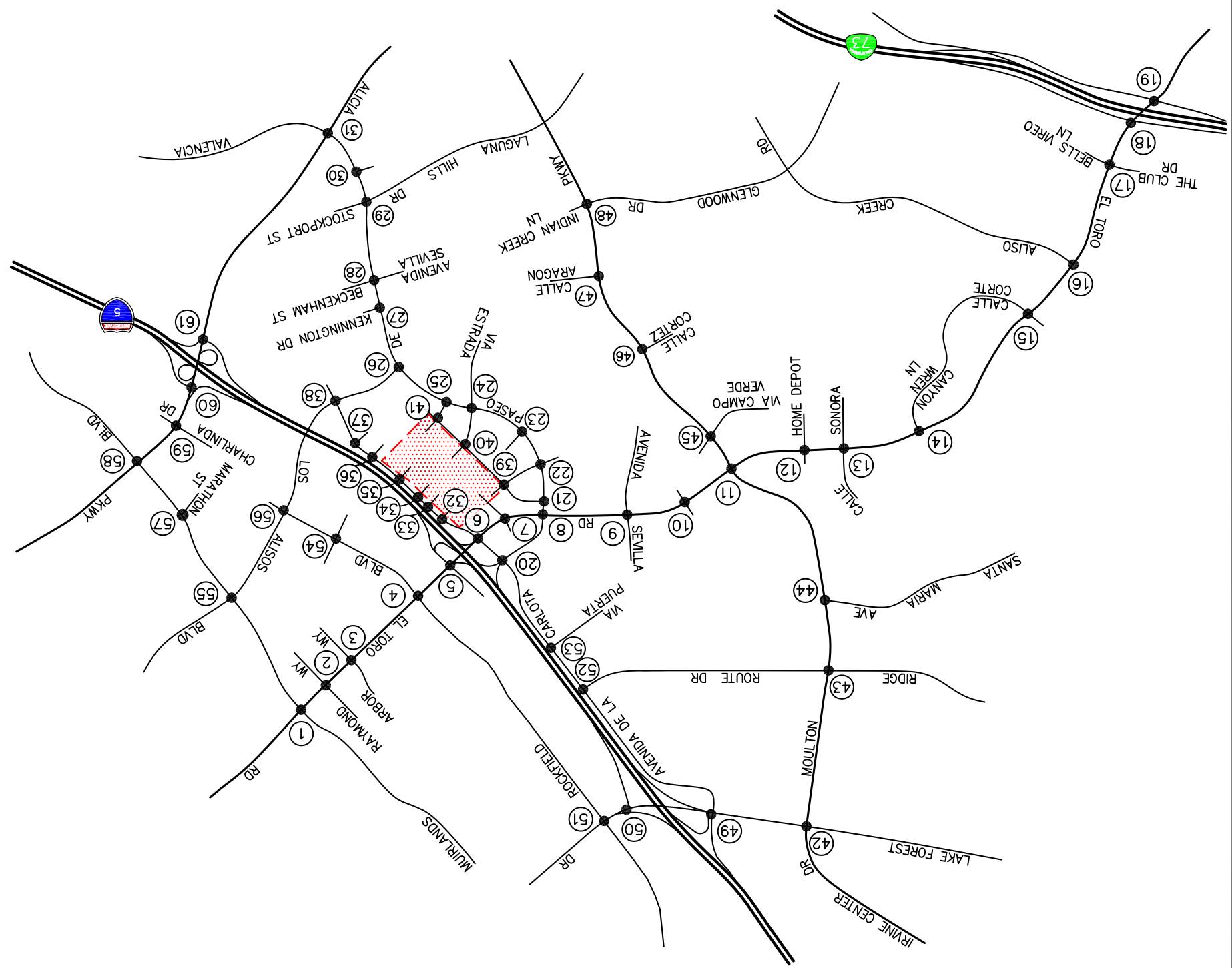
(#) = STUDY INTERSECTION

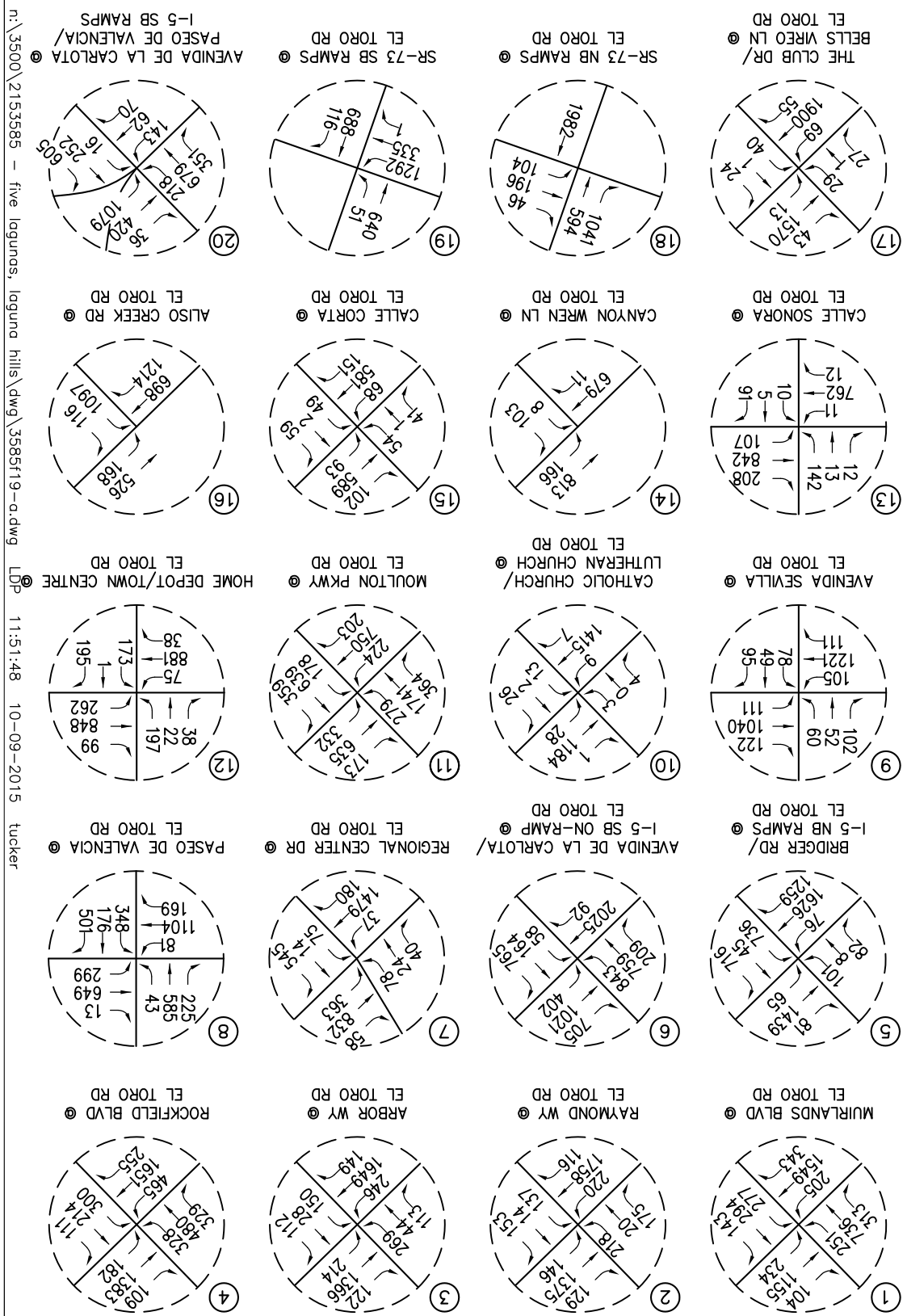
= PROJECT SITE

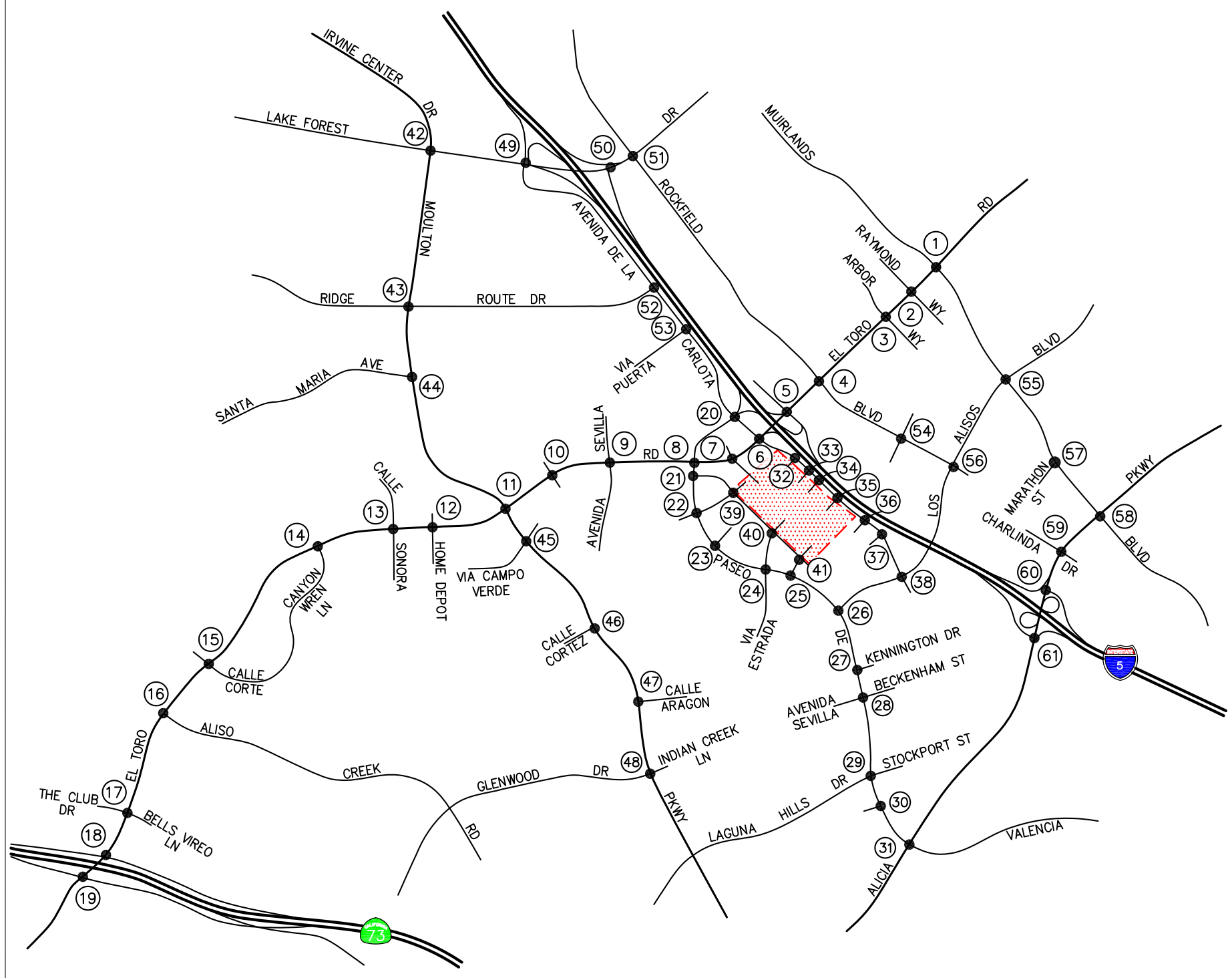
FIGURE 19A

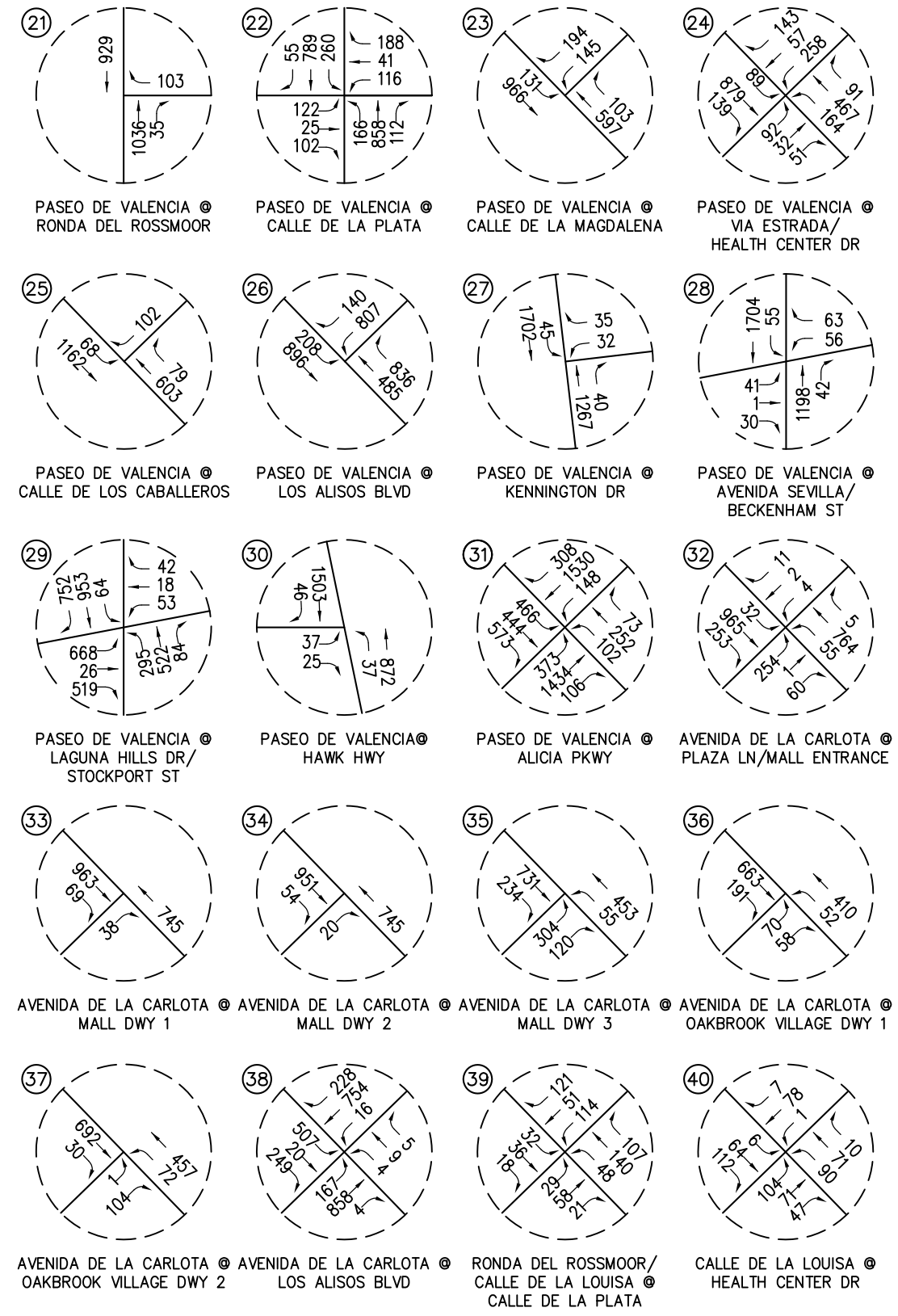
YEAR 2018 CUMULATIVE PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS









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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

