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January 17, 2023

Mr. Patrick Tritz
1285 Corona Pointe Court
Suite 102
Corona, CA. 92879

LLG Reference: 2.22.4630.1

Subject: **Traffic Circulation Assessment for the Proposed Terrano II Apartments at Dos Lagos Project**
Corona, California

Dear Mr. Tritz:

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the following Traffic Impact Assessment for the proposed Terrano II Apartments at Dos Lagos Project to replace the current entitlement on this portion of Planning Area 1 of Dos Lagos in the City of Corona, California. This analysis evaluates the potential traffic circulation impacts associated with the proposed multifamily residential replacement Project consistent with City of Corona requirements based on the *City of Corona Traffic Impact Study Guidelines, (June 2006)*. It should be noted that this trip generation comparison analysis is based on the approved *Traffic Impact Analysis (TIA) report for Planning Area 1 Terrano at Dos Lagos, prepared by LLG (May 21, 2018)* and attached for reference.

PROJECT LOCATION AND DESCRIPTION

Planning Area 1 of the Dos Lagos Specific Plan was entitled in 2018 and included a 276-unit apartment complex, a 107 room hotel, 6,100 square-feet (SF) of commercial uses, 10,300 SF of restaurant uses (4,000 SF quality restaurant use and 6,300 SF high-turnover sit-down restaurant use), and a 20-fueling position gas station with convenience store and car wash, of which the apartment complex, hotel, and gas station are completed and opened. ***Figure 1*** presents the proposed site plan for the Project, prepared by Summa Architecture, which shows the proposed apartment development and existing Planning Area 1 development. As shown in *Figure 1*, the proposed Project consists of replacing the entitled retail and restaurant uses with 50 multifamily (low-rise) apartment dwelling units within eight (8) buildings. Access for the proposed apartments will be provided via the existing internal circulation system and no new public access driveway are proposed.

PROJECT TRAFFIC CHARACTERISTICS

Trip Generation Forecast Comparison

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 Eleventh Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2021].

Table 1, attached, summarizes the trip generation rates used in forecasting the vehicular trips generated for the proposed Project and entitled land use and also presents the proposed Project's net forecast peak hour and daily traffic volumes. As shown in the upper portion of *Table 1*, the trip generation potential of the proposed Project was estimated using the using ITE Land Use 220: *Multifamily Housing (Low-Rise) Not Close to Rail Transit* trip rates whereas the entitled retail and restaurant uses trip generation is based on the trip generation forecast (*Tables 5-1 and 5-2*) contained in the approved LLG TIA (May 21, 2018) on Pages 13 and 14.. Review of the middle of *Table 1* indicates that the proposed apartment Project is forecast to generate 337 daily trips, with 20 trips (5 inbound, 15 outbound) produced in the AM peak hour and 26 trips (16 inbound, 10 outbound) produced in the PM peak hour on a "typical" weekday.

Next, review of the following section of *Table 1* indicates that the entitled 6,100 square-feet (SF) of commercial uses and 10,300 SF of restaurant uses (4,000 SF quality restaurant use and 6,300 SF high-turnover sit-down restaurant use) is forecast to generate 1,075 daily trips, with 63 trips 31 inbound, 32 outbound) produced in the AM peak hour and 63 trips (39 inbound, 24 outbound) produced in the PM peak hour on a "typical" weekday.

As shown on the last row of *Table 1*, the net trip generation potential of the proposed Project compared to the trip generation of the entitled retail and restaurant uses is 738 net fewer daily trips, with 43 net fewer trips (-26 inbound, -17 outbound) produced in the AM peak hour and 37 net fewer trips (-23 inbound, -14 outbound) produced in the PM peak hour on a "typical" weekday.

As a result, based on the negative net trip generation forecast for the proposed Project compared to the entitled uses for Planning Area 1 of the Dos Lagos development, the proposed Project will not significantly impact the surrounding transportation system and does not require the preparation of a traffic impact study including level of service.

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CONCLUSION

Based on the results of the aforementioned net project trip generation forecast for the proposed Terrano II Apartments at Dos Lagos Project, which is 738 net fewer daily trips, with 43 net fewer trips (-26 inbound, -17 outbound) produced in the AM peak hour and 37 net fewer trips (-23 inbound, -14 outbound) produced in the PM peak hour on a "typical" weekday, we conclude that the proposed Project's traffic circulation impact is considered "insignificant" based on the City of Corona TIS Guidelines. Therefore, the Project would not require any specific traffic analysis including level of service.

We appreciate the opportunity to provide this Traffic Impact Assessment. Should you need further assistance, or have any questions regarding this analysis, please call us at (949) 825-6175.

Very truly yours,
Linscott, Law & Greenspan, Engineers

Keil D. Maberry, P.E.
Principal

Attachments

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N NO SCALE

SOURCE: SUMMA ARCHITECTURE

FIGURE 1

PROPOSED SITE PLAN

TERRANO II APARTMENTS AT DOS LAGOS, CORONA

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TABLE 1
PROJECT TRAFFIC GENERATION RATES AND FORECAST[1]
TERRANO II APARTMENTS AT DOS LAGOS, CORONA

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Rates:							
▪ 220: Multifamily Housing (Low-Rise) Not Close to Rail Transit (TE/DU)	6.74	24%	76%	0.40	63%	37%	0.51
Proposed Project Trip Generation Forecast:							
▪ Terrano II Apartments at Dos Lagos (50 DU)	337	5	15	20	16	10	26
Total Proposed Project Trip Generation	***337***	***5***	***15***	***20***	***16***	***10***	***26***
Entitled Trip Generation Forecast:							
▪ Terrano Retail & Restaurants (16,400 SF) [2]	1,075	31	32	63	39	24	63
Total Entitled Trip Generation	***1,075***	***31***	***32***	***63***	***39***	***24***	***63***
Net Project Trip Generation Forecast (Proposed Project vs. Entitled)	**(738)**	**(26)**	**(17)**	**(43)**	**(23)**	**(14)**	**(37)**

Notes:
- TE/DU = trip end per dwelling unit

1 Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).

2 Source: *Table 5-2*, Planning Area 1 - Terrano at Dos Lagos Traffic Impact Analysis (LLG) dated May 21, 2018, which consists of 6,100 SF retail, 4,000 SF quality restaurant, and 6,300 SF high-turnover restaurant uses. The residential, hotel and gas station are currently constructed.

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TRAFFIC IMPACT ANALYSIS REPORT
PLANNING AREA 1
TERRANO AT DOS LAGOS

Corona, California

May 21, 2018

(Update of Report dated December 29, 2017)

Prepared for:

Rexco Development
1285 Corona Pointe Court
Suite 102
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LLG Ref. 2-12-3291-1

Prepared by:
Angela Besa
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EXECUTIVE SUMMARY

- The proposed Project consists of developing a 276-unit apartment complex, a 107 room hotel, 6,100 square-feet (SF) of commercial uses, 10,300 SF of restaurant uses, and a 20-fueling position gas station with convenience store and car wash. The Project site is located on the northwest quadrant of Temescal Canyon Road and Dos Lagos Drive, in the southeast area of the City of Corona, California. Project access will be provided via three (3) driveways along Temescal Canyon Road and one (1) driveway along Dos Lagos Drive. The Project is anticipated to be completed and fully occupied by Year 2020.

- The proposed Project is expected to generate 4,775 daily trips (one half arriving, one half departing), with 329 trips (134 inbound, 195 outbound) produced in the AM peak hour and 326 trips (192 inbound, 134 outbound) produced in the PM peak hour.

- Ten (10) existing key study intersections and four (4) proposed Project driveways were designated for evaluation based on City of Corona Traffic Impact Analysis (TIA) criteria and discussions with City staff. The key intersections selected for evaluation in this report provide access to the study area and are listed as follows:

  1. Grand Oaks at Cajalco Road
  2. Temescal Canyon Road at Cajalco Road
  3. Temescal Canyon Road at Blue Springs Drive
  4. Temescal Canyon Road at Pronio Circle
  5. Temescal Canyon Road at Lakeshore Drive
  6. Temescal Canyon Road at Cabot Drive
  7. Temescal Canyon Road at Dos Lagos Drive
  8. I-15 Northbound Ramps at Weirick Road/Dos Lagos Drive
  9. I-15 Southbound Ramps at Weirick Road
  10. Weirick Road/Retreat Parkway at Weirick Road/Knabe Road
  11. Temescal Canyon Road at Project Driveway 1
  12. Temescal Canyon Road at Project Driveway 2/Fashion Drive
  13. Temescal Canyon Road at Project Driveway 3 (proposed)
  14. Project Driveway 4 at Dos Lagos Drive (proposed)

Existing Traffic Conditions

- For the Existing traffic conditions, all ten (10) existing key study intersections currently operate at acceptable levels of service (LOS D or better) during the AM and PM peak hours when compared to the LOS standards defined in this report.

Existing With Project Traffic Conditions

- For the Existing With Project traffic conditions, all ten (10) key study intersections are forecast to operate at acceptable levels of service (LOS D or better) during the AM and PM peak hours when compared to the LOS standards defined in this report.

Year 2020 With Project Traffic Conditions

- For the Year 2020 With Project traffic conditions, one (1) of the ten key study intersections (Temescal Canyon Road at Cajalco Road) is forecast to operate at an unacceptable level of service during the PM peak hour when compared to the LOS standards defined in this report, and will be significantly impacted for the Year 2020 With Project traffic conditions. However, the implementation of the recommended improvements will offset the Project impacts and return the operating condition of the intersection to an acceptable level of service. The remaining key study intersections are projected to operate at acceptable service.

- The following improvements listed below have been identified to mitigate the traffic impacts at the intersection impacted by Project traffic:

    - Temescal Canyon Road at Cajalco Road: Restripe the northbound approach to provide a third exclusive northbound left-turn lane and restripe the shared northbound through/right-turn lane to an exclusive northbound right-turn lane. Install eastbound right-turn overlap traffic signal phasing that will yield to northbound U-turn movements.

- The Project's fair share responsibility toward the restriping the northbound approach and the installation of an eastbound right-turn overlap is **30.36%**. As the total cost of the improvements is estimated to be $20,000, the Project's fair share contribution is approximately **$6,072.00**.

- The Project driveways are forecast to operate at acceptable levels of service during the AM and PM peak hours under the Year 2020 With Project traffic conditions.

- The on-site circulation was evaluated in terms of vehicle-pedestrian conflicts. Based on our review of the preliminary site plan, the overall layout does not create significant vehicle-pedestrian conflict points such that access for the residential and commercial components are not impacted by internal vehicle queuing/stacking. Project traffic is not anticipated to cause significant internal queuing/ stacking at the Project driveway. The on-site circulation is acceptable based on our review of the proposed site plan. The alignment and spacing of the Project driveway is also deemed adequate. Turning movements into and out of the Project site at the Project driveway are anticipated to operate at an acceptable service levels. As such, motorists entering and exiting the Project site from this driveway will be able to do so comfortably, safely, and without undue congestion.