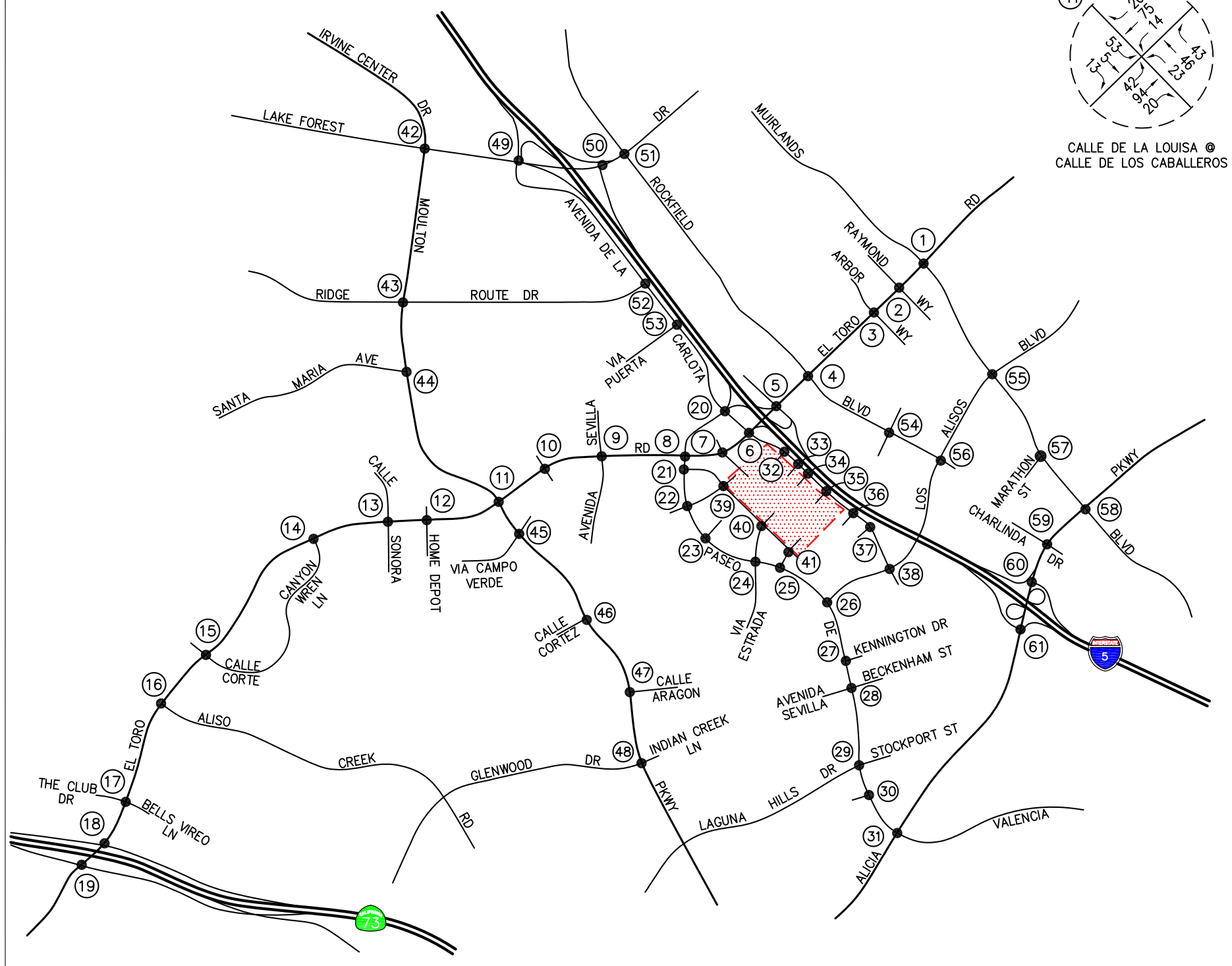
KEY

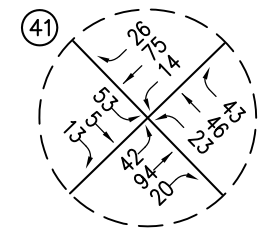
(#) = STUDY INTERSECTION

= PROJECT SITE

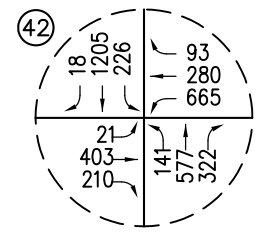
FIGURE 19B

YEAR 2018 CUMULATIVE PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES
FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

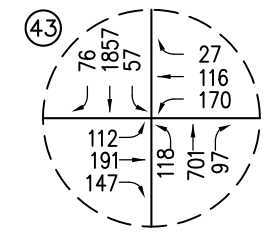




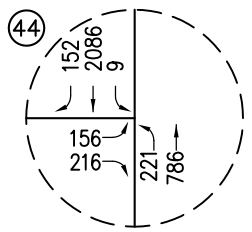
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



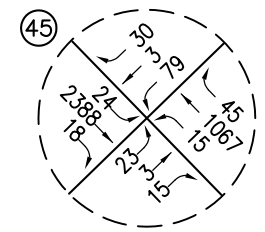
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



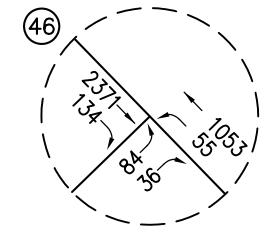
MOULTON PKWY @
RIDGE ROUTE DR



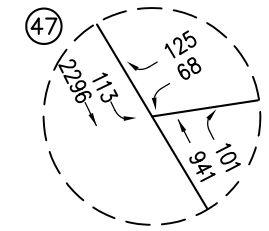
MOULTON PKWY @
SANTA MARIA AVE



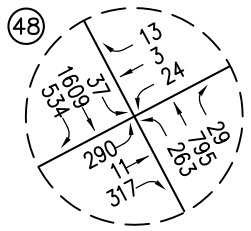
MOULTON PKWY @
VIA CAMPO VERDE



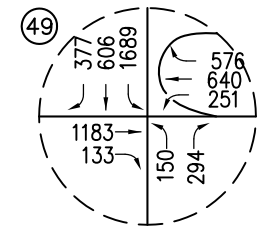
MOULTON PKWY @
CALLE CORTEZ



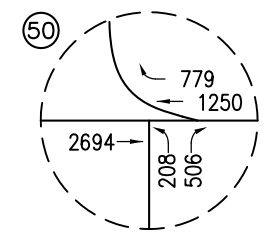
MOULTON PKWY @
CALLE ARAGON



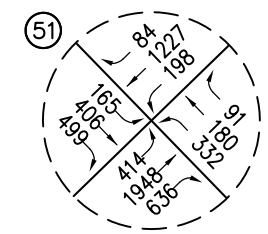
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



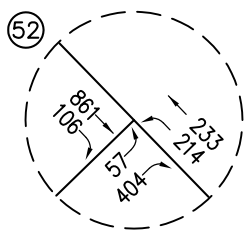
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



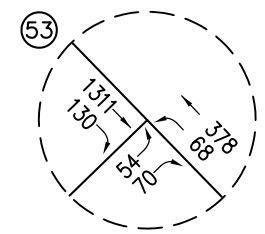
I-5 NB RAMPS @
LAKE FOREST DR



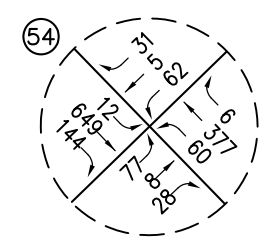
ROCKFIELD BLVD @
LAKE FOREST DR



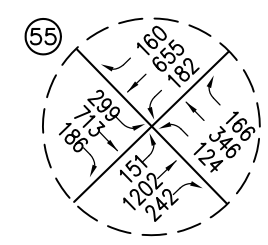
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



AVENIDA DE LA CARLOTA @
VIA PUERTA



ROCKFIELD BLVD @
LANDISVIEW AVE



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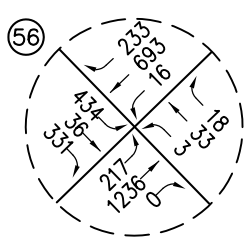
LOS ALISOS BLVD



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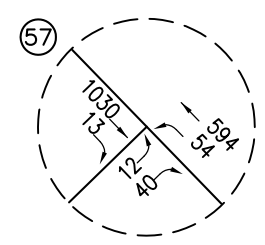
LOS ALISOS BLVD



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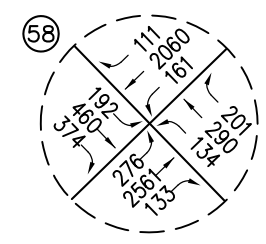
MARATHON ST



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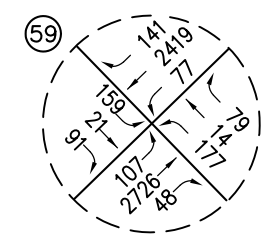
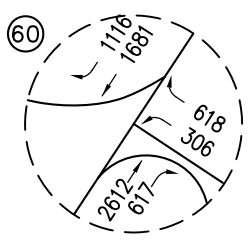
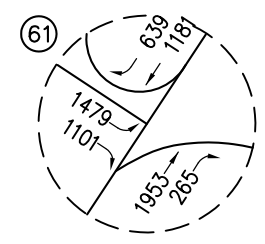


CHARLINDA DR @
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

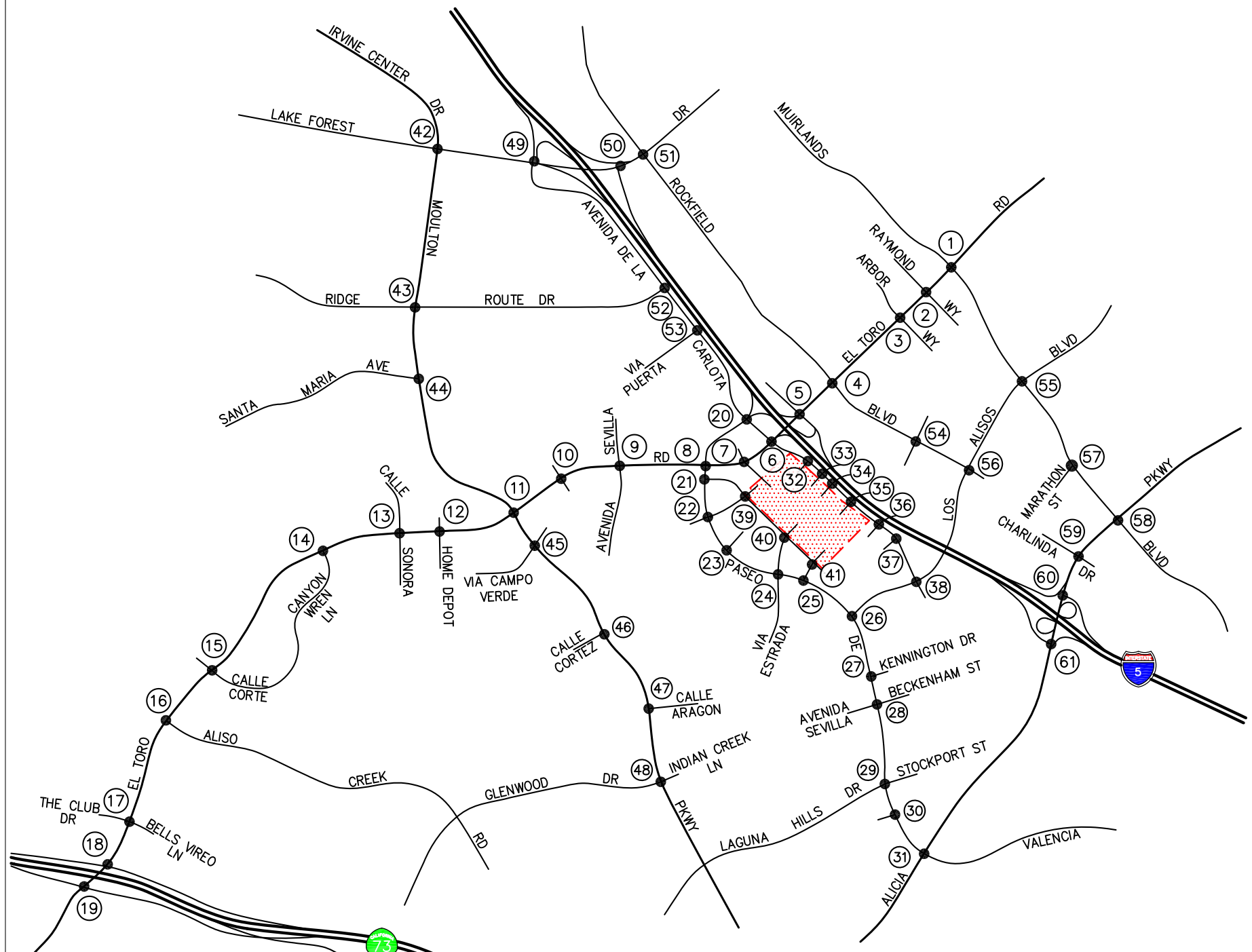
(#) = STUDY INTERSECTION

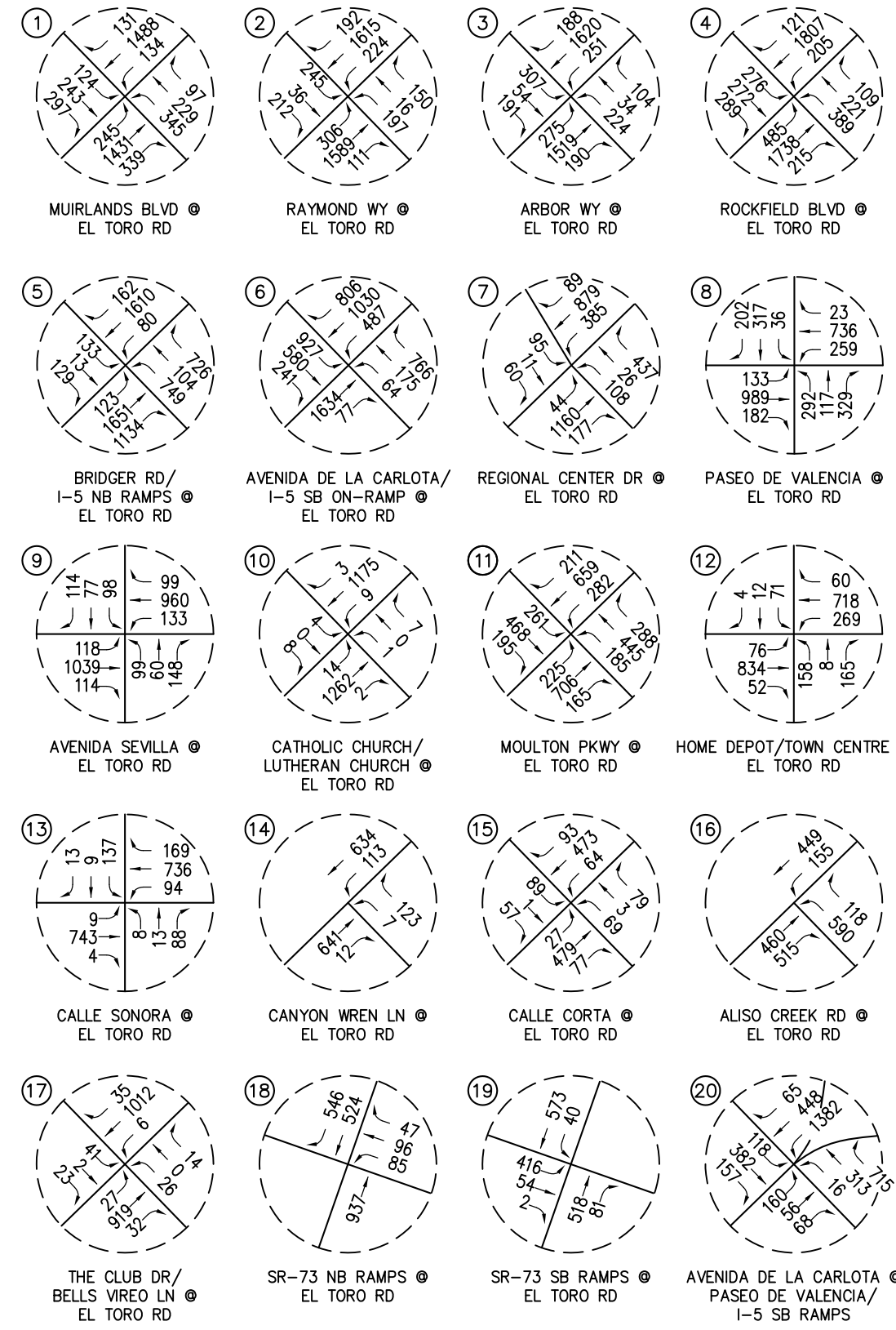
= PROJECT SITE

FIGURE 19C

YEAR 2018 CUMULATIVE PLUS PROJECT
PM PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