- All existing or proposed left-turn or right-turn storage is sufficient at the Project driveways along Temescal Canyon Road and Cajalco Road under Existing With Project and Year 2020 With Project traffic conditions.

TRAFFIC IMPACT ANALYSIS REPORT

PLANNING AREA 1
TERRANO AT DOS LAGOS

Corona, California
May 21, 2018
(Update of Report dated December 29, 2017)

1.0 INTRODUCTION

This traffic impact analysis evaluates the potential traffic impacts of the proposed Planning Area 1 Terrano at Dos Lagos project (hereinafter referred to as Project), on the area traffic circulation. The proposed Project consists of developing a 276-unit apartment complex, a 107 room hotel, 6,100 square-feet (SF) of commercial uses, 10,300 SF of restaurant uses, and a 20-fueling position gas station with convenience store and car wash. The Project site is located on the northwest quadrant of Temescal Canyon Road and Dos Lagos Drive, in the southeast area of the City of Corona, California. Project access will be provided via three (3) driveways along Temescal Canyon Road and one (1) driveway along Dos Lagos Drive. The Project is anticipated to be completed and fully occupied by Year 2020.

This report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts the Project may have on the local network in the vicinity of the Project site. The traffic impact analysis evaluates the operating conditions at ten (10) existing key study intersections and four (4) proposed Project driveways within the Project vicinity, estimates the trip generation potential of the Project and forecasts future (near-term) operating conditions without and with the Project.

The Project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing (i.e. baseline) peak hour traffic information has been collected at the ten (10) key study intersections on a "typical" weekday for use in the preparation of intersection level of service calculations. This traffic report analyzes existing (i.e. baseline) and future (near-term) weekday AM and PM peak hour traffic conditions for Existing (i.e. baseline) and Year 2020 traffic conditions without and with the proposed Project. Peak hour traffic forecasts for the Year 2020 traffic conditions have been projected by increasing existing traffic volumes by an annual growth rate of two percent (2%) per year and adding the traffic from nine (9) cumulative projects.

The work program for this traffic study was developed in conjunction with the City of Corona Public Works Department staff. ***Appendix A*** contains a copy of the approved City of Corona Traffic Impact Study Scoping Agreement.

1.1 Study Area

1.1.1 *Intersections*

The ten (10) existing key study intersections and four (4) proposed Project driveways were designated for evaluation based on City of Corona Traffic Impact Analysis (TIA) criteria and discussions with City staff. The key intersections selected for evaluation in this report provide access to the study area and are listed as follows:

1. Grand Oaks at Cajalco Road
2. Temescal Canyon Road at Cajalco Road
3. Temescal Canyon Road at Blue Springs Drive
4. Temescal Canyon Road at Pronio Circle
5. Temescal Canyon Road at Lakeshore Drive
6. Temescal Canyon Road at Cabot Drive
7. Temescal Canyon Road at Dos Lagos Drive
8. I-15 Northbound Ramps at Weirick Road/Dos Lagos Drive
9. I-15 Southbound Ramps at Weirick Road
10. Weirick Road/Retreat Parkway at Weirick Road/Knabe Road
11. Temescal Canyon Road at Project Driveway 1
12. Temescal Canyon Road at Project Driveway 2/Fashion Drive
13. Temescal Canyon Road at Project Driveway 3 (proposed)
14. Project Driveway 4 at Dos Lagos Drive (proposed)

1.2 Traffic Impact Analysis Components

The Highway Capacity Manual (HCM) and corresponding Level of Service (LOS) calculations at the key study locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects, and the Project. When necessary, this report recommends intersection improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and/or addresses the impact of the Project.

Included in this Traffic Impact Analysis are:

- Existing Traffic Counts,
- Estimated Project traffic generation/distribution/assignment,
- AM and PM peak hour LOS analyses for Existing (i.e. Baseline) Conditions,
- AM and PM peak hour LOS analyses for Existing (i.e. Baseline) Conditions with Project traffic,
- AM and PM peak hour LOS analyses for Near-Term (Year 2020) Conditions without and with Project traffic,

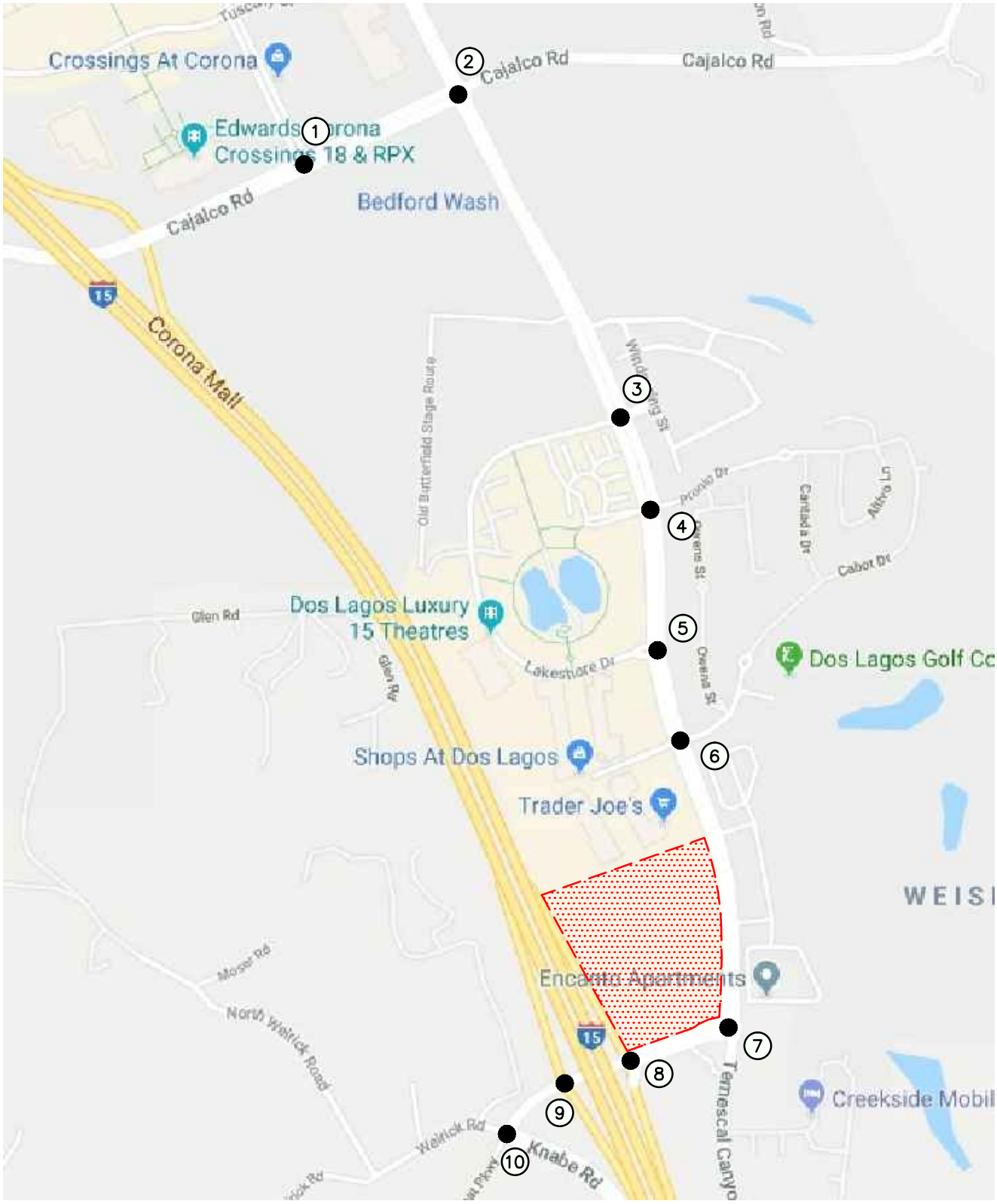
- Project-Specific Traffic Improvements, if any,
- Site Access and Internal Circulation Evaluation, and
- Queuing Analysis.

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system.

1.3 Traffic Impact Analysis Scenarios

The following scenarios are those for which Delay and corresponding LOS calculations have been performed at the key intersections for existing and near-term (Year 2020) traffic conditions:

A. Existing (i.e. Baseline) Traffic Conditions,
B. Existing (i.e. Baseline) With Project Traffic Conditions,
C. Scenario (B) with Recommended Improvements, if any,
D. Year 2020 Without Project Traffic Conditions,
E. Year 2020 With Project Traffic Conditions, and
F. Scenario (E) With Recommended Improvements, if any.



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE MAPS

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1-1

VICINITY MAP

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

2.0 PROJECT DESCRIPTION AND LOCATION

The Project is comprised of the development of a 276-unit apartment complex, a 107 room hotel, 6,100 SF of commercial uses, 10,300 SF of restaurant uses (4,000 SF of quality restaurant and 6,300 SF of high-turnover restaurant), and a 20-fueling position gas station with convenience store and car wash. The Project site is located on the northwest corner of Temescal Canyon Road and Dos Lagos Drive in the southeast area of the City of Corona, California. Project access will be provided via three (3) driveways along Temescal Canyon Road and one (1) driveway along Dos Lagos Drive. The Project is anticipated to be completed and fully occupied by Year 2020.

Figure 2-1 presents an aerial depiction of the existing site for the proposed Project. ***Figure 2-2*** presents the proposed site plan, prepared by Summa Architecture.

2.1 Site Access

As shown in *Figure 2-2*, primary access to the Project site will be provided via four (4) driveways. Driveways 1 and 3 (located along Temescal Canyon Road) and Driveway 4 (located along Dos Lagos Road) will be stop-controlled right-in/right-out only driveways. Driveway 2 (located along Temescal Canyon Road) will be a signalized (six-phase) full movement driveway aligned with the main access for the existing Encanto Apartment development on the east side of Temescal Canyon Road. It should be noted that this access is currently signalized and denoted as Fashion Drive.

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

= PROJECT SITE

FIGURE 2-1

EXISTING SITE

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

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LINSCOTT LAW & GREENSPAN engineers

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SOURCE: SUMMA ARCHITECTURE

KEY

= PROJECT SITE

FIGURE 2-2

PROJECT SITE PLAN

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

3.0 ANALYSIS CONDITIONS AND METHODOLOGY

The principal local network of streets serving the site consists of Temescal Canyon Road, Cajalco Road, Blue Springs Drive, Lakeshore Drive, Cabot Drive, and Dos Lagos Drive/Weirick Road. The following discussion provides a brief synopsis of the key area streets.

3.1 Existing Street Network

The **Corona Freeway (I-15)** provides regional access to the Project site. The I-15 Freeway is located in close proximity west of the Project site.

Temescal Canyon Road is a north-south, four-lane divided roadway located east of the Project site. Parking is not permitted along Temescal Canyon Road within the vicinity of the Project. The posted speed limit on Temescal Canyon Road is 45 miles per hour (mph). The intersections of Temescal Canyon Road at Cajalco Road, Blue Springs Drive and Lakeshore Drive are controlled by 8-phase, 6-phase and 3-phase traffic signals, respectively.

Cajalco Road is generally an east-west, six-lane divided roadway located north of the Project site. East of Temescal Canyon Road, Cajalco Road is a two-lane undivided roadway. Parking is not permitted along Cajalco Road within the vicinity of the Project. The posted speed limit on Cajalco Road is 45 mph.

Blue Springs Drive is an east-west, two-lane divided roadway that borders the Project site on the north and west. Parking is not permitted along Blue Springs Drive within the vicinity of the Project. The posted speed limit on Blue Springs Drive is 15 mph. Project access will be located along Blue Springs Drive via a full-access, unsignalized driveway.

Lakeshore Drive is an east-west as well as a north-south, two-lane undivided roadway located south and west and south of the Project site. Parking is not permitted along Lakeshore Drive within the vicinity of the Project. The posted speed limit on Lakeshore Drive is 15 mph.

Dos Lagos Drive is an east-west, two-lane divided Secondary classification roadway that borders the Project site on the south. Parking is not permitted along Dos Lagos Drive within the vicinity of the Project. The posted speed limit on Dos Lagos Drive is 35 mph.

Cabot Road is an east-west, two-lane undivided roadway that borders the Project site on the north. Parking is permitted along Cabot Road within the vicinity of the Project. The posted speed limit on Cabot Road is 25 mph.

Figure 3-1 presents an inventory of the existing roadway conditions within the study area evaluated in this report. The number of travel lanes and intersection controls for the key area study intersections are identified.

Appendix B contains the most current aerials available online for all the key study intersections. ***Figure 3-2*** shows the current City of Corona General Plan Circulation Element.

3.2 Existing Transit Services

The study area is served by the Riverside Transit Agency (RTA) and "Corona Cruiser," a Fixed Route Service by the City of Corona. Corona Cruiser runs along pre-designated Blue Line and Red Line fixed routes. A description of the transit services is as follows:

Riverside Transit Agency (RTA)

- Route 206 runs from Corona Transit Center to Promenade Mall, and traverses the Project area along Temescal Canyon Road, Cajalco Road, and Dos Lagos Drive. During the AM peak hour, there is one (1) southbound bus. During the PM peak hour, there are two (2) northbound buses and one (1) southbound bus.

Corona Cruiser

- This route does not traverse any of study intersections analyzed in this report during weekdays, but the Red Line provides service to The Promenade Shops at Dos Lagos on Saturdays via Temescal Canyon Road from the north.

3.3 Existing Area Traffic Volumes

Existing AM and PM peak hour traffic volumes for the ten (10) key study intersections evaluated in this report, were collected by *Counts Unlimited, Inc.* in October 2017. ***Appendix C*** contains the existing intersection turning movement traffic count data.

Figures 3-3 and ***3-4*** present the existing AM and PM peak hour traffic volumes, respectively, for the ten (10) existing key study intersections.

3.4 Level Of Service (LOS) Analysis Methodologies

AM and PM peak hour operating conditions for the key study intersections were evaluated using the methodology outlined in *Chapter 19 of the Highway Capacity Manual 6 (HCM 6)* for signalized intersections and the methodology outlined in *Chapter 20 of the HCM 6* for two-way stop-controlled intersections.

3.4.1 *Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)*

In conformance with City of Corona requirements, AM and PM peak hour operating conditions for the key study intersections were evaluated using the HCM operations method of analysis. Based on the HCM operations method of analysis, level of service for signalized intersections and approaches is defined in terms of control delay, which is a measure of the increase in travel time due to traffic signal control, driver discomfort, and fuel consumption. Control delay includes the delay associated with vehicles slowing in advance of an intersection, the time spent stopped on an intersection approach, the time spent as vehicles move up in the queue, and the time needed for vehicles to accelerate to their desired speed. LOS criteria for traffic signals are stated in terms of the control delay in seconds per vehicle. The LOS thresholds established for the automobile mode at a signalized intersection are shown in ***Table 3-1***.

3.4.2 *Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. LOS criteria for unsignalized intersections differ from LOS criteria for signalized intersections as signalized intersections are designed for heavier traffic and therefore a greater delay. Unsignalized intersections are also associated with more uncertainty for users, as delays are less predictable, which can reduce users' delay tolerance.

Two-way stop-controlled intersections are comprised of a major street, which is uncontrolled, and a minor street, which is controlled by stop signs. Level of service for a two-way stop-controlled intersection is determined by the computed or measured control delay. The control delay by movement, by approach, and for the intersection as a whole is estimated by the computed capacity for each movement. LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. The worst side street approach delay is reported. LOS is not defined for the intersection as a whole or for major-street approaches, as it is assumed that major-street through vehicles experience zero delay. The HCM control delay value range for two-way stop-controlled intersections is shown in ***Table 3-2***.

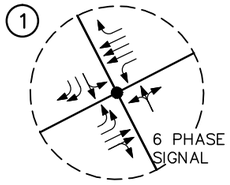
3.5 Impact Criteria and Thresholds

3.5.1 *Intersections*

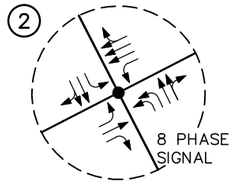
The City of Corona considers LOS D to be the minimum acceptable LOS for all intersections that consist of collector and arterial roadways and LOS E for the Weirick Road at I-15 Ramp intersections based on the City of Corona General Plan Circulation Element Policy 6.1.6. In addition, the City of Corona considers LOS C to be the minimum acceptable LOS for local and collector streets in residential and industrial areas.

The City of Corona General Plan Circulation Element Policy 6.1.6 (adopted March 17, 2004) states:

- *Maintain Level of Service D or better on arterial streets wherever possible. At some key locations, such as at heavily traveled freeway interchanges, LOS E may be adopted as the acceptable standard, on a case-by-case basis. Locations that may warrant the LOS E standard include Lincoln Avenue at SR-91, Main Street at SR-91, McKinley Avenue at SR-91, Hidden Valley Parkway at I-15, Cajalco Road at I-15 and Weirick Road at I-15. A higher standard such as Level of Service C or better may be adopted for local and collector streets in residential areas.*



GRAND OAKS AT CAJALCO RD



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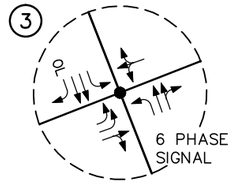

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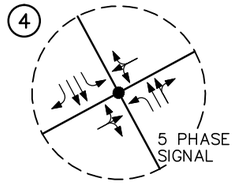

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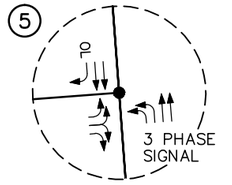

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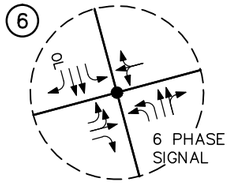
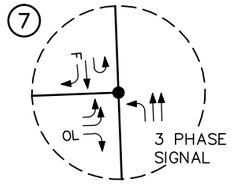
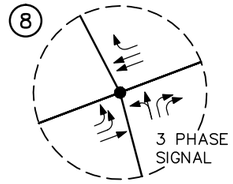


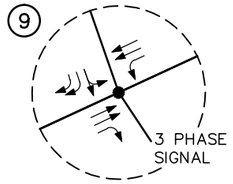
TEMESCAL CANYON RD AT CABOT DR



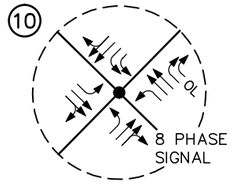
TEMESCAL CANYON RD AT DOS LAGOS DR



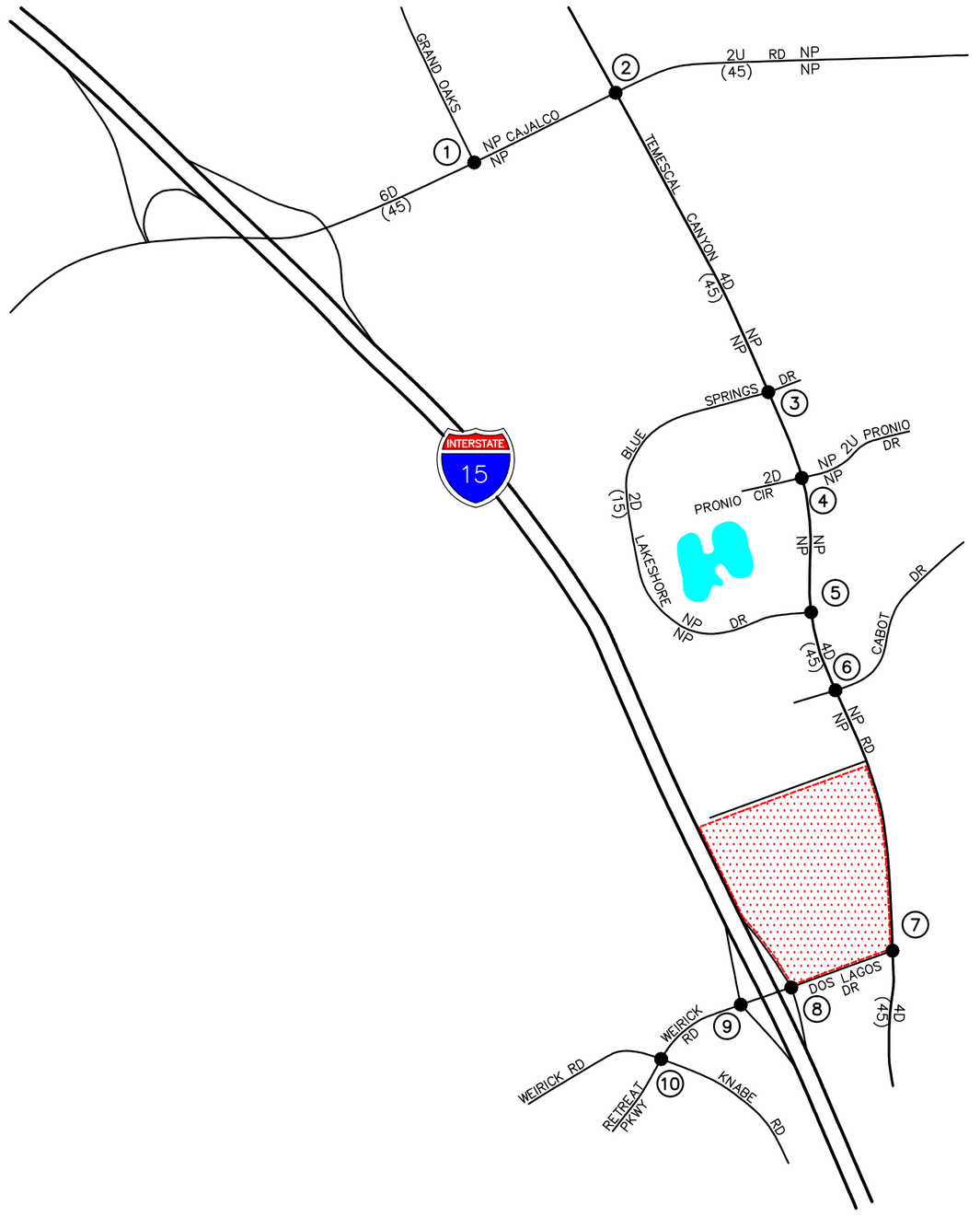
I-15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR



I-15 SB RAMPS AT WEIRICK RD



WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD



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N NO SCALE

KEY

(#) = STUDY INTERSECTION	2 = NUMBER OF TRAVEL LANES
← = APPROACH LANE ASSIGNMENT	(XX)= POSTED SPEED LIMIT (MPH)
● = TRAFFIC SIGNAL	OL = RIGHT-TURN OVERLAP
P = PARKING, NP = NO PARKING	F = FREE RIGHT
U = UNDIVIDED, D = DIVIDED	▭ = PROJECT SITE

FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

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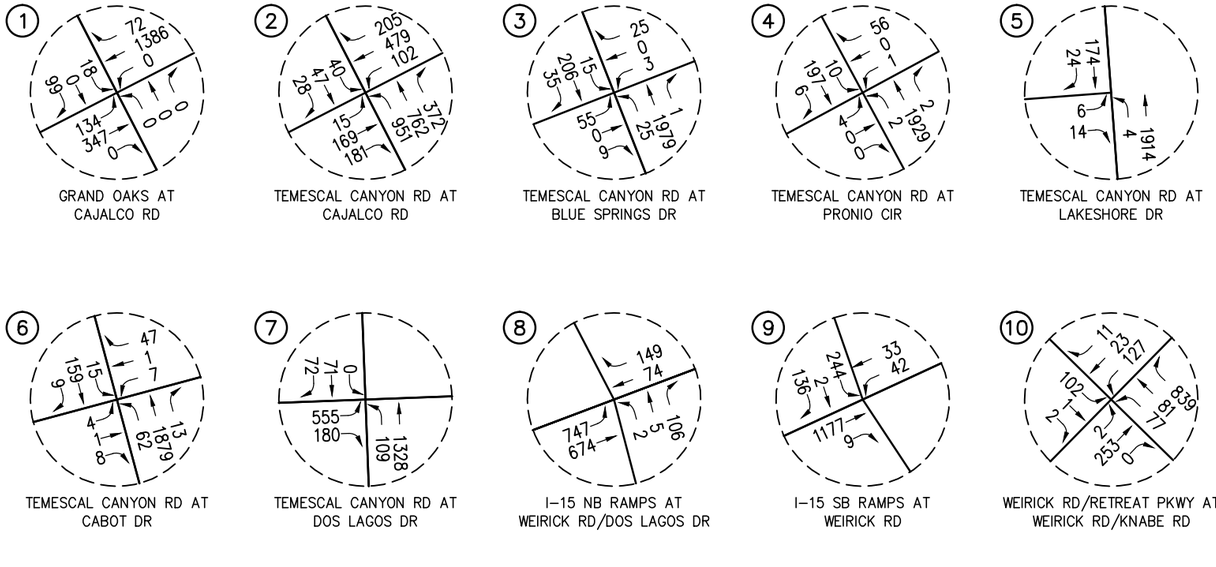
N NO SCALE

SOURCE: CITY OF CORONA

FIGURE 3-2

CITY OF CORONA GENERAL PLAN CIRCULATION ELEMENT
PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



1 GRAND OAKS AT CAJALCO RD

2 TEMESCAL CANYON RD AT CAJALCO RD

3 TEMESCAL CANYON RD AT BLUE SPRINGS DR

4 TEMESCAL CANYON RD AT PRONIO CIR

5 TEMESCAL CANYON RD AT LAKESHORE DR

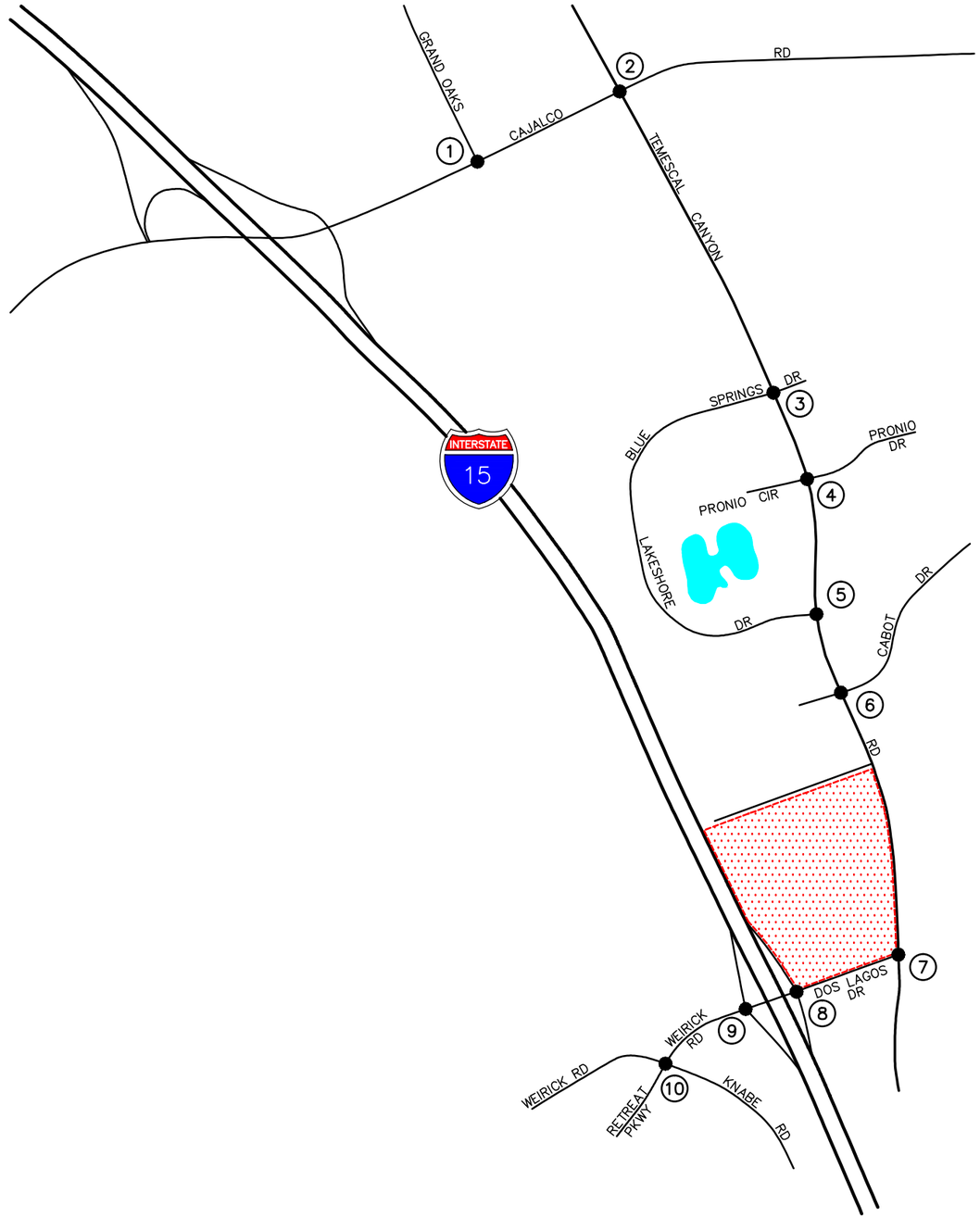
6 TEMESCAL CANYON RD AT CABOT DR

7 TEMESCAL CANYON RD AT DOS LAGOS DR

8 I–15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR

9 I–15 SB RAMPS AT WEIRICK RD

10 WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

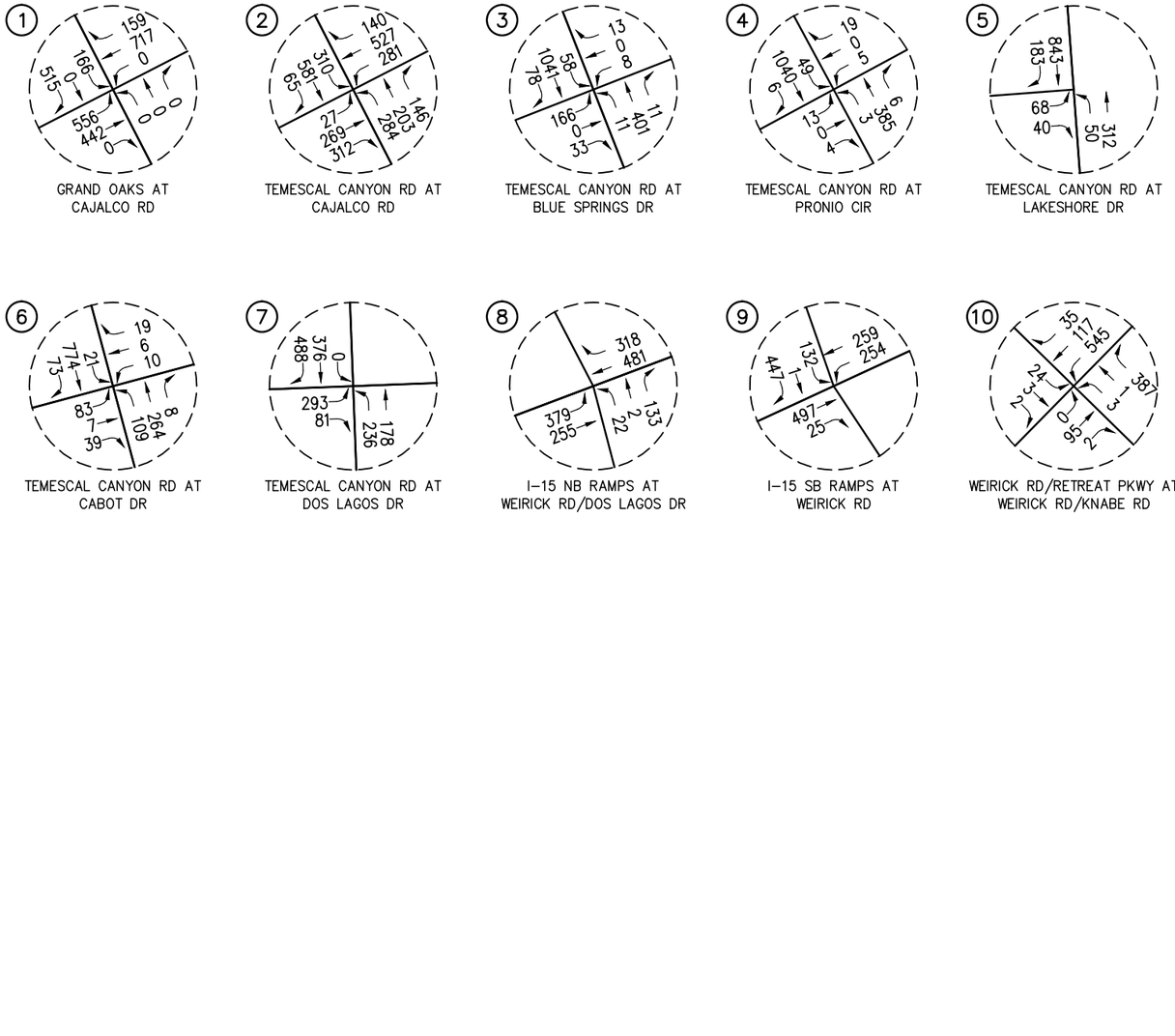
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 3–3

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 3-4

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM METHODOLOGY)[1]

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

[1] Source: *Highway Capacity Manual 6,* Chapter 19: Signalized Intersections.