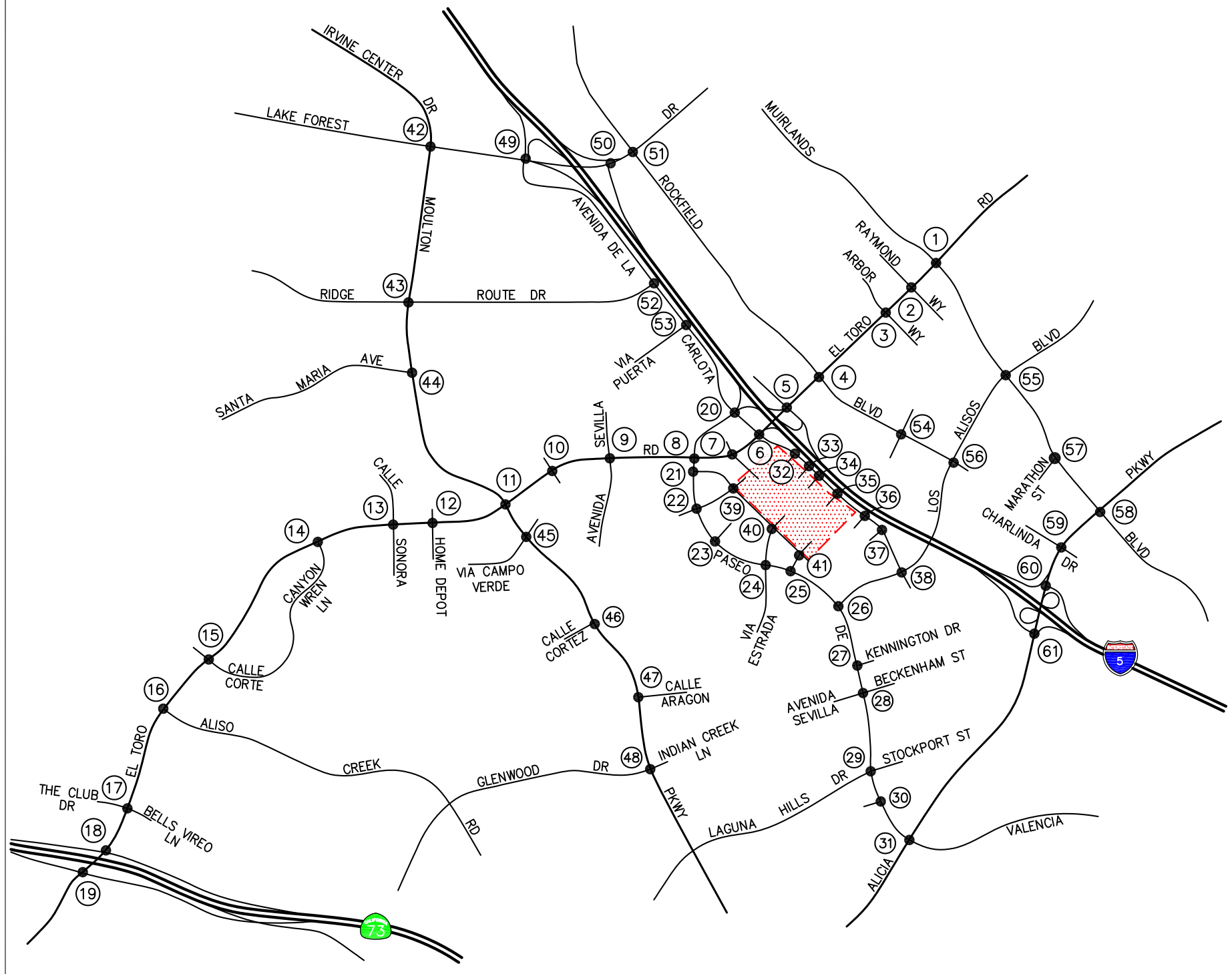
(#) = STUDY INTERSECTION

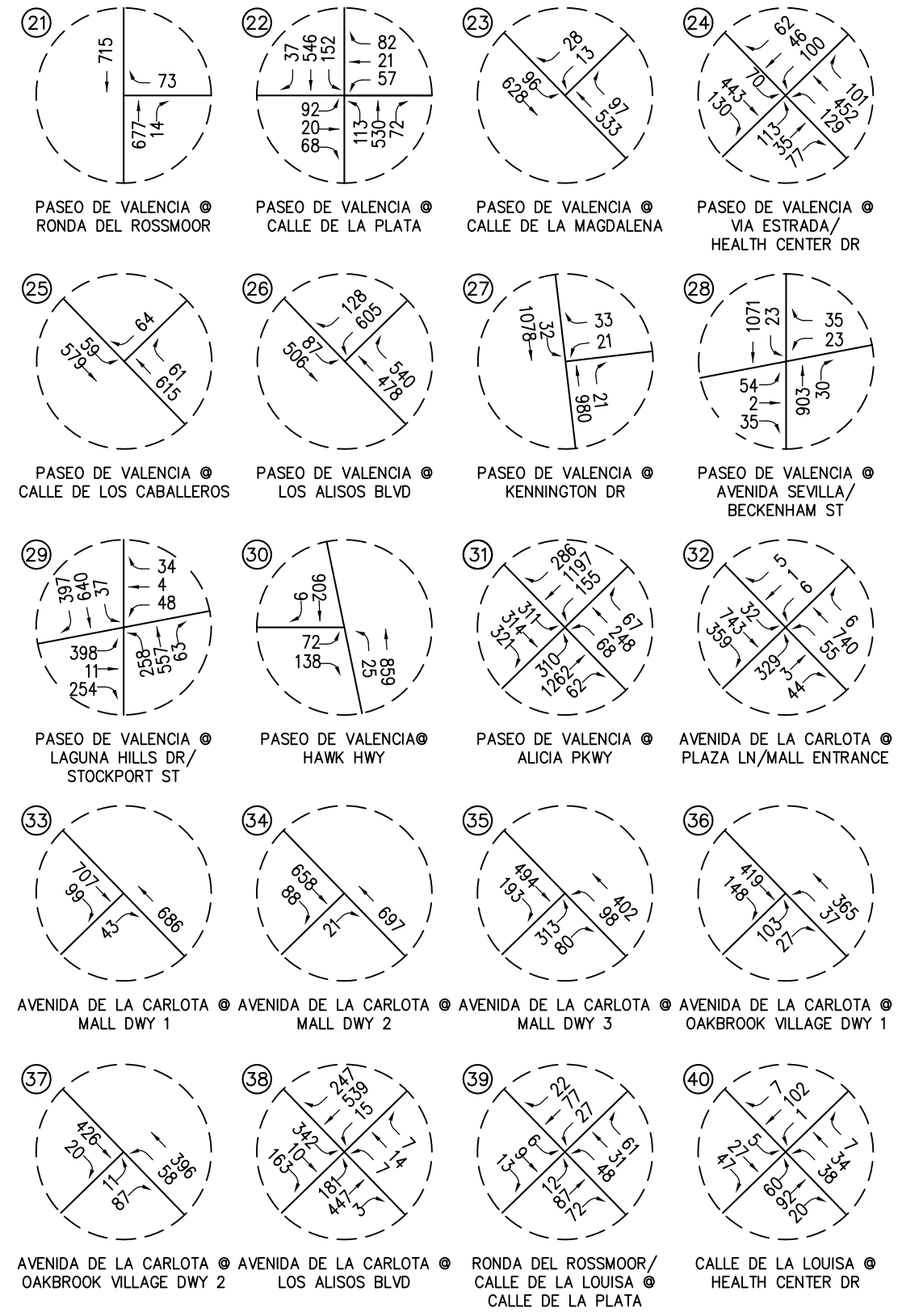
= PROJECT SITE

FIGURE 20A

YEAR 2018 CUMULATIVE PLUS PROJECT
MIDDAY PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS





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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

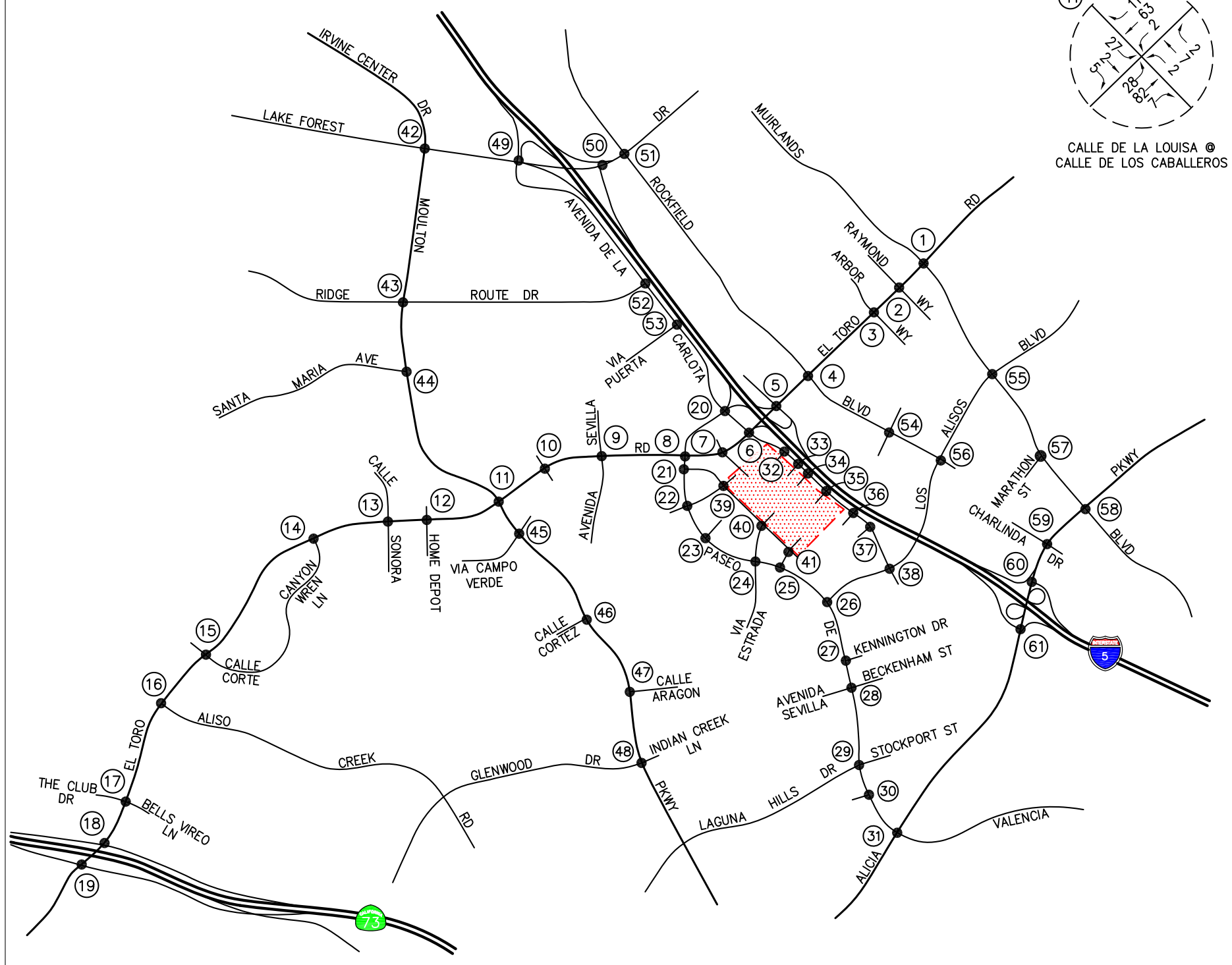
(#) = STUDY INTERSECTION

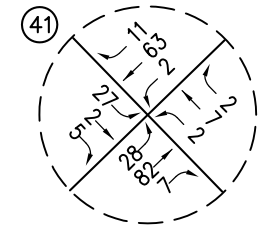
= PROJECT SITE

FIGURE 20B

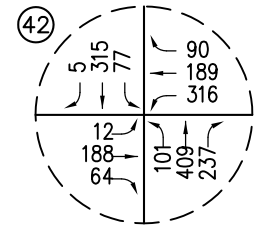
YEAR 2018 CUMULATIVE PLUS PROJECT
MIDDAY PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

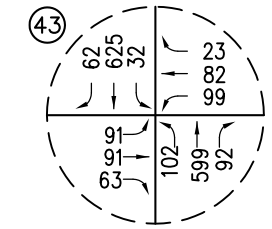




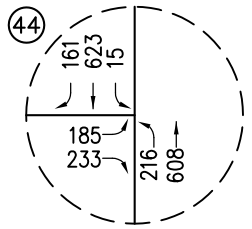
CALLE DE LA LOUISA @
CALLE DE LOS CABALLEROS



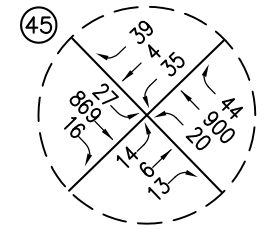
IRVINE CENTER DR/
MOULTON PKWY @
LAKE FOREST DR



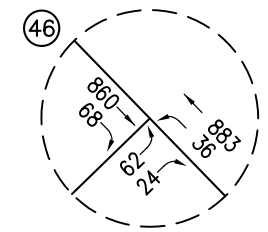
MOULTON PKWY @
RIDGE ROUTE DR



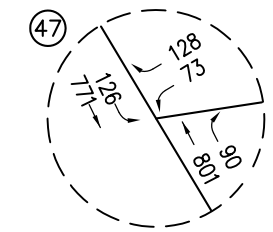
MOULTON PKWY @
SANTA MARIA AVE



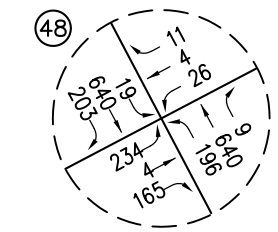
MOULTON PKWY @
VIA CAMPO VERDE



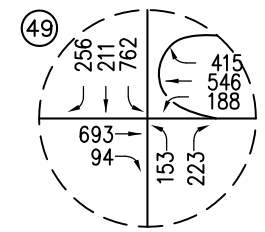
MOULTON PKWY @
CALLE CORTEZ



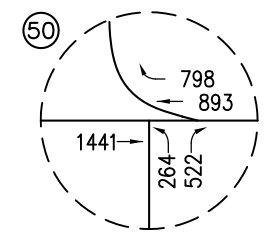
MOULTON PKWY @
CALLE ARAGON



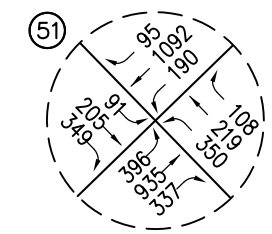
MOULTON PKWY @
GLENWOOD DR/
INDIAN CREEK LN



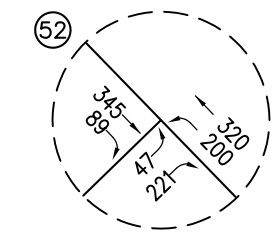
AVENIDA DE LA CARLOTA/
I-5 SB RAMPS @
LAKE FOREST DR



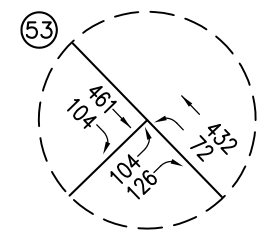
I-5 NB RAMPS @
LAKE FOREST DR



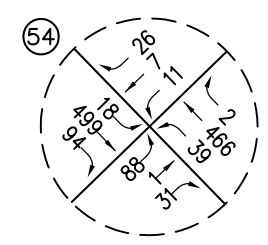
ROCKFIELD BLVD @
LAKE FOREST DR



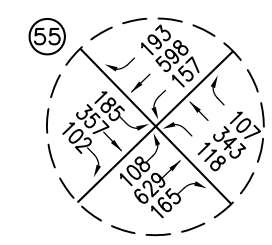
AVENIDA DE LA CARLOTA @
RIDGE ROUTE DR



AVENIDA DE LA CARLOTA @
VIA PUERTA



ROCKFIELD BLVD @
LANDISVIEW AVE



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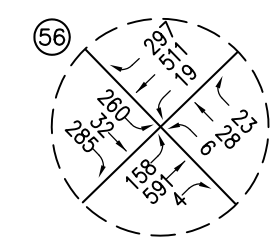
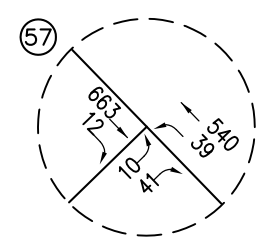
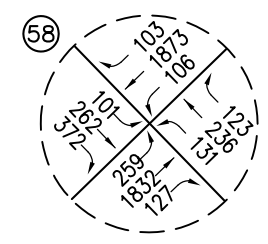
LOS ALISOS BLVD



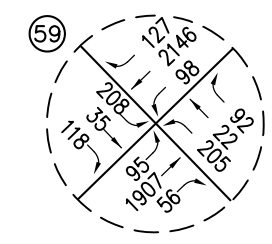
ROCKFIELD BLVD/FORDVIEW @
LOS ALISOS BLVD



MUIRLANDS BLVD @
MARATHON ST



MUIRLANDS BLVD @
ALICIA PKWY



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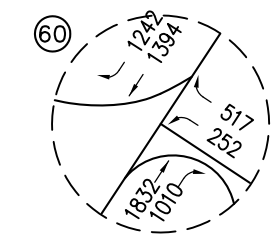
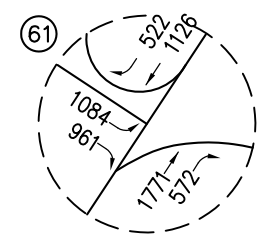
ALICIA PKWY



I-5 NB RAMPS @
ALICIA PKWY



I-5 SB RAMPS @
ALICIA PKWY

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 20C

YEAR 2018 CUMULATIVE PLUS PROJECT
MIDDAY PEAK HOUR TRAFFIC VOLUMES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

5.0 TRAFFIC IMPACT ANALYSIS

The relative impact of the Project during the weekday AM, weekday PM, and Saturday midday, peak hours was evaluated based on analysis of future operating conditions at the 61 key intersections, without, then with, the Project. The previously discussed capacity analysis procedures were utilized to investigate the delay/volume-to-capacity relationships and service level characteristics at each study intersection. The significance of the potential impacts of the Project at each key intersection was then evaluated using the significant traffic impact criteria described below.

5.1 Significant Impact Criteria

In order to provide a quantitative basis for determining the significant traffic impact at a specific location, it was necessary to establish the criteria to be used in the analysis of intersections for this study.

Based on the City's and CMP traffic study guidelines, a project is considered to have a significant impact at an intersection if the following criteria are met:

Non-CMP Signalized, Unsignalized, and Freeway Ramp Intersections

- the Project causes an intersection at LOS D or better to degrade to LOS E or F, and the ICU increase attributable to the Project is 0.01 or greater (or any delay increase per HCM 2000 and 2010)

- or -

- the Project causes an ICU increase of 0.01 or greater (or any delay increase per HCM 2000 and 2010) at an intersection operating at LOS E or F "without project"

CMP Signalized Intersections and Freeway Ramp Intersections

- the Project causes an intersection at LOS E or better to degrade to LOS F, and the ICU increase attributable to the Project is 0.01 or greater (or any delay increase per HCM 2000 and 2010)

- or -

- the Project causes an ICU increase of 0.01 or greater (or any delay increase per HCM 2000 and 2010) at an intersection operating at LOS F "without project"

5.2 Existing Plus Project Traffic Conditions

Tables 9 and ***10*** summarize the Existing (2015) Plus Project levels of service at the 61 key intersections during the weekday AM and PM, and Saturday midday, peak hours, respectively. Based on the application of the significance criteria described previously, the Project is not expected to cause significant traffic impacts at any of the 61 key intersections under Existing (2015) Plus Project conditions.

Compared to existing conditions, the ICU and delay values are less (and corresponding LOS better) under Existing (2015) Plus Project conditions at the following Project driveway intersections due to

site access improvements that would be completed as part of the Project (includes lane geometry, driveway reconfiguration, and signalization, which are described in Section 6 of this report):

7) Regional Center Drive at El Toro Road (lane geometry improvements)
32) Avenida de la Carlota at Plaza Lane/Mall Entrance (lane geometry improvements)
33) Avenida de la Carlota at Mall Driveway 1 (driveway converted to right-turn in/out only)
34) Avenida de la Carlota at Mall Driveway 2 (driveway converted to right-turn in/out only)
35) Avenida de la Carlota at Mall Driveway 3 (new traffic signal)

5.3 Year 2018 Cumulative Base Traffic Conditions

Tables 11 and ***12*** summarize the Year 2018 Cumulative Base levels of service at the 61 key intersections during the weekday AM and PM, and Saturday midday, peak hours, respectively.

As *Table 11* indicates, under Year 2018 Cumulative Base conditions (i.e., future conditions without the project), 60 of the 61 key intersections are expected to operate at acceptable LOS D or better (LOS E or better at CMP intersections) during the AM and PM peak hours of a typical weekday. Under these future background conditions without the project, the following intersection would operate at a deficient LOS E during the PM peak hour (it should be noted that this deficiency is not attributable to the project, and will be addressed by the future installation of a signal at the intersection as part of the project's site access improvements):

35) Avenida de la Carlota at Mall Driveway 3

Table 12 indicates that all 61 key intersections would operate at acceptable LOS D or better (LOS E or better at CMP intersections) during the Saturday midday peak hour under Year 2018 Cumulative Base conditions.

5.4 Year 2018 Cumulative Plus Project Traffic Conditions

Tables 11 and *12* summarize the Year 2018 Cumulative Plus Project levels of service at the 61 key intersections during the weekday AM and PM, and Saturday midday, peak hours, respectively. Based on the application of the significance criteria described previously, the Project is not expected to cause significant traffic impacts at any of the 61 key intersections under Year 2018 Cumulative Plus Project conditions.

TABLE 9
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	Existing (2015) Plus Project ICU or Delay Diff	Existing (2015) Plus Project Proj Sig Imp?
1) Muirlands Boulevard at	AM	0.617	--	B	No	0.619	--	B	No	0.002	No
El Toro Road (LF)	PM	0.699	--	B	No	0.701	--	C	No	0.002	No
2) Raymond Way at	AM	0.420	--	A	No	0.421	--	A	No	0.001	No
El Toro Road (LF)	PM	0.517	--	A	No	0.519	--	A	No	0.002	No
3) Arbor Way at	AM	0.389	--	A	No	0.390	--	A	No	0.001	No
El Toro Road (LF)	PM	0.523	--	A	No	0.525	--	A	No	0.002	No
4) Rockfield Boulevard at	AM	0.559	--	A	No	0.560	--	A	No	0.001	No
El Toro Road (LF)	PM	0.615	--	B	No	0.617	--	B	No	0.002	No
5) Bridger Road/I-5 Northbound Ramps	AM	0.501	--	A	No	0.556	--	A	No	0.055	No
at El Toro Road (CMP/LF)	PM	0.758	--	C	No	0.793	--	C	No	0.035	No
HCM 2010:	AM	--	32.6	C	No	--	34.3	C	No	1.7	No
HCM 2010:	PM	--	55.7	E	No	--	64.9	E	No	9.2	No
6) Avenida de la Carlota/I-5 Southbound	AM	0.486	--	A	No	0.552	--	A	No	0.066	No
On-Ramp at El Toro Road (CMP)	PM	0.804	--	D	No	0.882	--	D	No	0.078	No
HCM 2010:	AM	--	25.7	C	No	--	30.2	C	No	4.5	No
HCM 2010:	PM	--	43.5	D	No	--	52.4	D	No	8.9	No
7) Regional Center Drive at	AM	0.278	--	A	No	0.363	--	A	No	0.085	No
El Toro Road	PM	0.634	--	B	No	0.611	--	B	No	-0.023	No
8) Paseo de Valencia at	AM	0.504	--	A	No	0.514	--	A	No	0.010	No
El Toro Road	PM	0.605	--	B	No	0.609	--	B	No	0.004	No
9) Avenida Sevilla at	AM	0.416	--	A	No	0.424	--	A	No	0.008	No
El Toro Road (LW)	PM	0.437	--	A	No	0.455	--	A	No	0.018	No
10) Catholic Church/Lutheran Church at	AM	0.307	--	A	No	0.315	--	A	No	0.008	No
El Toro Road (LW)	PM	0.345	--	A	No	0.352	--	A	No	0.007	No
11) Moulton Parkway at	AM	0.606	--	B	No	0.610	--	B	No	0.004	No
El Toro Road (CMP/LW)	PM	0.661	--	B	No	0.668	--	B	No	0.007	No
12) Home Depot at	AM	0.330	--	A	No	0.331	--	A	No	0.001	No
El Toro Road (LW)	PM	0.499	--	A	No	0.503	--	A	No	0.004	No
13) Calle Sanora at	AM	0.327	--	A	No	0.328	--	A	No	0.001	No
El Toro Road (LW)	PM	0.346	--	A	No	0.348	--	A	No	0.002	No
14) Canyon Wren Lane at	AM	0.253	--	A	No	0.255	--	A	No	0.002	No
El Toro Road (AV)	PM	0.322	--	A	No	0.325	--	A	No	0.003	No

TABLE 9 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	Existing (2015) Plus Project ICU or Delay Diff	Existing (2015) Plus Project Proj Sig Imp?
15) Calle Corta at	AM	0.271	--	A	No	0.275	--	A	No	0.004	No
El Toro Road (LW)	PM	0.303	--	A	No	0.306	--	A	No	0.003	No
16) Aliso Creek Road at	AM	0.626	--	B	No	0.626	--	B	No	0.000	No
El Toro Road (LW)	PM	0.838	--	D	No	0.838	--	D	No	0.000	No
17) The Club Drive/Bells Vireo Lane at	AM	0.560	--	A	No	0.564	--	A	No	0.004	No
El Toro Road (LB)	PM	0.482	--	A	No	0.485	--	A	No	0.003	No
18) SR-73 Northbound Ramps at	AM	0.578	--	A	No	0.580	--	A	No	0.002	No
El Toro Road (CMP/LB)	PM	0.669	--	B	No	0.672	--	B	No	0.003	No
HCM 2010:	AM	--	14.2	B	No	--	14.2	B	No	0.0	No
HCM 2010:	PM	--	9.6	A	No	--	9.5	A	No	-0.1	No
19) SR-73 Southbound Ramps at	AM	0.476	--	A	No	0.478	--	A	No	0.002	No
El Toro Road (CMP/LB)	PM	0.639	--	B	No	0.645	--	B	No	0.006	No
HCM 2010:	AM	--	24.1	C	No	--	24.1	C	No	0.0	No
HCM 2010:	PM	--	24.1	C	No	--	24.2	C	No	0.1	No
20) Avenida de la Carlota at	AM	0.486	--	A	No	0.526	--	A	No	0.040	No
Paseo de Valencia/I-5 Southbound	PM	0.535	--	A	No	0.559	--	A	No	0.024	No
HCM 2010:	AM	--	44.8	D	No	--	48.4	D	No	3.6	No
HCM 2010:	PM	--	42.7	D	No	--	46.6	D	No	3.9	No
21) Paseo de Valencia at	*AM*	--	*10.6*	*B*	*No*	--	*10.7*	*B*	*No*	*0.1*	*No*
Ronda del Rossmoor (LW)	*PM*	--	*11.2*	*B*	*No*	--	*11.3*	*B*	*No*	*0.1*	*No*
22) Paseo de Valencia at	AM	0.357	--	A	No	0.368	--	A	No	0.011	No
Calle de la Plata (LW)	PM	0.533	--	A	No	0.544	--	A	No	0.011	No
23) Paseo de Valencia at	AM	0.332	--	A	No	0.335	--	A	No	0.003	No
Calle de la Magdalena (LW)	PM	0.384	--	A	No	0.390	--	A	No	0.006	No
24) Paseo de Valencia at	AM	0.338	--	A	No	0.348	--	A	No	0.010	No
Health Center Drive (LW)	PM	0.511	--	A	No	0.516	--	A	No	0.005	No
25) Paseo de Valencia at	*AM*	--	*10.6*	*B*	*No*	--	*10.7*	*B*	*No*	*0.1*	*No*
Calle de los Caballeros (LW)	*PM*	--	*10.5*	*B*	*N`o*	--	*10.6*	*B*	*No*	*0.1*	*No*
26) Paseo de Valencia at	AM	0.449	--	A	No	0.451	--	A	No	0.002	No
Los Alisos Boulevard	PM	0.455	--	A	No	0.459	--	A	No	0.004	No
27) Paseo de Valencia at	AM	0.368	--	A	No	0.374	--	A	No	0.006	No
Kennington Drive (LW)	PM	0.550	--	A	No	0.554	--	A	No	0.004	No

TABLE 9 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	Existing (2015) Plus Project ICU or Delay Diff	Existing (2015) Plus Project Proj Sig Imp?
28) Paseo de Valencia at	AM	0.393	--	A	No	0.405	--	A	No	0.012	No
Avenida Sevilla/Beckenham Street	PM	0.581	--	A	No	0.585	--	A	No	0.004	No
29) Paseo de Valencia at	AM	0.649	--	B	No	0.649	--	B	No	0.000	No
Laguna Hills Drive/Stockport Street	PM	0.680	--	B	No	0.680	--	B	No	0.000	No
30) Paseo de Valencia at	AM	0.301	--	A	No	0.306	--	A	No	0.005	No
Hawk Highway	PM	0.425	--	A	No	0.428	--	A	No	0.003	No
31) Paseo de Valencia at	AM	0.643	--	B	No	0.643	--	B	No	0.000	No
Alicia Parkway	PM	0.645	--	B	No	0.646	--	B	No	0.001	No
32) Avenida de la Carlota at	AM	0.245	--	A	No	0.311	--	A	No	0.066	No
Plaza Lane/Mall Entrance	PM	0.436	--	A	No	0.447	--	A	No	0.011	No
33) Avenida de la Carlota at	*AM*	--	*13.3*	*B*	*No*	--	*9.5*	*A*	*No*	*-3.8*	*No*
Mall Driveway 1	*PM*	--	*27.7*	*D*	*No*	--	*12.2*	*B*	No	*-15.5*	*No*
34) Avenida de la Carlota at	*AM*	--	*11.9*	*B*	*No*	--	*9.4*	*A*	*No*	*-2.5*	*No*
Mall Driveway 2	*PM*	--	*26.4*	*D*	*No*	--	*11.8*	*B*	*No*	*-14.6*	*No*
35) Avenida de la Carlota at	*AM*	--	*12.8*	*B*	*No*	*0.295*	--	*A*	No	--	No
Mall Driveway 3	*PM*	--	*32.4*	*D*	*No*	*0.516*	--	*A*	No	--	No
36) Avenida de la Carlota at	*AM*	--	*10.5*	*B*	*No*	--	*10.7*	*B*	*No*	*0.2*	*No*
Oakbrook Village Driveway 1	*PM*	--	*22.8*	*C*	*No*	--	*23.6*	*C*	*No*	*0.8*	*No*
37) Avenida de la Carlota at	*AM*	--	*10.1*	*B*	*No*	--	*10.3*	*B*	*No*	*0.2*	*No*
Oakbrook Village Driveway 2	*PM*	--	*12.3*	*B*	*No*	--	*12.4*	*B*	*No*	*0.1*	*No*
38) Avenida de la Carlota at	AM	0.423	--	A	No	0.429	--	A	No	0.006	No
Los Alisos Boulevard	PM	0.470	--	A	No	0.474	--	A	No	0.004	No
39) Ronda del Rossmoor/Calle de la	*AM*	--	*8.6*	*A*	*No*	--	*8.8*	*A*	*No*	*0.2*	*No*
Calle de la Plata	*PM*	--	*10.4*	*B*	*No*	--	*10.6*	*B*	*No*	*0.2*	*No*
40) Calle de la Louisa at	*AM*	--	*8.2*	*A*	*No*	--	*8.3*	*A*	*No*	*0.1*	*No*
Health Center Drive	*PM*	--	*8.9*	*A*	*No*	--	*9.0*	*A*	*No*	*0.1*	*No*
41) Calle de la Louisa at	*AM*	--	*7.9*	*A*	*No*	--	*7.9*	*A*	*No*	*0.0*	*No*
Calle de los Caballeros	*PM*	--	*8.7*	*A*	*No*	--	*8.7*	*A*	*No*	*0.0*	*No*
42) Irvine Center Drive/Moulton Parkway	AM	0.447	--	A	No	0.447	--	A	No	0.000	No
Lake Forest Drive	PM	0.674	--	B	No	0.674	--	B	No	0.000	No
43) Moulton Parkway at	AM	0.354	--	A	No	0.354	--	A	No	0.000	No
Ridge Route Drive	PM	0.570	--	A	No	0.570	--	A	No	0.000	No