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM METHODOLOGY)[2]

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

[2] Source: *Highway Capacity Manual 6*, Chapter 20: Two-Way Stop-Controlled Intersections. The LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole.

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics 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 forecast by applying the appropriate vehicle trip generation equations and/or rates to the Project development tabulation.

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 segments and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the impact of the Project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast Project traffic. If necessary, the need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Trip Generation Forecast

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 Ninth Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2012].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project. The trip generation potential for the proposed Project was forecast using the ITE Land Use rates shown in *Table 5-1*.

Table 5-2 presents the forecast daily and peak hour Project traffic volumes for a "typical" weekday. Applicable pass-by reduction and internal capture factors were incorporated into the daily, AM peak hour and PM peak hour traffic forecasts. The factors used in this report, which are summarized in the footnotes of *Table 5-2*, are based on information published in the *Trip Generation Handbook*, published by ITE, August 2014.

Hence, the net traffic generation potential of the proposed project totals 4,775 daily trips (one half arriving, one half departing), with 329 trips (134 inbound, 195 outbound) produced in the AM peak hour and 326 trips (192 inbound, 134 outbound) produced in the PM peak hour. The potential traffic impacts of the aforementioned net project trips are evaluated in the traffic analysis section of this report. The trip generation methodology and forecasts were approved by the City of Corona staff prior to proceeding with further analysis.

5.2 Project Trip Distribution and Assignment

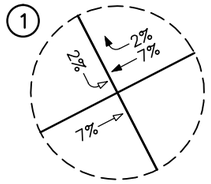
The directional trip distribution patterns for the Residential and Commercial components of the Project are presented in ***Figures 5-1*** and ***5-2***. Project traffic volumes, both entering and exiting the site, have been distributed and assigned to the adjacent street system based on the following considerations:

- the site's proximity to major traffic carriers (i.e. I-15 Freeway, Cajalco Road, etc…),
- expected localized traffic flow patterns based on adjacent street channelization and presence of traffic signals;
- ingress/egress availability at the Project site; and
- the traffic-carrying capacity and travel speed available on roadways serving the Project site.

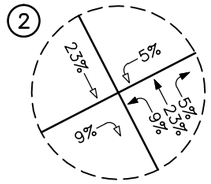
The Project trip distribution pattern was submitted to the City staff for their review and approval prior to proceeding with further analyses.

The anticipated AM and PM peak hour Project traffic volumes at the ten (10) key study intersections and four (4) Project driveways are presented in ***Figures 5-3*** and ***5-4***, respectively. The traffic volume

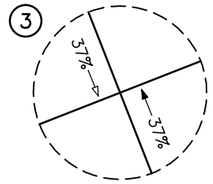
assignment presented in the above mentioned figures reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in the lower portion of *Table 5-2*.



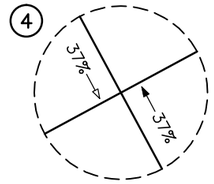
GRAND OAKS AT CAJALCO RD



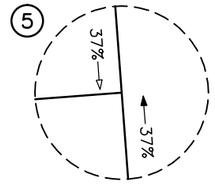
TEMESCAL CANYON RD AT CAJALCO RD



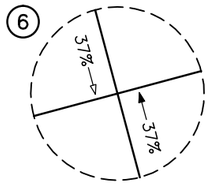
TEMESCAL CANYON RD AT BLUE SPRINGS DR



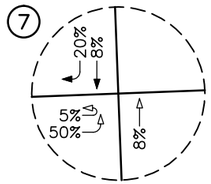
TEMESCAL CANYON RD AT PRONIO CIR



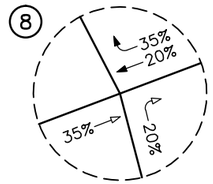
TEMESCAL CANYON RD AT LAKESHORE DR



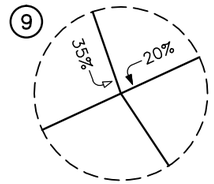
TEMESCAL CANYON RD AT CABOT DR



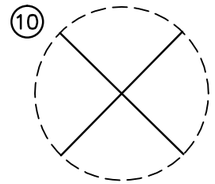
TEMESCAL CANYON RD AT DOS LAGOS DR



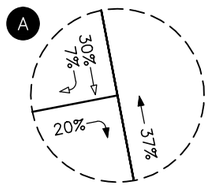
I-15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR



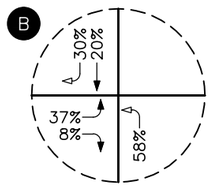
I-15 SB RAMPS AT WEIRICK RD



WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD



TEMESCAL CANYON RD AT PROJECT DRIVEWAY 1



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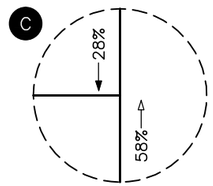

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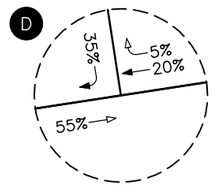
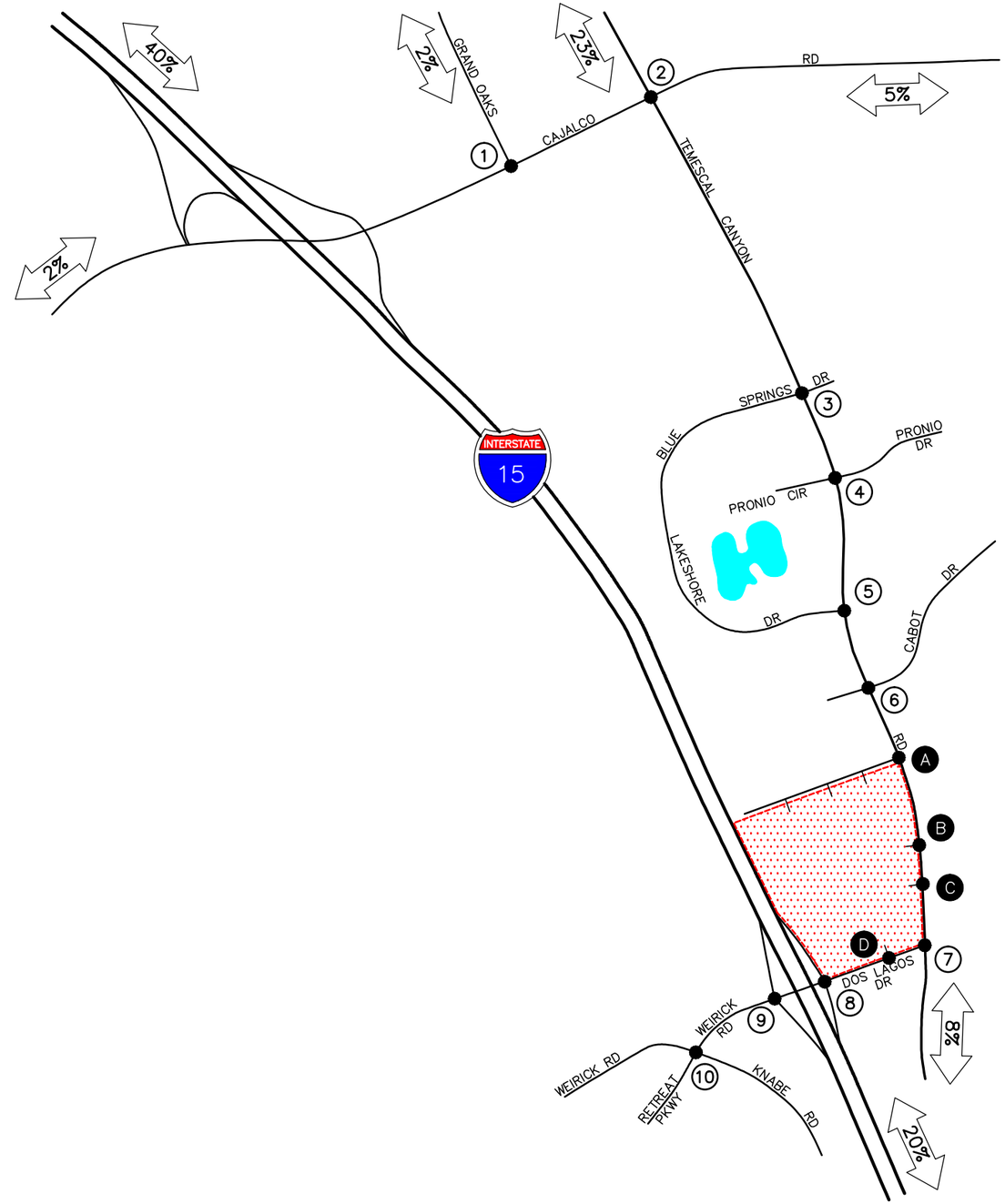


PROJECT DRIVEWAY 4 AT DOS LAGOS DR



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N NO SCALE

KEY

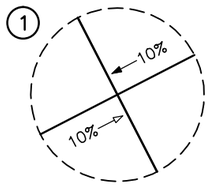
(#) = STUDY INTERSECTION

= PROJECT SITE

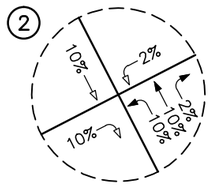
FIGURE 5-1

PROJECT TRIP DISTRIBUTION (RESIDENTIAL COMPONENT)

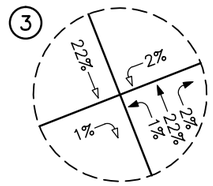
PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