TABLE 9 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	Existing (2015) Plus Project ICU or Delay Diff	Existing (2015) Plus Project Proj Sig Imp?
44) Moulton Parkway at	AM	0.472	--	A	No	0.472	--	A	No	0.000	No
Santa Maria Avenue	PM	0.644	--	B	No	0.644	--	B	No	0.000	No
45) Moulton Parkway at	AM	0.530	--	A	No	0.532	--	A	No	0.002	No
Via Campo Verde (LW)	PM	0.578	--	A	No	0.581	--	A	No	0.003	No
46) Moulton Parkway at	AM	0.514	--	A	No	0.516	--	A	No	0.002	No
Calle Cortez (AV)	PM	0.603	--	B	No	0.605	--	B	No	0.002	No
47) Moulton Parkway at	AM	0.529	--	A	No	0.531	--	A	No	0.002	No
Calle Aragon (AV)	PM	0.517	--	A	No	0.519	--	A	No	0.002	No
48) Moulton Parkway at	AM	0.506	--	A	No	0.507	--	A	No	0.001	No
Glenwood Drive/Indian Creek Lane	PM	0.621	--	B	No	0.624	--	B	No	0.003	No
49) Avenida de la Carlota/I-5 Southbound	AM	0.650	--	B	No	0.650	--	B	No	0.000	No
Ramps at Lake Forest Drive	PM	0.752	--	C	No	0.752	--	C	No	0.000	No
HCM 2010:	AM	--	26.4	C	No	--	26.4	C	No	0.0	No
HCM 2010:	PM	--	26.5	C	No	--	28.5	C	No	2.0	No
50) I-5 Northbound Ramps at	AM	0.393	--	A	No	0.395	--	A	No	0.002	No
Lake Forest Drive (LF)	PM	0.554	--	A	No	0.557	--	A	No	0.003	No
HCM 2010:	AM	--	19.1	B	No	--	19.1	B	No	0.0	No
HCM 2010:	PM	--	15.6	B	No	--	15.7	B	No	0.1	No
51) Rockfield Boulevard at	AM	0.556	--	A	No	0.558	--	A	No	0.002	No
Lake Forest Drive (LF)	PM	0.685	--	B	No	0.687	--	B	No	0.002	No
52) Avenida de la Carlota at	AM	0.426	--	A	No	0.426	--	A	No	0.000	No
Ridge Route Drive	PM	0.763	--	C	No	0.763	--	C	No	0.000	No
53) Avenida de la Carlota at	AM	0.202	--	A	No	0.202	--	A	No	0.000	No
Via Puerta (LW)	PM	0.517	--	A	No	0.517	--	A	No	0.000	No
54) Rockfield Boulevard at	AM	0.344	--	A	No	0.344	--	A	No	0.000	No
Landisview Avenue (LF)	PM	0.375	--	A	No	0.375	--	A	No	0.000	No
55) Muirlands Boulevard at	AM	0.718	--	C	No	0.721	--	C	No	0.003	No
Los Alisos Boulevard (MV)	PM	0.704	--	C	No	0.710	--	C	No	0.006	No
56) Rockfield Boulevard/Fordview at	AM	0.722	--	C	No	0.725	--	C	No	0.003	No
Los Alisos Boulevard (LF)	PM	0.622	--	B	No	0.627	--	B	No	0.005	No
57) Muirlands Boulevard at	AM	0.376	--	A	No	0.378	--	A	No	0.002	No
Marathon Street (MV)	PM	0.407	--	A	No	0.409	--	A	No	0.002	No
58) Muirlands Boulevard at	AM	0.747	--	C	No	0.747	--	C	No	0.000	No
Alicia Parkway (MV)	PM	0.831	--	D	No	0.834	--	D	No	0.003	No

TABLE 9 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	Existing (2015) Plus Project ICU or Delay Diff	Existing (2015) Plus Project Proj Sig Imp?
59) Charlinda Drive at	AM	0.594	--	A	No	0.594	--	A	No	0.000	No
Alicia Parkway (MV)	PM	0.755	--	C	No	0.755	--	C	No	0.000	No
60) I-5 Northbound Ramps at	AM	0.522	--	A	No	0.522	--	A	No	0.000	No
Alicia Parkway (MV)	PM	0.694	--	B	No	0.694	--	B	No	0.000	No
HCM 2010:	AM	--	14.3	B	No	--	14.3	B	No	0.0	No
HCM 2010:	PM	--	17.9	B	No	--	17.9	B	No	0.0	No
61) I-5 Southbound Ramps at	AM	0.777	--	C	No	0.777	--	C	No	0.000	No
Alicia Parkway	PM	0.836	--	D	No	0.836	--	D	No	0.000	No
HCM 2010:	AM	--	26.9	C	No	--	26.9	C	No	0.0	No
HCM 2010:	PM	--	31.5	C	No	--	31.5	C	No	0.0	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

Blue text corresponds to a CMP intersection where LOS E has been established as the minimum acceptable LOS.

CMP = Congestion Management Program; LF = Lake Forest; LW = Laguna Woods; AV = Aliso Viejo;

LB = Laguna Beach; MV = Mission Viejo

TABLE 10
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
1) Muirlands Boulevard at El Toro Road (LF)	Sat Midday	0.639	--	B	No	0.642	--	B	No	0.003	No
2) Raymond Way at El Toro Road (LF)	Sat Midday	0.567	--	A	No	0.569	--	A	No	0.002	No
3) Arbor Way at El Toro Road (LF)	Sat Midday	0.549	--	A	No	0.551	--	A	No	0.002	No
4) Rockfield Boulevard at El Toro Road (LF)	Sat Midday	0.647	--	B	No	0.648	--	B	No	0.001	No
5) Bridger Road/I-5 Northbound Ramps El Toro Road (CMP/LF)	Sat Midday	0.789	--	C	No	0.816	--	D	No	0.027	No
HCM 2010:	Sat Midday	--	48.1	D	No	--	52.9	D	No	4.8	No
6) Avenida de la Carlota/I-5 Southbound On-Ramp at El Toro Road (CMP)	Sat Midday	0.778	--	C	No	0.823	--	D	No	0.045	No
HCM 2010:	Sat Midday	--	39.8	D	No	--	45.9	D	No	6.1	No
7) Regional Center Drive at El Toro Road	Sat Midday	0.524	--	A	No	0.571	--	A	No	0.047	No
8) Paseo de Valencia at El Toro Road	Sat Midday	0.493	--	A	No	0.501	--	A	No	0.008	No
9) Avenida Sevilla at El Toro Road (LW)	Sat Midday	0.466	--	A	No	0.471	--	A	No	0.005	No
10) Catholic Church/Lutheran Church at El Toro Road (LW)	Sat Midday	0.297	--	A	No	0.302	--	A	No	0.005	No
11) Moulton Parkway at El Toro Road (CMP/LW)	Sat Midday	0.461	--	A	No	0.472	--	A	No	0.011	No
12) Home Depot at El Toro Road (LW)	Sat Midday	0.417	--	A	No	0.419	--	A	No	0.002	No
13) Calle Sanora at El Toro Road (LW)	Sat Midday	0.330	--	A	No	0.333	--	A	No	0.003	No
14) Canyon Wren Lane at El Toro Road (AV)	Sat Midday	0.293	--	A	No	0.296	--	A	No	0.003	No

TABLE 10 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
15) Calle Corta at El Toro Road (LW)	Sat Midday	0.285	--	A	No	0.287	--	A	No	0.002	No
16) Aliso Creek Road at El Toro Road (LW)	Sat Midday	0.431	--	A	No	0.431	--	A	No	0.000	No
17) The Club Drive/Bells Vireo Lane at El Toro Road (LB)	Sat Midday	0.308	--	A	No	0.310	--	A	No	0.002	No
18) SR-73 Northbound Ramps at El Toro Road (CMP/LB)	Sat Midday	0.343	--	A	No	0.345	--	A	No	0.002	No
HCM 2010:	Sat Midday	--	18.6	B	No	--	18.5	B	No	-0.1	No
19) SR-73 Southbound Ramps at El Toro Road (CMP/LB)	Sat Midday	0.335	--	A	No	0.340	--	A	No	0.005	No
HCM 2010:	Sat Midday	--	25.1	C	No	--	25.0	C	No	-0.1	No
20) Avenida de la Carlota at Paseo de Valencia/I-5 Southbound	Sat Midday	0.568	--	A	No	0.590	--	A	No	0.022	No
HCM 2010:	Sat Midday	--	28.8	C	No	--	29.4	C	No	0.6	No
21) Paseo de Valencia at Ronda del Rossmoor (LW)	*Sat Midday*	--	*10.6*	*B*	*No*	--	*10.7*	*B*	*No*	*0.1*	*No*
22) Paseo de Valencia at Calle de la Plata (LW)	Sat Midday	0.358	--	A	No	0.364	--	A	No	0.006	No
23) Paseo de Valencia at Calle de la Magdalena (LW)	Sat Midday	0.233	--	A	No	0.238	--	A	No	0.005	No
24) Paseo de Valencia at Health Center Drive (LW)	Sat Midday	0.327	--	A	No	0.332	--	A	No	0.005	No
25) Paseo de Valencia at Calle de los Caballeros (LW)	*Sat Midday*	--	*9.9*	*A*	*No*	--	*10.0*	*A*	*No*	*0.1*	*No*
26) Paseo de Valencia at Los Alisos Boulevard	Sat Midday	0.323	--	A	No	0.327	--	A	No	0.004	No
27) Paseo de Valencia at Kennington Drive (LW)	Sat Midday	0.371	--	A	No	0.375	--	A	No	0.004	No

TABLE 10 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015)				Existing (2015) Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
28) Paseo de Valencia at Avenida Sevilla/Beckenham Street	Sat Midday	0.401	--	A	No	0.404	--	A	No	0.003	No
29) Paseo de Valencia at Laguna Hills Drive/Stockport Street	Sat Midday	0.419	--	A	No	0.419	--	A	No	0.000	No
30) Paseo de Valencia at Hawk Highway	Sat Midday	0.350	--	A	No	0.352	--	A	No	0.002	No
31) Paseo de Valencia at Alicia Parkway	Sat Midday	0.565	--	A	No	0.566	--	A	No	0.001	No
32) Avenida de la Carlota at Plaza Lane/Mall Entrance	Sat Midday	0.452	--	A	No	0.441	--	A	No	-0.011	No
33) Avenida de la Carlota at Mall Driveway 1	*Sat Midday*	--	*25.8*	*D*	*No*	--	*11.4*	*B*	No	*-14.4*	*No*
34) Avenida de la Carlota at Mall Driveway 2	*Sat Midday*	--	*23.7*	*C*	*No*	--	*10.9*	*B*	*No*	*-12.8*	*No*
35) Avenida de la Carlota at Mall Driveway 3	*Sat Midday*	--	*22.4*	*C*	*No*	0.458	--	A	No	--	No
36) Avenida de la Carlota at Oakbrook Village Driveway 1	*Sat Midday*	--	*18.7*	*C*	*No*	--	*19.2*	*C*	*No*	*0.5*	*No*
37) Avenida de la Carlota at Oakbrook Village Driveway 2	*Sat Midday*	--	*11.3*	*B*	*No*	--	*11.4*	*B*	*No*	*0.1*	*No*
38) Avenida de la Carlota at Los Alisos Boulevard	Sat Midday	0.374	--	A	No	0.377	--	A	No	0.003	No
39) Ronda del Rossmoor/Calle de la Calle de la Plata	*Sat Midday*	--	*8.5*	*A*	*No*	--	*8.6*	*A*	*No*	*0.1*	*No*
40) Calle de la Louisa at Health Center Drive	*Sat Midday*	--	*8.3*	*A*	*No*	--	*8.4*	*A*	*No*	*0.1*	*No*
41) Calle de la Louisa at Calle de los Caballeros	*Sat Midday*	--	*8.0*	*A*	*No*	--	*8.0*	*A*	*No*	*0.0*	*No*
42) Irvine Center Drive/Moulton Parkway Lake Forest Drive	Sat Midday	0.334	--	A	No	0.334	--	A	No	0.000	No
43) Moulton Parkway at Ridge Route Drive	Sat Midday	0.273	--	A	No	0.273	--	A	No	0.000	No

TABLE 10 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015) ICU	Existing (2015) Delay	Existing (2015) LOS	Existing (2015) Poor LOS ?	Existing (2015) Plus Project ICU	Existing (2015) Plus Project Delay	Existing (2015) Plus Project LOS	Existing (2015) Plus Project Poor LOS ?	Existing (2015) Plus Project ICU or Delay Diff	Existing (2015) Plus Project Proj Sig Imp?
44) Moulton Parkway at Santa Maria Avenue	Sat Midday	0.370	--	A	No	0.370	--	A	No	0.000	No
45) Moulton Parkway at Via Campo Verde (LW)	Sat Midday	0.272	--	A	No	0.275	--	A	No	0.003	No
46) Moulton Parkway at Calle Cortez (AV)	Sat Midday	0.278	--	A	No	0.281	--	A	No	0.003	No
47) Moulton Parkway at Calle Aragon (AV)	Sat Midday	0.322	--	A	No	0.324	--	A	No	0.002	No
48) Moulton Parkway at Glenwood Drive/Indian Creek Lane	Sat Midday	0.330	--	A	No	0.332	--	A	No	0.002	No
49) Avenida de la Carlota/I-5 Southbound Ramps at Lake Forest Drive	Sat Midday	0.470	--	A	No	0.470	--	A	No	0.000	No
HCM 2010:	Sat Midday	--	23.7	C	No	--	23.7	C	No	0.0	No
50) I-5 Northbound Ramps at Lake Forest Drive (LF)	Sat Midday	0.379	--	A	No	0.381	--	A	No	0.002	No
HCM 2010:	Sat Midday	--	19.1	B	No	--	19.1	B	No	0.0	No
51) Rockfield Boulevard at Lake Forest Drive (LF)	Sat Midday	0.488	--	A	No	0.490	--	A	No	0.002	No
52) Avenida de la Carlota at Ridge Route Drive	Sat Midday	0.461	--	A	No	0.461	--	A	No	0.000	No
53) Avenida de la Carlota at Via Puerta (LW)	Sat Midday	0.295	--	A	No	0.295	--	A	No	0.000	No
54) Rockfield Boulevard at Landisview Avenue (LF)	Sat Midday	0.310	--	A	No	0.310	--	A	No	0.000	No
55) Muirlands Boulevard at Los Alisos Boulevard (MV)	Sat Midday	0.463	--	A	No	0.464	--	A	No	0.001	No
56) Rockfield Boulevard/Fordview at Los Alisos Boulevard (LF)	Sat Midday	0.539	--	A	No	0.543	--	A	No	0.004	No
57) Muirlands Boulevard at Marathon Street (MV)	Sat Midday	0.294	--	A	No	0.296	--	A	No	0.002	No
58) Muirlands Boulevard at Alicia Parkway (MV)	Sat Midday	0.666	--	B	No	0.666	--	B	No	0.000	No

TABLE 10 (CONTINUED)
EXISTING (2015) PLUS PROJECT INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015)				Existing (2015) Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
59) Charlinda Drive at Alicia Parkway (MV)	Sat Midday	0.639	--	B	No	0.639	--	B	No	0.000	No
60) I-5 Northbound Ramps at Alicia Parkway (MV)	Sat Midday	0.520	--	A	No	0.520	--	A	No	0.000	No
HCM 2010:	Sat Midday	--	17.4	B	No	--	17.4	B	No	0.0	No
61) I-5 Southbound Ramps at Alicia Parkway	Sat Midday	0.697	--	B	No	0.697	--	B	No	0.000	No
HCM 2010:	Sat Midday	--	25.0	C	No	--	25.0	C	No	0.0	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

Blue text corresponds to a CMP intersection where LOS E has been established as the minimum acceptable LOS.

CMP = Congestion Management Program; LF = Lake Forest; LW = Laguna Woods; AV = Aliso Viejo;

LB = Laguna Beach; MV = Mission Viejo

TABLE 11
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
1) Muirlands Boulevard at	AM	0.635	--	B	No	0.636	--	B	No	0.001	No
El Toro Road (LF)	PM	0.718	--	C	No	0.720	--	C	No	0.002	No
2) Raymond Way at	AM	0.432	--	A	No	0.433	--	A	No	0.001	No
El Toro Road (LF)	PM	0.531	--	A	No	0.533	--	A	No	0.002	No
3) Arbor Way at	AM	0.400	--	A	No	0.401	--	A	No	0.001	No
El Toro Road (LF)	PM	0.537	--	A	No	0.539	--	A	No	0.002	No
4) Rockfield Boulevard at	AM	0.576	--	A	No	0.577	--	A	No	0.001	No
El Toro Road (LF)	PM	0.633	--	B	No	0.636	--	B	No	0.003	No
5) Bridger Road/I-5 Northbound Ramps	AM	0.528	--	A	No	0.563	--	A	No	0.035	No
El Toro Road (CMP/LF)	PM	0.782	--	C	No	0.817	--	D	No	0.035	No
HCM 2010:	AM	--	33.9	C	No	--	38.0	D	No	4.1	No
HCM 2010:	PM	--	61.3	E	No	--	71.2	E	No	9.9	No
6) Avenida de la Carlota/I-5 Southbound	AM	0.528	--	A	No	0.594	--	A	No	0.066	No
On-Ramp at El Toro Road (CMP)	PM	0.836	--	D	No	0.914	--	E	No	0.078	No
HCM 2010:	AM	--	29.2	C	No	--	33.4	C	No	4.2	No
HCM 2010:	PM	--	45.9	D	No	--	56.6	E	No	10.7	No
7) Regional Center Drive at	AM	0.287	--	A	No	0.371	--	A	No	0.084	No
El Toro Road	PM	0.654	--	B	No	0.628	--	B	No	-0.026	No
8) Paseo de Valencia at	AM	0.518	--	A	No	0.528	--	A	No	0.010	No
El Toro Road	PM	0.627	--	B	No	0.638	--	B	No	0.011	No
9) Avenida Sevilla at	AM	0.430	--	A	No	0.438	--	A	No	0.008	No
El Toro Road (LW)	PM	0.464	--	A	No	0.471	--	A	No	0.007	No
10) Catholic Church/Lutheran Church at	AM	0.318	--	A	No	0.326	--	A	No	0.008	No
El Toro Road (LW)	PM	0.357	--	A	No	0.364	--	A	No	0.007	No
11) Moulton Parkway at	AM	0.627	--	B	No	0.631	--	B	No	0.004	No
El Toro Road (CMP/LW)	PM	0.682	--	B	No	0.688	--	B	No	0.006	No
12) Home Depot at	AM	0.339	--	A	No	0.341	--	A	No	0.002	No
El Toro Road (LW)	PM	0.515	--	A	No	0.518	--	A	No	0.003	No
13) Calle Sanora at	AM	0.338	--	A	No	0.340	--	A	No	0.002	No
El Toro Road (LW)	PM	0.355	--	A	No	0.358	--	A	No	0.003	No
14) Canyon Wren Lane at	AM	0.263	--	A	No	0.264	--	A	No	0.001	No
El Toro Road (AV)	PM	0.331	--	A	No	0.334	--	A	No	0.003	No

TABLE 11 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base ICU	Delay	LOS	Poor LOS ?	Year 2018 Cumulative Plus Project ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
15) Calle Corta at	AM	0.280	--	A	No	0.284	--	A	No	0.004	No
El Toro Road (LW)	PM	0.313	--	A	No	0.316	--	A	No	0.003	No
16) Aliso Creek Road at	AM	0.647	--	B	No	0.647	--	B	No	0.000	No
El Toro Road (LW)	PM	0.863	--	D	No	0.863	--	D	No	0.000	No
17) The Club Drive/Bells Vireo Lane at	AM	0.576	--	A	No	0.580	--	A	No	0.004	No
El Toro Road (LB)	PM	0.495	--	A	No	0.498	--	A	No	0.003	No
18) SR-73 Northbound Ramps at	AM	0.594	--	A	No	0.589	--	A	No	-0.005	No
El Toro Road (CMP/LB)	PM	0.688	--	B	No	0.691	--	B	No	0.003	No
HCM 2010:	AM	--	14.4	B	No	--	14.4	B	No	0.0	No
HCM 2010:	PM	--	9.6	A	No	--	9.6	A	No	0.0	No
19) SR-73 Southbound Ramps at	AM	0.489	--	A	No	0.491	--	A	No	0.002	No
El Toro Road (CMP/LB)	PM	0.656	--	B	No	0.662	--	B	No	0.006	No
HCM 2010:	AM	--	24.2	C	No	--	24.2	C	No	0.0	No
HCM 2010:	PM	--	24.6	C	No	--	24.8	C	No	0.2	No
20) Avenida de la Carlota at	AM	0.520	--	A	No	0.561	--	A	No	0.041	No
Paseo de Valencia/I-5 Southbound	PM	0.551	--	A	No	0.575	--	A	No	0.024	No
HCM 2010:	AM	--	47.1	D	No	--	52.3	D	No	5.2	No
HCM 2010:	PM	--	48.1	D	No	--	54.6	D	No	6.5	No
21) Paseo de Valencia at	*AM*	--	*10.7*	*B*	*No*	--	*10.8*	*B*	*No*	*0.1*	*No*
Ronda del Rossmoor (LW)	*PM*	--	*11.4*	*B*	*No*	--	*11.5*	*B*	*No*	*0.1*	*No*
22) Paseo de Valencia at	AM	0.366	--	A	No	0.377	--	A	No	0.011	No
Calle de la Plata (LW)	PM	0.548	--	A	No	0.559	--	A	No	0.011	No
23) Paseo de Valencia at	AM	0.341	--	A	No	0.344	--	A	No	0.003	No
Calle de la Magdalena (LW)	PM	0.394	--	A	No	0.401	--	A	No	0.007	No
24) Paseo de Valencia at	AM	0.348	--	A	No	0.358	--	A	No	0.010	No
Health Center Drive (LW)	PM	0.526	--	A	No	0.531	--	A	No	0.005	No
25) Paseo de Valencia at	*AM*	--	*10.7*	*B*	*No*	--	*10.8*	*B*	*No*	*0.1*	*No*
Calle de los Caballeros (LW)	*PM*	--	*10.6*	*B*	*No*	--	*10.7*	*B*	*No*	*0.1*	*No*
26) Paseo de Valencia at	AM	0.463	--	A	No	0.466	--	A	No	0.003	No
Los Alisos Boulevard	PM	0.468	--	A	No	0.472	--	A	No	0.004	No
27) Paseo de Valencia at	AM	0.381	--	A	No	0.386	--	A	No	0.005	No
Kennington Drive (LW)	PM	0.566	--	A	No	0.569	--	A	No	0.003	No

TABLE 11 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base ICU	Delay	LOS	Poor LOS ?	Year 2018 Cumulative Plus Project ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
28) Paseo de Valencia at	AM	0.413	--	A	No	0.419	--	A	No	0.006	No
Avenida Sevilla/Beckenham Street	PM	0.599	--	A	No	0.602	--	B	No	0.003	No
29) Paseo de Valencia at	AM	0.671	--	B	No	0.671	--	B	No	0.000	No
Laguna Hills Drive/Stockport Street	PM	0.699	--	B	No	0.699	--	B	No	0.000	No
30) Paseo de Valencia at	AM	0.286	--	A	No	0.288	--	A	No	0.002	No
Hawk Highway	PM	0.437	--	A	No	0.440	--	A	No	0.003	No
31) Paseo de Valencia at	AM	0.668	--	B	No	0.669	--	B	No	0.001	No
Alicia Parkway	PM	0.677	--	B	No	0.679	--	B	No	0.002	No
32) Avenida de la Carlota at	AM	0.300	--	A	No	0.361	--	A	No	0.061	No
Plaza Lane/Mall Entrance	PM	0.452	--	A	No	0.469	--	A	No	0.017	No
33) Avenida de la Carlota at	*AM*	--	*14.5*	*B*	*No*	--	*9.6*	*A*	*No*	*-4.9*	*No*
Mall Driveway 1	*PM*	--	*32.1*	*D*	*No*	--	*12.6*	*B*	*No*	*-19.5*	*No*
34) Avenida de la Carlota at	*AM*	--	*12.8*	*B*	*No*	--	*9.5*	*A*	*No*	*-3.3*	*No*
Mall Driveway 2	*PM*	--	*30.0*	*D*	*No*	--	*12.2*	*B*	*No*	*-17.8*	*No*
35) Avenida de la Carlota at	*AM*	--	*14.0*	*B*	*No*	*0.314*	--	*A*	No	--	No
Mall Driveway 3	*PM*	--	*40.9*	*E*	Yes	*0.541*	--	*A*	No	--	No
36) Avenida de la Carlota at	*AM*	--	*12.1*	*B*	*No*	--	*12.4*	*B*	*No*	*0.3*	*No*
Oakbrook Village Driveway 1	*PM*	--	*25.4*	*D*	*No*	--	*26.3*	*D*	*No*	*0.9*	*No*
37) Avenida de la Carlota at	*AM*	--	*14.1*	*B*	*No*	--	*14.5*	*B*	*No*	*0.4*	*No*
Oakbrook Village Driveway 2	*PM*	--	*11.6*	*B*	*No*	--	*11.6*	*B*	*No*	*0.0*	*No*
38) Avenida de la Carlota at	AM	0.442	--	A	No	0.448	--	A	No	0.006	No
Los Alisos Boulevard	PM	0.483	--	A	No	0.486	--	A	No	0.003	No
39) Ronda del Rossmoor/Calle de la	*AM*	--	*8.7*	*A*	*No*	--	*8.9*	*A*	*No*	*0.2*	*No*
Calle de la Plata	*PM*	--	*10.6*	*B*	*No*	--	*10.9*	*B*	*No*	*0.3*	*No*
40) Calle de la Louisa at	*AM*	--	*8.3*	*A*	*No*	--	*8.4*	*A*	*No*	*0.1*	*No*
Health Center Drive	*PM*	--	*9.0*	*A*	*No*	--	*9.1*	*A*	*No*	*0.1*	*No*
41) Calle de la Louisa at	*AM*	--	*7.9*	*A*	*No*	--	*8.0*	*A*	*No*	*0.1*	*No*
Calle de los Caballeros	*PM*	--	*8.7*	*A*	*No*	--	*8.8*	*A*	*No*	*0.1*	*No*
42) Irvine Center Drive/Moulton Parkway	AM	0.459	--	A	No	0.459	--	A	No	0.000	No
Lake Forest Drive	PM	0.693	--	B	No	0.693	--	B	No	0.000	No
43) Moulton Parkway at	AM	0.363	--	A	No	0.363	--	A	No	0.000	No
Ridge Route Drive	PM	0.585	--	A	No	0.585	--	A	No	0.000	No

TABLE 11 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base ICU	Delay	LOS	Poor LOS ?	Year 2018 Cumulative Plus Project ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
44) Moulton Parkway at	AM	0.485	--	A	No	0.485	--	A	No	0.000	No
Santa Maria Avenue	PM	0.662	--	B	No	0.662	--	B	No	0.000	No
45) Moulton Parkway at	AM	0.545	--	A	No	0.547	--	A	No	0.002	No
Via Campo Verde (LW)	PM	0.595	--	A	No	0.598	--	A	No	0.003	No
46) Moulton Parkway at	AM	0.529	--	A	No	0.531	--	A	No	0.002	No
Calle Cortez (AV)	PM	0.621	--	B	No	0.623	--	B	No	0.002	No
47) Moulton Parkway at	AM	0.544	--	A	No	0.546	--	A	No	0.002	No
Calle Aragon (AV)	PM	0.532	--	A	No	0.534	--	A	No	0.002	No
48) Moulton Parkway at	AM	0.520	--	A	No	0.521	--	A	No	0.001	No
Glenwood Drive/Indian Creek Lane	PM	0.643	--	B	No	0.645	--	B	No	0.002	No
49) Avenida de la Carlota/I-5 Southbound	AM	0.673	--	B	No	0.673	--	B	No	0.000	No
Ramps at Lake Forest Drive	PM	0.777	--	C	No	0.777	--	C	No	0.000	No
HCM 2010:	AM	--	26.9	C	No	--	26.9	C	No	0.0	No
HCM 2010:	PM	--	29.5	C	No	--	29.5	C	No	0.0	No
50) I-5 Northbound Ramps at	AM	0.405	--	A	No	0.407	--	A	No	0.002	No
Lake Forest Drive (LF)	PM	0.570	--	A	No	0.573	--	A	No	0.003	No
HCM 2010:	AM	--	18.9	B	No	--	18.8	B	No	-0.1	No
HCM 2010:	PM	--	16.0	B	No	--	16.0	B	No	0.0	No
51) Rockfield Boulevard at	AM	0.572	--	A	No	0.574	--	A	No	0.002	No
Lake Forest Drive (LF)	PM	0.705	--	C	No	0.707	--	C	No	0.002	No
52) Avenida de la Carlota at	AM	0.446	--	A	No	0.446	--	A	No	0.000	No
Ridge Route Drive	PM	0.790	--	C	No	0.790	--	C	No	0.000	No
53) Avenida de la Carlota at	AM	0.207	--	A	No	0.207	--	A	No	0.000	No
Via Puerta (LW)	PM	0.536	--	A	No	0.536	--	A	No	0.000	No
54) Rockfield Boulevard at	AM	0.352	--	A	No	0.352	--	A	No	0.000	No
Landisview Avenue (LF)	PM	0.385	--	A	No	0.385	--	A	No	0.000	No
55) Muirlands Boulevard at	AM	0.739	--	C	No	0.741	--	C	No	0.002	No
Los Alisos Boulevard (MV)	PM	0.725	--	C	No	0.730	--	C	No	0.005	No
56) Rockfield Boulevard/Fordview at	AM	0.743	--	C	No	0.745	--	C	No	0.002	No
Los Alisos Boulevard (LF)	PM	0.642	--	B	No	0.647	--	B	No	0.005	No
57) Muirlands Boulevard at	AM	0.388	--	A	No	0.390	--	A	No	0.002	No
Marathon Street (MV)	PM	0.418	--	A	No	0.419	--	A	No	0.001	No
58) Muirlands Boulevard at	AM	0.774	--	C	No	0.774	--	C	No	0.000	No
Alicia Parkway (MV)	PM	0.861	--	D	No	0.861	--	D	No	0.000	No