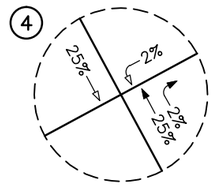
GRAND OAKS AT CAJALCO RD



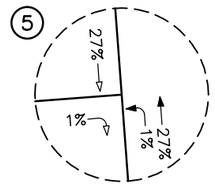
TEMESCAL CANYON RD AT CAJALCO RD



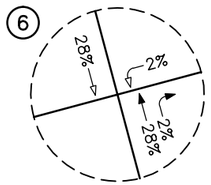
TEMESCAL CANYON RD AT BLUE SPRINGS DR



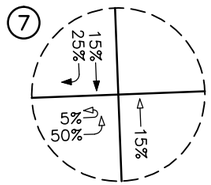
TEMESCAL CANYON RD AT PRONIO CIR



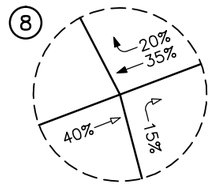
TEMESCAL CANYON RD AT LAKESHORE DR



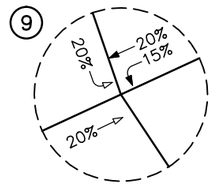
TEMESCAL CANYON RD AT CABOT DR



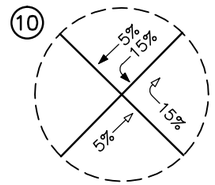
TEMESCAL CANYON RD AT DOS LAGOS DR



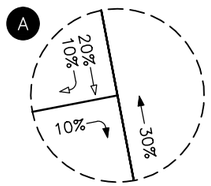
I-15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR



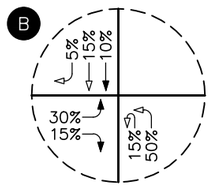
I-15 SB RAMPS AT WEIRICK RD



WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD



TEMESCAL CANYON RD AT PROJECT DRIVEWAY 1



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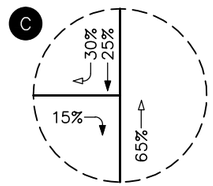

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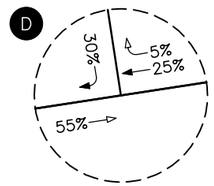
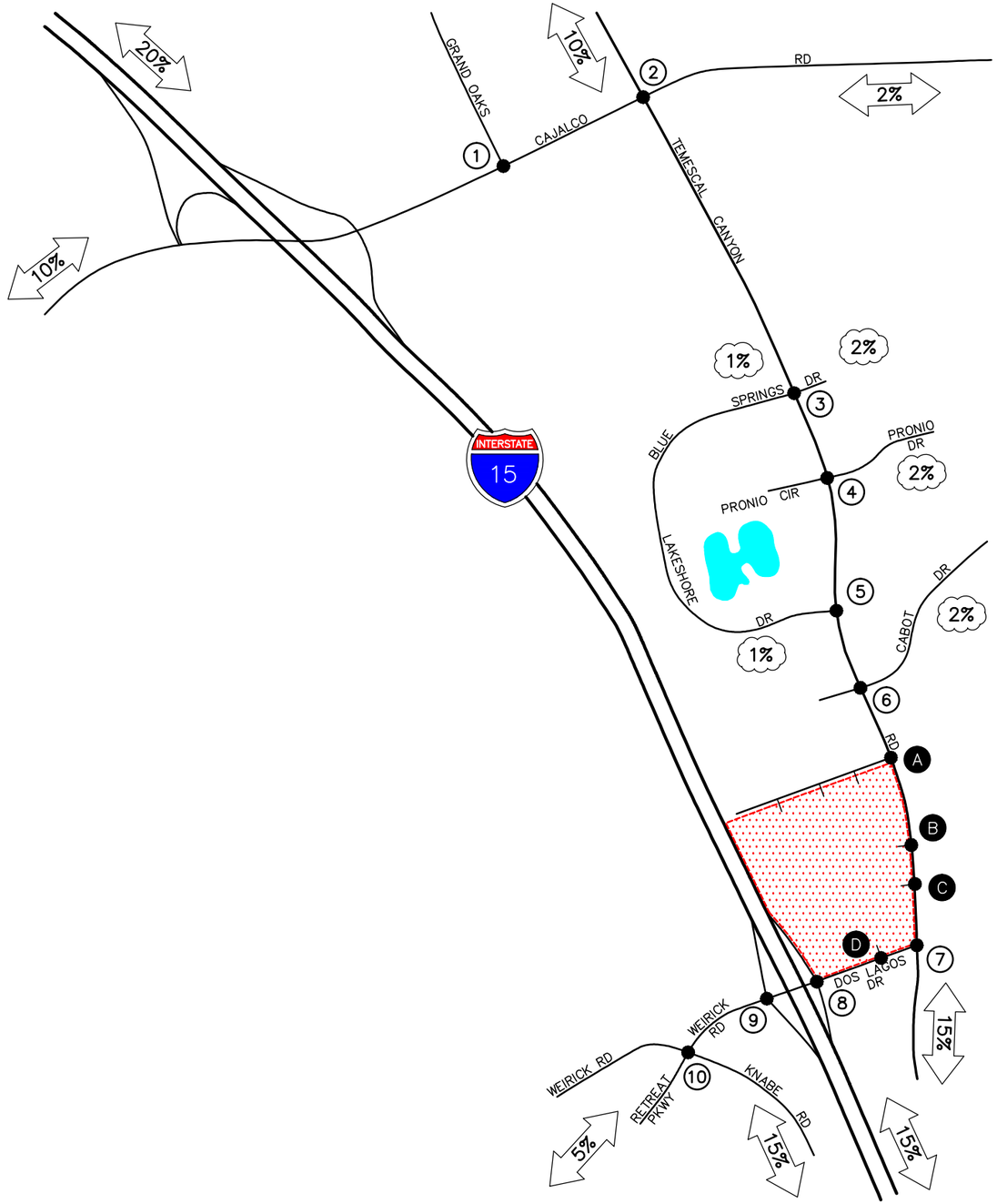


PROJECT DRIVEWAY 4 AT DOS LAGOS DR



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

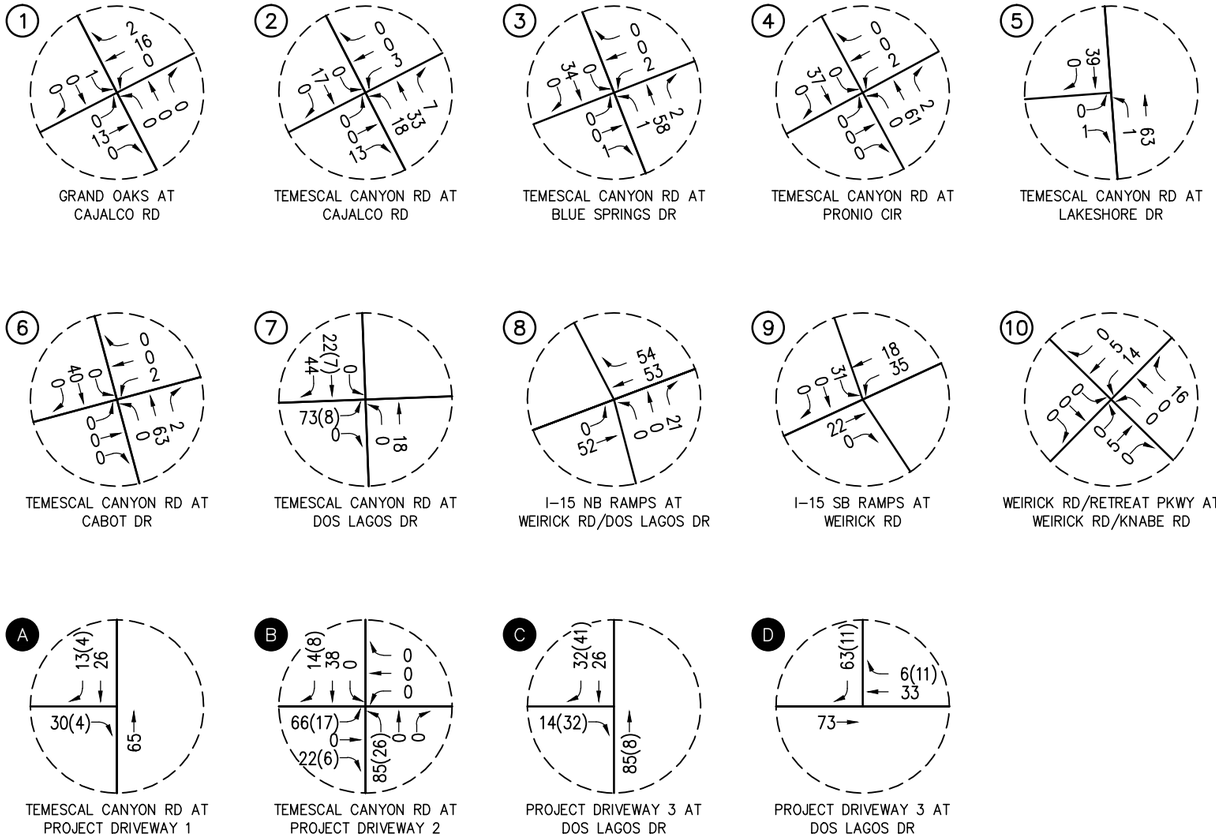
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 5-2

PROJECT TRIP DISTRIBUTION (COMMERCIAL COMPONENT)

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

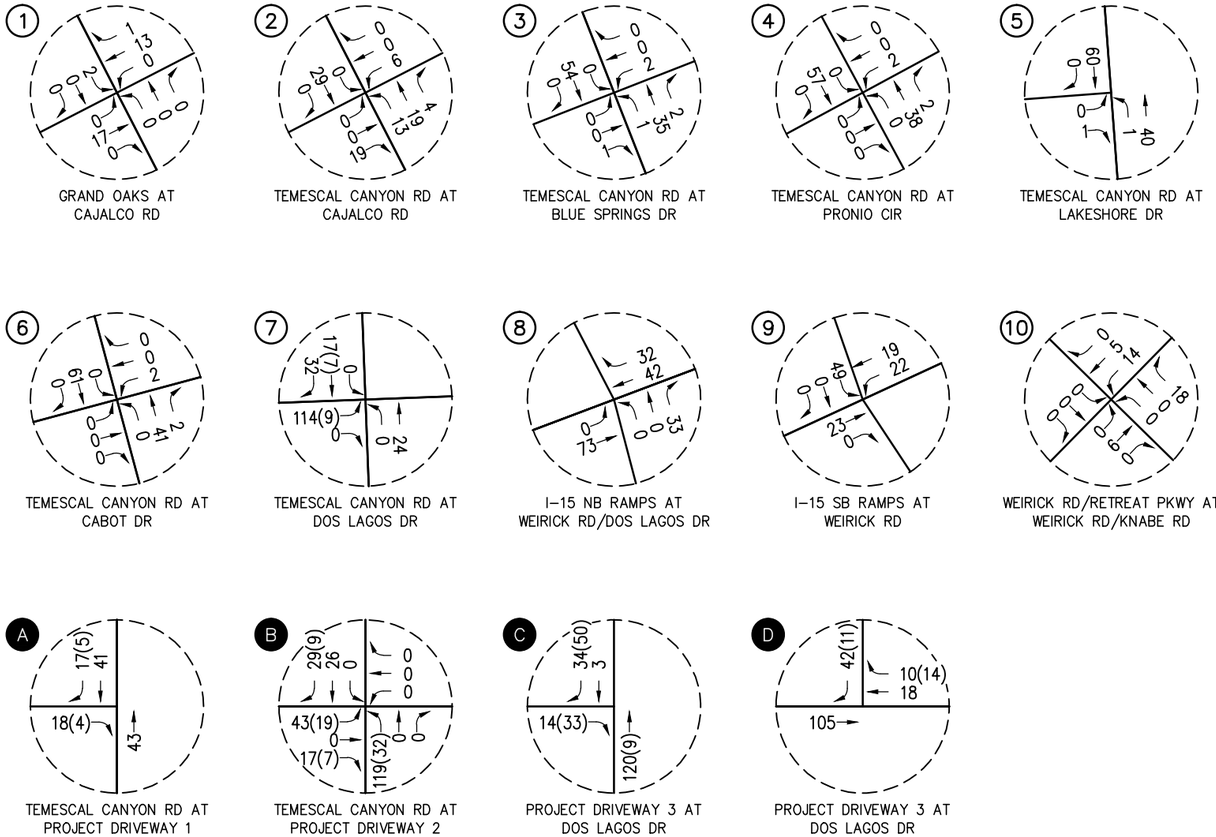
(XX) = PASS-BY-TRIPS

= PROJECT SITE

FIGURE 5-3

AM PEAK HOUR PROJECT TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

(#) = STUDY INTERSECTION

(XX) = PASS-BY-TRIPS

= PROJECT SITE

FIGURE 5-4

PM PEAK HOUR PROJECT TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

TABLE 5-1
PROJECT TRAFFIC GENERATION RATES[3]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Factors:							
▪ 220: Apartment (TE/DU)	6.65	20%	80%	0.51	65%	35%	0.62
▪ 310: Hotel (TE/Room)	8.17	59%	41%	0.53	51%	49%	0.60
▪ 820: Shopping Center (TE/1,000 SF)[4]	95.73	62%	38%	2.29	48%	52%	8.28
▪ 931: Quality Restaurant (TE/1,000 SF)	89.95	--	--	0.81	67%	33%	7.49
▪ 932: High-Turnover (Sit-Down) Restaurant (TE/1,000 SF)	127.15	55%	45%	10.81	60%	40%	9.85
▪ 946: Gasoline/Service Station with Convenience Store with Car Wash (TE/Vehicle Fueling Positions)	152.84	51%	49%	11.84	51%	49%	13.86

Notes:
- TE = Trip ends
- DU = Dwelling unit

[3] Source: *Trip Generation*, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012). Average rates used.

[4] Shopping Center rates based on equation for 6.200 TSF shopping center.

TABLE 5-2
PROJECT TRAFFIC GENERATION FORECAST[5]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Proposed Project Generation Forecast:							
▪ Apartments (276 DU)	1,835	28	113	141	111	60	171
Internal Capture[6]	-688	-2	-9	-11	-36	-22	-58
Subtotal - Apartments	*1,147*	*26*	*104*	*130*	*75*	*38*	*113*
▪ Hotel (107 Rooms)	874	34	23	57	33	31	64
Internal Capture[6]	-190	-1	-5	-6	-10	-5	-15
Subtotal – Hotel	*684*	*33*	*18*	*51*	*23*	*26*	*49*
▪ Shopping Center (6,100 SF)	1,103	17	11	28	44	48	92
Internal Capture[6]	-407	-2	-2	-3	-11	-22	-32
Subtotal	*696*	*15*	*9*	*25*	*33*	*26*	*60*
Pass-by (Daily: 10%, AM: 10% PM: 34%)	-70	-2	-1	-3	-11	-9	-20
Subtotal – Shopping Center	*626*	*13*	*8*	*22*	*22*	*17*	*40*
▪ Quality Restaurant (4,000 SF)	360	2	1	3	20	10	30
Internal Capture[6]	-205	-1	0	-1	-10	-6	-16
Subtotal	*155*	*1*	*1*	*2*	*10*	*4*	*14*
Pass-by (Daily: 10%, AM: 0% PM: 44%)	-16	0	0	0	-4	-2	-6
Subtotal – Quality Restaurant	*139*	*1*	*1*	*2*	*6*	*2*	*8*
▪ High-Turnover Restaurant (6,300 SF)	801	37	31	68	37	25	62
Internal Capture[6]	-457	-18	-6	-24	-18	-16	-34
Subtotal	*344*	*19*	*25*	*44*	*19*	*9*	*28*
Pass-by (Daily: 10%, AM: 0% PM: 43%)	-34	-2	-2	-4	-8	-4	-12
Subtotal – High-Turnover Restaurant	*310*	*17*	*23*	*40*	*11*	*5*	*16*
▪ Gas Station (20 fueling stations)	3,057	121	116	237	141	136	277
Internal Capture[6]	-565	-6	-8	-15	-17	-31	-49
Subtotal	*2,492*	*115*	*108*	*222*	*124*	*105*	*228*
Pass-by (Daily: 25%, AM: 62% PM: 56%)	-623	-71	-67	-138	-69	-59	-128
Subtotal – Gas Station	*1,869*	*44*	*41*	*84*	*55*	*46*	*100*
Total Traffic Generation Forecast	***4,775***	***134***	***195***	***329***	***192***	***134***	***326***

5 Source: *Trip Generation*, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012). Average rates used.

6 Internal capture trips were calculated using the Internal Capture spreadsheet tool developed by NCHRP.

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Existing With Project Traffic Volumes

The estimates of Project-generated traffic volumes were added to the Existing traffic conditions to develop traffic projections for the Existing With Project traffic conditions. ***Figures 6-1*** and ***6-2*** present the anticipated AM and PM peak hour Existing With Project traffic volumes, respectively, at the ten (10) key study intersections and four (4) Project driveways.

6.2 Year 2020 Without Project Traffic Volumes

6.2.1 *Ambient Growth Traffic*

For future traffic conditions, background traffic growth estimates have been calculated using an ambient growth factor. The ambient growth factor is intended to include unknown and future cumulative 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 application of the two percent (2%) annual growth rate to baseline Year 2017 traffic volumes results in a six percent (6%) growth in existing baseline volumes at the ten (10) key study intersections to horizon Year 2020.

6.2.2 *Cumulative Projects Traffic*

The City of Corona and Riverside County have identified nine (9) cumulative projects within the Project study area. Cumulative projects, as defined by Section 15355 of the CEQA Guidelines, are "closely related past, present and reasonably foreseeable probable future projects." The Traffic Impact Analysis assumes that these cumulative projects will be developed and operational when the proposed Project is operational, which is the most conservative approach, since the exact timing of each cumulative project is uncertain. In addition, impacts for these cumulative projects would likely be, or have been, subject to mitigation measures, which could reduce potential impacts. Under this analysis, however, those mitigation measures are not considered. The locations of these cumulative projects are presented in ***Figure 6-3***.

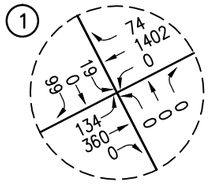
Table 6-1 presents the location, description, and development totals of the cumulative projects. ***Table 6-2*** presents the resultant trip generation for cumulative projects. As shown in *Table 6-2*, the nine (9) cumulative projects are expected to generate 9,222 daily trips (one half arriving, one half departing) on a "typical" weekday, with 768 trips forecast during the AM peak hour and 913 trips forecast during the PM peak hour.

The anticipated AM and PM peak hour cumulative projects traffic volumes at the ten (10) key study intersections are presented in ***Figures 6-4*** and ***6-5***, respectively. ***Figures 6-6*** and ***6-7*** present Year 2020 Without Project AM and PM peak hour traffic volumes at the ten (10) key study intersections, respectively. It should be noted that Year 2020 Without Project traffic volumes include ambient traffic growth as well as the traffic from the nine (9) cumulative projects.

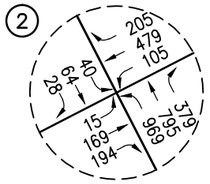
It should be emphasized that because this traffic impact analysis utilizes both an ambient growth factor along with a list of cumulative projects approach to analyze cumulative impacts, this traffic impact analysis is conservative and would tend to overstate cumulative traffic impacts.

6.3 Year 2020 With Project Traffic Volumes

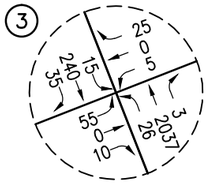
The estimates of Project-generated traffic volumes were added to the Year 2020 Without Project traffic conditions to develop traffic projections for the Year 2020 With Project traffic conditions. ***Figures 6-8*** and ***6-9*** present the anticipated AM and PM peak hour Year 2020 With Project traffic volumes, respectively, at the ten (10) key study intersections and four (4) Project driveways.



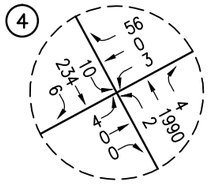
GRAND OAKS AT
CAJALCO RD



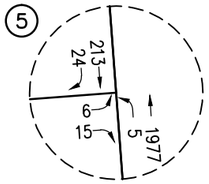
TEMESCAL CANYON RD AT
CAJALCO RD



TEMESCAL CANYON RD AT
BLUE SPRINGS DR



TEMESCAL CANYON RD AT
PRONIO CIR



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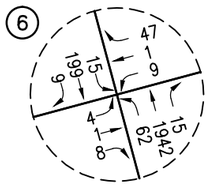
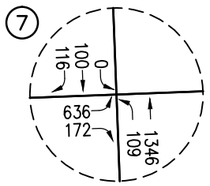
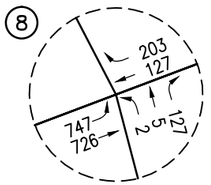
LAKESHORE DR



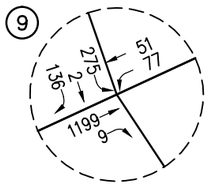
TEMESCAL CANYON RD AT
CABOT DR



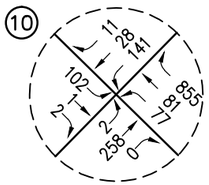
TEMESCAL CANYON RD AT
DOS LAGOS DR



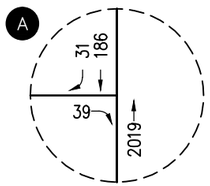
I-15 NB RAMPS AT
WEIRICK RD/DOS LAGOS DR



I-15 SB RAMPS AT
WEIRICK RD



WEIRICK RD/RETREAT PKWY AT
WEIRICK RD/KNABE RD



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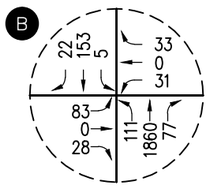
PROJECT DRIVEWAY 1



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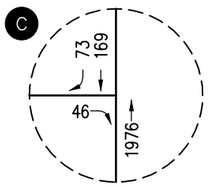
PROJECT DRIVEWAY 2