TABLE 11 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: WEEKDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
59) Charlinda Drive at	AM	0.613	--	B	No	0.613	--	B	No	0.000	No
Alicia Parkway (MV)	PM	0.779	--	C	No	0.779	--	C	No	0.000	No
60) I-5 Northbound Ramps at	AM	0.541	--	A	No	0.541	--	A	No	0.000	No
Alicia Parkway (MV)	PM	0.725	--	C	No	0.725	--	C	No	0.000	No
HCM 2010:	AM	--	14.6	B	No	--	14.6	B	No	0.0	No
HCM 2010:	PM	--	20.4	C	No	--	20.4	C	No	0.0	No
61) I-5 Southbound Ramps at	AM	0.817	--	D	No	0.817	--	D	No	0.000	No
Alicia Parkway	PM	0.881	--	D	No	0.881	--	D	No	0.000	No
HCM 2010:	AM	--	32.0	C	No	--	32.0	C	No	0.0	No
HCM 2010:	PM	--	39.5	D	No	--	39.5	D	No	0.0	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

Blue text corresponds to a CMP intersection where LOS E has been established as the minimum acceptable level of service. CMP = Congestion Management Program; LF = Lake Forest; LW = Laguna Woods; AV = Aliso Viejo; LB = Laguna Beach; MV = Mission Viejo

TABLE 12
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
1) Muirlands Boulevard at El Toro Road (LF)	Sat Midday	0.661	--	B	No	0.664	--	B	No	0.003	No
2) Raymond Way at El Toro Road (LF)	Sat Midday	0.585	--	A	No	0.587	--	A	No	0.002	No
3) Arbor Way at El Toro Road (LF)	Sat Midday	0.556	--	A	No	0.558	--	A	No	0.002	No
4) Rockfield Boulevard at El Toro Road (LF)	Sat Midday	0.669	--	B	No	0.671	--	B	No	0.002	No
5) Bridger Road/I-5 Northbound Ramps El Toro Road (CMP/LF)	Sat Midday	0.820	--	D	No	0.848	--	D	No	0.028	No
HCM 2010:	Sat Midday	--	49.9	D	No	--	54.4	D	No	4.5	No
6) Avenida de la Carlota/I-5 Southbound On-Ramp at El Toro Road (CMP)	Sat Midday	0.795	--	C	No	0.841	--	D	No	0.046	No
HCM 2010:	Sat Midday	--	41.1	D	No	--	46.9	D	No	5.8	No
7) Regional Center Drive at El Toro Road	Sat Midday	0.538	--	A	No	0.556	--	A	No	0.018	No
8) Paseo de Valencia at El Toro Road	Sat Midday	0.499	--	A	No	0.507	--	A	No	0.008	No
9) Avenida Sevilla at El Toro Road (LW)	Sat Midday	0.481	--	A	No	0.486	--	A	No	0.005	No
10) Catholic Church/Lutheran Church at El Toro Road (LW)	Sat Midday	0.307	--	A	No	0.312	--	A	No	0.005	No
11) Moulton Parkway at El Toro Road (CMP/LW)	Sat Midday	0.481	--	A	No	0.492	--	A	No	0.011	No
12) Home Depot at El Toro Road (LW)	Sat Midday	0.430	--	A	No	0.432	--	A	No	0.002	No
13) Calle Sanora at El Toro Road (LW)	Sat Midday	0.341	--	A	No	0.344	--	A	No	0.003	No
14) Canyon Wren Lane at El Toro Road (AV)	Sat Midday	0.304	--	A	No	0.306	--	A	No	0.002	No

TABLE 12 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
15) Calle Corta at El Toro Road (LW)	Sat Midday	0.295	--	A	No	0.297	--	A	No	0.002	No
16) Aliso Creek Road at El Toro Road (LW)	Sat Midday	0.444	--	A	No	0.444	--	A	No	0.000	No
17) The Club Drive/Bells Vireo Lane at El Toro Road (LB)	Sat Midday	0.316	--	A	No	0.318	--	A	No	0.002	No
18) SR-73 Northbound Ramps at El Toro Road (CMP/LB)	Sat Midday	0.352	--	A	No	0.354	--	A	No	0.002	No
HCM 2010:	Sat Midday	--	18.2	B	No	--	18.0	B	No	-0.2	No
19) SR-73 Southbound Ramps at El Toro Road (CMP/LB)	Sat Midday	0.339	--	A	No	0.341	--	A	No	0.002	No
HCM 2010:	Sat Midday	--	24.9	C	No	--	24.9	C	No	0.0	No
20) Avenida de la Carlota at Paseo de Valencia/I-5 Southbound	Sat Midday	0.604	--	B	No	0.627	--	B	No	0.023	No
HCM 2010:	Sat Midday	--	32.5	C	No	--	32.5	C	No	0.0	No
21) Paseo de Valencia at Ronda del Rossmoor (LW)	*Sat Midday*	--	*10.7*	*B*	*No*	--	*10.8*	*B*	*No*	*0.1*	*No*
22) Paseo de Valencia at Calle de la Plata (LW)	Sat Midday	0.367	--	A	No	0.372	--	A	No	0.005	No
23) Paseo de Valencia at Calle de la Magdalena (LW)	Sat Midday	0.236	--	A	No	0.238	--	A	No	0.002	No
24) Paseo de Valencia at Health Center Drive (LW)	Sat Midday	0.336	--	A	No	0.341	--	A	No	0.005	No
25) Paseo de Valencia at Calle de los Caballeros (LW)	*Sat Midday*	--	*10.0*	*A*	*No*	--	*10.1*	*B*	*No*	*0.1*	*No*
26) Paseo de Valencia at Los Alisos Boulevard	Sat Midday	0.331	--	A	No	0.335	--	A	No	0.004	No
27) Paseo de Valencia at Kennington Drive (LW)	Sat Midday	0.380	--	A	No	0.384	--	A	No	0.004	No

TABLE 12 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
28) Paseo de Valencia at Avenida Sevilla/Beckenham Street	Sat Midday	0.411	--	A	No	0.414	--	A	No	0.003	No
29) Paseo de Valencia at Laguna Hills Drive/Stockport Street	Sat Midday	0.429	--	A	No	0.429	--	A	No	0.000	No
30) Paseo de Valencia at Hawk Highway	Sat Midday	0.360	--	A	No	0.363	--	A	No	0.003	No
31) Paseo de Valencia at Alicia Parkway	Sat Midday	0.586	--	A	No	0.587	--	A	No	0.001	No
32) Avenida de la Carlota at Plaza Lane/Mall Entrance	Sat Midday	0.457	--	A	No	0.445	--	A	No	-0.012	No
33) Avenida de la Carlota at Mall Driveway 1	*Sat Midday*	--	*26.5*	*D*	*No*	--	*11.4*	B	No	*-15.1*	*No*
34) Avenida de la Carlota at Mall Driveway 2	*Sat Midday*	--	*24.1*	*C*	*No*	--	*10.9*	B	*No*	*-13.2*	*No*
35) Avenida de la Carlota at Mall Driveway 3	*Sat Midday*	--	*22.7*	*C*	*No*	*0.461*	--	*A*	No	--	No
36) Avenida de la Carlota at Oakbrook Village Driveway 1	*Sat Midday*	--	*18.6*	*C*	*No*	--	*19.1*	*C*	*No*	*0.5*	*No*
37) Avenida de la Carlota at Oakbrook Village Driveway 2	*Sat Midday*	--	*10.6*	*B*	*No*	--	*10.7*	*B*	*No*	*0.1*	*No*
38) Avenida de la Carlota at Los Alisos Boulevard	Sat Midday	0.379	--	A	No	0.382	--	A	No	0.003	No
39) Ronda del Rossmoor/Calle de la Calle de la Plata	*Sat Midday*	--	*8.6*	*A*	*No*	--	*8.7*	*A*	*No*	*0.1*	*No*
40) Calle de la Louisa at Health Center Drive	*Sat Midday*	--	*8.4*	*A*	*No*	--	*8.5*	*A*	*No*	*0.1*	*No*
41) Calle de la Louisa at Calle de los Caballeros	*Sat Midday*	--	*8.0*	*A*	*No*	--	*8.0*	*A*	*No*	*0.0*	*No*
42) Irvine Center Drive/Moulton Parkway Lake Forest Drive	Sat Midday	0.342	--	A	No	0.342	--	A	No	0.000	No
43) Moulton Parkway at Ridge Route Drive	Sat Midday	0.280	--	A	No	0.280	--	A	No	0.000	No

TABLE 12 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
44) Moulton Parkway at Santa Maria Avenue	Sat Midday	0.382	--	A	No	0.382	--	A	No	0.000	No
45) Moulton Parkway at Via Campo Verde (LW)	Sat Midday	0.280	--	A	No	0.282	--	A	No	0.002	No
46) Moulton Parkway at Calle Cortez (AV)	Sat Midday	0.287	--	A	No	0.290	--	A	No	0.003	No
47) Moulton Parkway at Calle Aragon (AV)	Sat Midday	0.332	--	A	No	0.334	--	A	No	0.002	No
48) Moulton Parkway at Glenwood Drive/Indian Creek Lane	Sat Midday	0.346	--	A	No	0.348	--	A	No	0.002	No
49) Avenida de la Carlota/I-5 Southbound Ramps at Lake Forest Drive	Sat Midday	0.482	--	A	No	0.482	--	A	No	0.000	No
HCM 2010:	Sat Midday	--	23.9	C	No	--	24.6	C	No	0.7	No
50) I-5 Northbound Ramps at Lake Forest Drive (LF)	Sat Midday	0.390	--	A	No	0.392	--	A	No	0.002	No
HCM 2010:	Sat Midday	--	19.0	B	No	--	19.0	B	No	0.0	No
51) Rockfield Boulevard at Lake Forest Drive (LF)	Sat Midday	0.502	--	A	No	0.504	--	A	No	0.002	No
52) Avenida de la Carlota at Ridge Route Drive	Sat Midday	0.471	--	A	No	0.471	--	A	No	0.000	No
53) Avenida de la Carlota at Via Puerta (LW)	Sat Midday	0.300	--	A	No	0.300	--	A	No	0.000	No
54) Rockfield Boulevard at Landisview Avenue (LF)	Sat Midday	0.319	--	A	No	0.319	--	A	No	0.000	No
55) Muirlands Boulevard at Los Alisos Boulevard (MV)	Sat Midday	0.474	--	A	No	0.478	--	A	No	0.004	No
56) Rockfield Boulevard/Fordview at Los Alisos Boulevard (LF)	Sat Midday	0.553	--	A	No	0.557	--	A	No	0.004	No
57) Muirlands Boulevard at Marathon Street (MV)	Sat Midday	0.300	--	A	No	0.301	--	A	No	0.001	No
58) Muirlands Boulevard at Alicia Parkway (MV)	Sat Midday	0.691	--	B	No	0.691	--	B	No	0.000	No

TABLE 12 (CONTINUED)
YEAR 2018 INTERSECTION PEAK HOUR LEVELS OF SERVICE: SATURDAY CONDITIONS

Key Intersections (Jurisdiction)	Peak Hour	Year 2018 Cumulative Base				Year 2018 Cumulative Plus Project					
		ICU	Delay	LOS	Poor LOS ?	ICU	Delay	LOS	Poor LOS ?	ICU or Delay Diff	Proj Sig Imp?
59) Charlinda Drive at Alicia Parkway (MV)	Sat Midday	0.661	--	B	No	0.661	--	B	No	0.000	No
60) I-5 Northbound Ramps at Alicia Parkway (MV)	Sat Midday	0.545	--	A	No	0.545	--	A	No	0.000	No
HCM 2010:	Sat Midday	--	15.9	B	No	--	15.9	B	No	0.0	No
61) I-5 Southbound Ramps at Alicia Parkway	Sat Midday	0.732	--	C	No	0.732	--	C	No	0.000	No
HCM 2010:	Sat Midday	--	26.0	C	No	--	26.0	C	No	0.0	No

Notes:

Italicized text corresponds to an unsignalized/stop-controlled intersection.

Blue text corresponds to a CMP intersection where LOS E has been established as the minimum acceptable level of service. CMP = Congestion Management Program; LF = Lake Forest; LW = Laguna Woods; AV = Aliso Viejo; LB = Laguna Beach; MV = Mission Viejo

Compared to Year 2018 Cumulative Base conditions, the ICU and delay values are less (and corresponding LOS better) under Year 2018 Cumulative Plus Project conditions at the following Project driveway intersections due to site access improvements that would be completed as part of the Project (includes lane geometry, driveway reconfiguration, signalization, which are described in Section 6 of this report):

7) Regional Center Drive at El Toro Road (lane geometry improvements)
32) Avenida de la Carlota at Plaza Lane/Mall Entrance (lane geometry improvements)
33) Avenida de la Carlota at Mall Driveway 1 (driveway converted to right-turn in/out only)
34) Avenida de la Carlota at Mall Driveway 2 (driveway converted to right-turn in/out only)
35) Avenida de la Carlota at Mall Driveway 3 (new traffic signal)

5.5 Freeway Mainline Level of Service Analysis

5.5.1 *Existing Plus Project*

Table 13 summarizes the freeway mainline segment levels of service for Existing (2015) Plus Project traffic conditions during the weekday AM and PM peak hours. To maintain consistency with the *I-5 Widening Project Study Report* (prepared by Stantec in June 2012), its Year 2011 capacities and traffic volumes were used as the starting point for this evaluation.

The 2013 CMP (in its Appendix B-1) states that: "the level of service on the CMP network at buildout of the proposed development will be: (1) LOS E or better, or (2) will not result in a cumulative increase of more than 0.10 in v/c ratio if the established LOS standard is worse than LOS E." These criteria were applied in the analysis of potential traffic impacts of the Project on freeway mainline operations.

Based on the application of the 2013 CMP criteria, *Table 13* shows that the Project is not expected to cause significant impacts along mainline freeway segments within the study area under Existing (2015) Plus Project conditions.

5.5.2 *Year 2018 Cumulative Plus Project*

Table 14 summarizes the freeway mainline segment levels of service for Year 2018 Cumulative Plus Project traffic conditions during the weekday AM and PM peak hours. The Year 2011 existing traffic volumes from *Table 13* were adjusted to reflect Year 2018 conditions (by deriving a growth adjustment factor from the *I-5 Widening Project Study Report)*.

Based on the application of the 2013 CMP criteria, *Table 14* indicates that the proposed project is not expected to cause significant impacts along mainline freeway segments within the study area under Year 2018 Cumulative Plus Project conditions.

TABLE 13
EXISTING (2015)
FREEWAY MAINLINE SEGMENT PEAK HOUR LEVELS OF SERVICE

Freeway Mainline Segment	Peak Hour	Freeway Capacity (vph) NB	Freeway Capacity (vph) SB	Existing (Year 2015) [a] NB Vol	NB V/C (1)	NB LOS [b]	SB Vol	SB V/C (2)	SB LOS [b]	Existing (2015) Plus Project NB Vol	NB V/C (3)	NB LOS [b]	NB V/C Diff (3)-(1)	NB Proj Sig Imp?	SB Vol	SB V/C (4)	SB LOS [b]	SB V/C Diff (4)-(2)	SB Proj Sig Imp?
A. I-5 Freeway between	AM	10,472	10,554	10,721	1.02	F	8,867	0.84	C	10,770	1.03	F	0.01	No	8,986	0.85	C	0.01	No
La Paz Rd & Alicia Pkwy	PM	10,326	10,400	9,537	0.92	E	10,949	1.05	E	9,638	0.93	E	0.01	No	11,019	1.06	E	0.01	No
B. I-5 Freeway between	AM	12,351	9,680	12,616	1.02	F	9,755	1.01	C	12,665	1.03	F	0.01	No	9,874	1.02	C	0.01	No
Alicia Pkwy & El Toro Rd	PM	9,635	11,065	10,110	1.05	E	11,527	1.04	F	10,211	1.06	E	0.01	No	11,597	1.05	F	0.01	No
C. I-5 Freeway between	AM	12,440	12,320	13,842	1.11	E	10,588	0.86	C	14,020	1.13	E	0.02	No	10,661	0.87	C	0.01	No
El Toro Rd & Lake Forest Dr	PM	12,497	12,235	10,586	0.85	E	11,986	0.98	F	10,691	0.86	E	0.01	No	12,136	0.99	F	0.01	No
D. I-5 Freeway between	AM	11,806	11,811	10,577	0.90	D	9,420	0.80	D	10,735	0.91	D	0.01	No	9,485	0.80	D	0.00	No
Lake Forest Dr & Bake Pkwy	PM	11,804	11,811	8,401	0.71	C	9,641	0.82	D	8,495	0.72	C	0.01	No	9,775	0.83	D	0.01	No

Notes:

[a] Freeway mainline volumes (adjusted to reflect 2015 conditions), capacity, V/C ratios and LOS were derived from the *I-5 Widening Project from SR-73 to El Toro Road PA/ED (EA 0K0200, EFIS 1200000318) Traffic Report* prepared by Stantec in June 2012.

[b] Consistent with the HCM methodology, the LOS reported is based on Basic Freeway Segment Density (pc/mi/ln), not the V/C ratio.

TABLE 14
YEAR 2018
FREEWAY MAINLINE SEGMENT PEAK HOUR LEVELS OF SERVICE

Freeway Mainline Segment	Peak Hour	Freeway Capacity (vph) NB	Freeway Capacity (vph) SB	Year 2018 [a] NB Vol	Year 2018 [a] NB V/C (1)	Year 2018 [a] NB LOS [b]	Year 2018 [a] SB Vol	Year 2018 [a] SB V/C (2)	Year 2018 [a] SB LOS [b]	Year 2018 Plus Project NB Vol	Year 2018 Plus Project NB V/C (3)	Year 2018 Plus Project NB LOS [b]	Year 2018 Plus Project NB V/C Diff (3)-(1)	Year 2018 Plus Project NB Proj Sig Imp?	Year 2018 Plus Project SB Vol	Year 2018 Plus Project SB V/C (4)	Year 2018 Plus Project SB LOS [b]	Year 2018 Plus Project SB V/C Diff (4)-(2)	Year 2018 Plus Project SB Proj Sig Imp?
A. I-5 Freeway between	AM	10,472	10,554	11,034	1.05	F	9,126	0.86	D	11,083	1.06	F	0.01	No	9,245	0.88	C	0.02	No
La Paz Rd & Alicia Pkwy	PM	10,326	10,400	9,815	0.95	E	11,268	1.08	F	9,916	0.96	E	0.01	No	11,338	1.09	E	0.01	No
B. I-5 Freeway between	AM	12,351	9,680	12,984	1.05	F	10,039	1.04	F	13,033	1.06	F	0.01	No	10,158	1.05	C	0.01	No
Alicia Pkwy & El Toro Rd	PM	9,635	11,065	10,405	1.08	E	11,862	1.07	F	10,506	1.09	E	0.01	No	11,932	1.08	F	0.01	No
C. I-5 Freeway between	AM	12,440	12,320	14,245	1.15	E	10,897	0.88	D	14,423	1.16	E	0.01	No	10,970	0.89	C	0.01	No
El Toro Rd & Lake Forest Dr	PM	12,497	12,235	10,895	0.87	E	12,335	1.01	F	11,000	0.88	E	0.01	No	12,485	1.02	F	0.01	No
D. I-5 Freeway between	AM	11,806	11,811	10,885	0.92	D	9,695	0.82	D	11,043	0.94	D	0.02	No	9,760	0.83	D	0.01	No
Lake Forest Dr & Bake Pkwy	PM	11,804	11,811	8,645	0.73	C	9,922	0.84	D	8,739	0.74	C	0.01	No	10,056	0.85	D	0.01	No

Notes:

[a] Freeway mainline volumes (adjusted to reflect 2018 conditions), capacity, V/C ratios and LOS were derived from the *I-5 Widening Project from SR-73 to El Toro Road PA/ED (EA 0K0200, EFIS 1200000318) Traffic Report* prepared by Stantec in June 2012.

[b] Consistent with the HCM methodology, the LOS reported is based on Basic Freeway Segment Density (pc/mi/ln), not the V/C ratio.

6.0 SITE ACCESS

Figure 21 illustrates the site access features that have been incorporated into the design of the Project site plan. These physical enhancements to the proposed site plan were identified based on the following:

- Evaluation of on-site circulation aspects of the Project (i.e., driveway and internal roadway orientation, commercial and residential building layout, parking configuration, parking accessibility, pedestrian and bicycle connections on site and with surrounding uses, bus/shuttle stop locations and accessibility to public transit, passenger loading/unloading locations, delivery/service operations and expected drop-off/pick-up travel routes).

- Detailed traffic operational queuing analysis at all of the Project driveway intersections along Avenida de la Carlota, El Toro Road, Calle de la Louisa-Ronda del Rossmoor, and Calle de los Caballeros. ***Table 15*** presents the level of service results.

- Detailed traffic operational and queuing analysis at all internal intersections and parking structure access points.

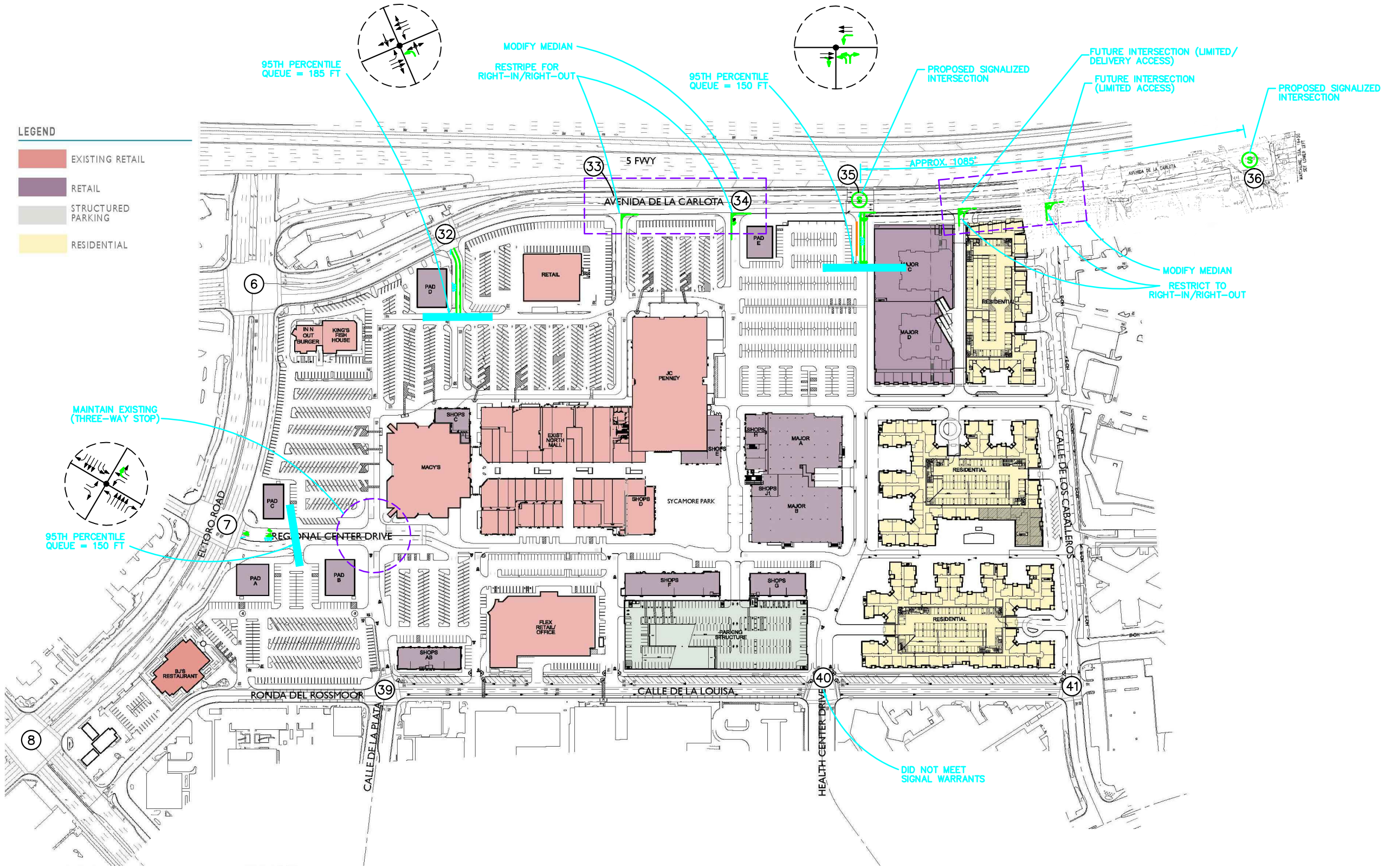
- Traffic signal warrant analysis at all unsignalized key intersections, with the results indicating that peak hour traffic signal warrants were not met at any of the intersections analyzed, with the one exception of the proposed new signal at the Project driveway along Avenida de la Carlota (Intersection 35).

Based on the above, the Project's site plan was designed to include a new signal along Avenida de la Carlota (at Intersection 35), right-turn in/out restrictions and related median modifications along Avenida de la Carlota (at Intersections 33 and 34), lane geometry restriping/improvements at Intersections 7 and 32, and provision of adequate driveway "throat" lengths and vehicle storage lengths to address 95th percentile queues at all Project driveway locations.

Figure 21 also shows that the proposed traffic signal for the Project will be located a distance of 1,085 feet from the new signal planned by Oakbrook Village along Avenue de la Carlota. This distance meets MUTCD standards, and exceeds queue storage requirements based on the HCM queueing analysis.

City staff indicated that there is existing traffic that "cut through" the mall during early morning hours (before the majority of mall uses open at 10:00 AM) by turning left into Regional Center Drive from westbound El Toro Road, and using Calle de la Plata (and Health Center Drive to a less extent) to access medical uses south of Calle de la Louisa. To evaluate these conditions, travel time runs and traffic counts (from 5:30 AM to 9:00 AM on a typical weekday) were recently conducted.

The travel time runs indicate that cutting through the mall corresponds to only one-third of the time it would take for a driver to travel the El Toro Road-to-Paseo de Valencia route to reach their destination. This validates the results of the traffic counts summarized on ***Table D-1*** (contained in



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

FIGURE 21

PROJECT SITE ACCESS DESIGN FEATURES

FIVE LAGUNAS EIR ADDENDUM, LAGUNA HILLS

n:\3500\2153585 – five lagunas, laguna hills\dwg\3585f-21.dwg LDP 18:37:27 11-12-2015 tucker

TABLE 15
PROJECT DRIVEWAY INTERSECTION LEVEL OF SERVICE (HCM 2010)

Key Intersections (Jurisdiction)	Peak Hour	Existing (2015)		Existing (2015) Plus Project		Year 2018 Cumulative Base		Year 2018 Cumulative Base Plus Project	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
7) Regional Center Drive at El Toro Road	AM	34.9	C	36.2	D	35.0	C	36.5	D
	PM	**56.3**	**E**	45.6	D	**59.7**	**E**	45.7	D
	Midday	44.3	D	41.4	D	45.5	D	41.9	D
32) Avenida de la Carlota at Plaza Lane/Mall Entrance	AM	4.6	A	5.6	A	10.8	B	13.0	B
	PM	19.1	B	20.3	C	19.8	B	19.6	B
	Midday	21.7	C	20.9	C	21.8	C	21.3	C
35) Avenida de la Carlota at Mall Driveway 3	AM	--	--	15.9	B	--	--	16.0	B
	PM	--	--	17.2	B	--	--	17.4	B
	Midday	--	--	13.6	B	--	--	13.8	B

Appendix D of this report), which indicate that during the early morning hours before the mall opens, approximately 70% of the westbound left-turns at the El Toro Road/Regional Center Drive intersection are "cut-through" traffic not related to the mall. Despite this fact, the traffic volumes used as basis and evaluated in this traffic impact analysis were not reduced to discount cut-through trips not generated by the mall, resulting in a more conservative assessment for the Project.

7.0 SUMMARY OF FINDINGS AND CONCLUSIONS

Project Description – The Project includes the redevelopment of the existing Mall through the partial demolition and reconstruction of the southern portion of the central mall building (the location of the Sears store), the construction of new commercial spaces on development pads in the out lots, and development of high-density multi-family dwelling units, as further described below:

- 834,706 SF GLA of shopping center/mall uses, consisting of:
  - 570,180 SF GLA of retail
  - 115,354 SF GLA of restaurants
  - 40,102 SF GLA for a health club
  - 109,070 SF GLA for a 2,068-seat cinema
- 45,890 SF GFA of medical office (presumed as medical office, but could be retail)
- 988 DU of apartments, of which 63 units are studios, 493 units are one-bedroom, 407 units are two-bedroom, and 25 units are three-bedroom

Study Area – A total of 61 key intersections were selected for detailed peak hour traffic impact/level of service analysis during the weekday AM and PM, and Saturday midday, peak hours under each of four traffic scenarios (Existing, Existing Plus Project, Year 2018 Cumulative Base, and Year 2018 Cumulative Plus Project).

Project Trip Generation – The net project trips are estimated to be approximately 6,434 daily trips on a typical weekday, of which 558 trips are expected to occur during the AM peak hour, and 569 trips could be generated during the PM peak hour, and 4,919 daily trips on a Saturday, of which 456 trips could occur during the Saturday midday peak hour. The potential impact of these added/incremental trips are assessed in this report.

UVSP Trip Budget Assessment - A trip budget assessment was conducted, given the Project's location within the UVSP area. After debiting all development projects that have been approved since the June 2009 General Plan Update, the remaining UVSP trip budgets (as of May 2015) correspond to 1,008 AM peak hour trips and 2,202 PM peak hour trips. Subtracting the net project trips (558 AM peak hour trips and 569 PM peak hour trips) from that yields a residual UVSP trip budget of 450 AM peak hour trips and 1,633 PM peak hour trips.

Gross Project Trips versus General Plan Update Trip Allocations for the Mall – Comparisons were made between gross project trips against the Mall trips (Zone 30 in the City's traffic model) accounted for, and previously evaluated, in the Program EIR studies for Year 2008 conditions and Year 2030 conditions. The negative differences determined from these comparisons indicate that the

gross project trips estimated are generally less than what have already been studied as part of the Program EIR under Year 2008 and Year 2030 conditions.

Project Significant Traffic Impacts - Based on the application of the significance criteria described previously, the Project is not expected to cause significant traffic impacts at any of the 61 key intersections under Existing (2015) and Year 2018 conditions, and at any of the freeway mainline segments analyzed.

Site Access - Site access features have been incorporated into the design of the Project site plan. These project traffic-related improvements include a new signal along Avenida de la Carlota, right-turn in/out restrictions and related median modifications along Avenida de la Carlota, provision of adequate driveway "throat" lengths to address 95th percentile queues, and lane geometry restriping at specific driveway locations.