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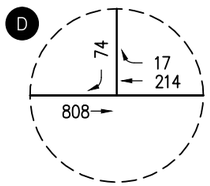
DOS LAGOS DR



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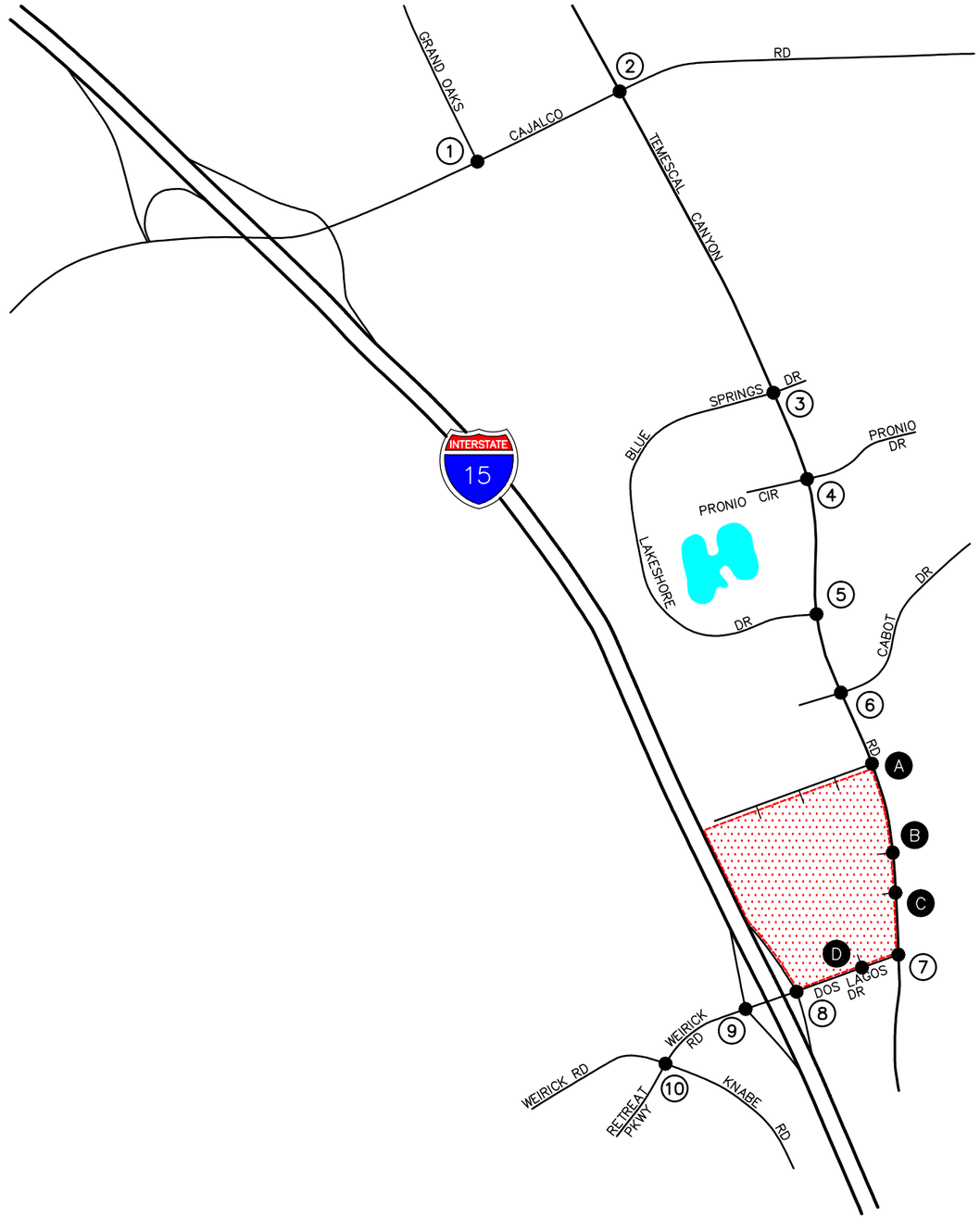


LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

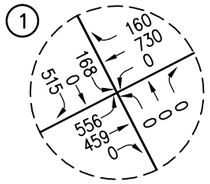
(#) = STUDY INTERSECTION

= PROJECT SITE

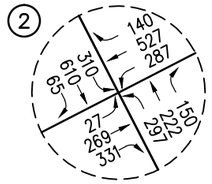
FIGURE 6-1

EXISTING WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

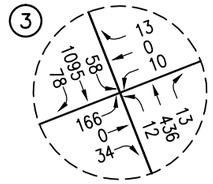
PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



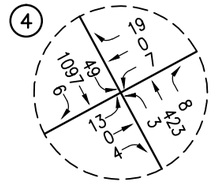
GRAND OAKS AT
CAJALCO RD



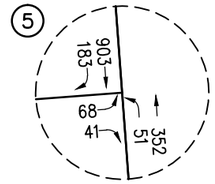
TEMESCAL CANYON RD AT
CAJALCO RD



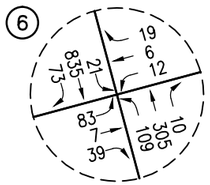
TEMESCAL CANYON RD AT
BLUE SPRINGS DR



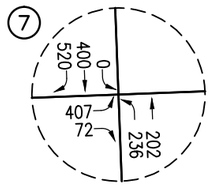
TEMESCAL CANYON RD AT
PRONIO CIR



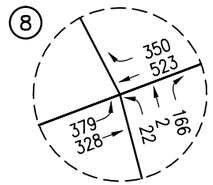
TEMESCAL CANYON RD AT
LAKESHORE DR



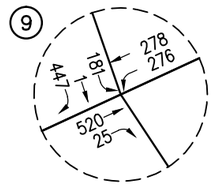
TEMESCAL CANYON RD AT
CABOT DR



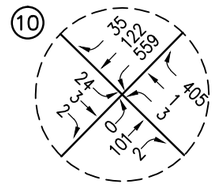
TEMESCAL CANYON RD AT
DOS LAGOS DR



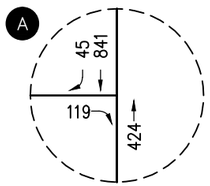
I-15 NB RAMPS AT
WEIRICK RD/DOS LAGOS DR



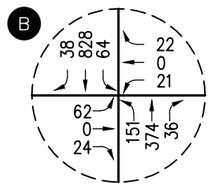
I-15 SB RAMPS AT
WEIRICK RD



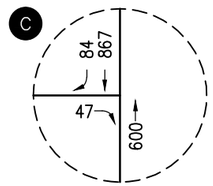
WEIRICK RD/RETREAT PKWY AT
WEIRICK RD/KNABE RD



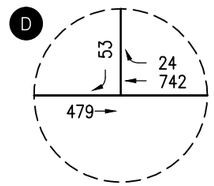
TEMESCAL CANYON RD AT
PROJECT DRIVEWAY 1



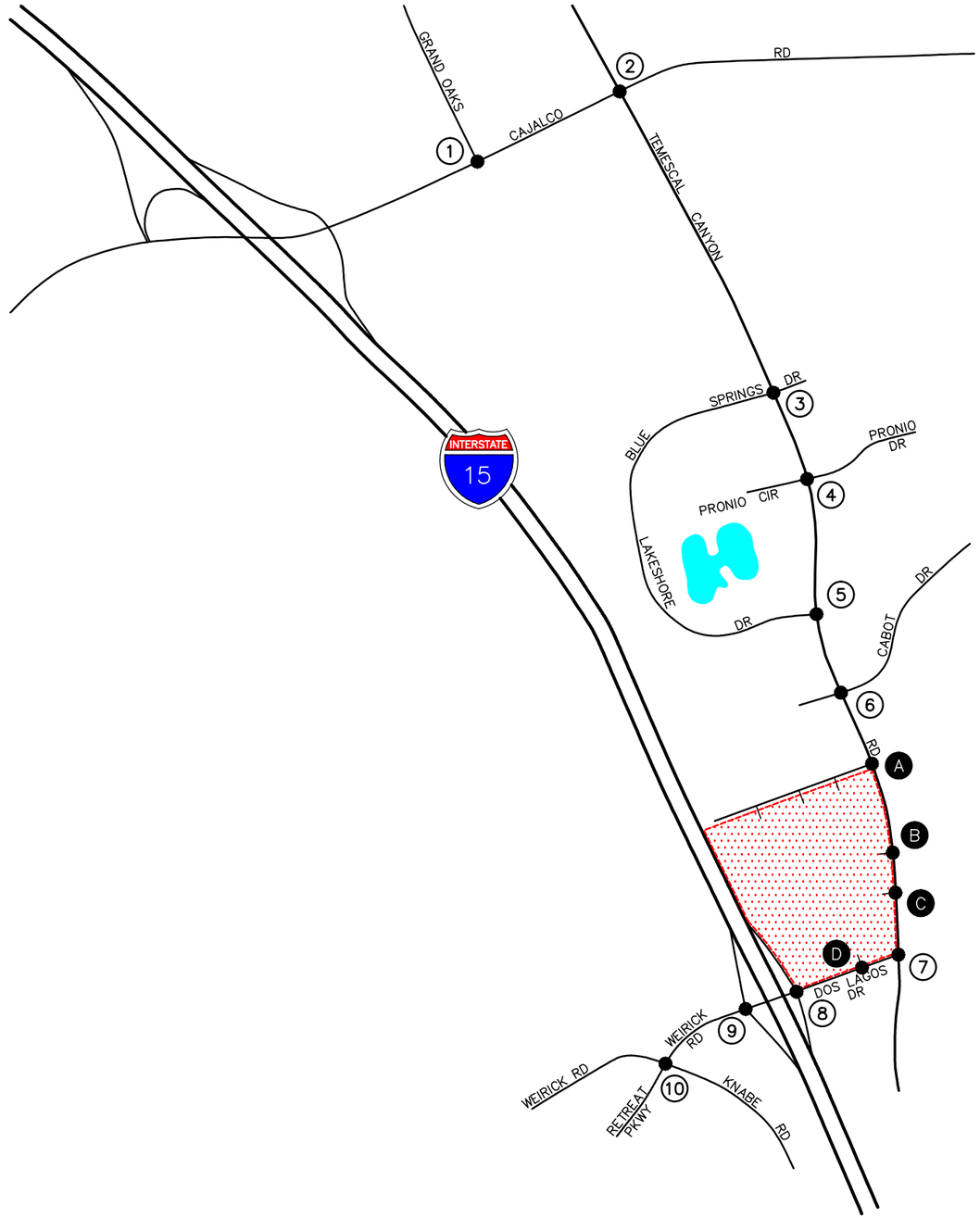
TEMESCAL CANYON RD AT
PROJECT DRIVEWAY 2



PROJECT DRIVEWAY 3 AT
DOS LAGOS DR



PROJECT DRIVEWAY 3 AT
DOS LAGOS DR



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LINSCOTT LAW & GREENSPAN engineers

N

NO SCALE

KEY

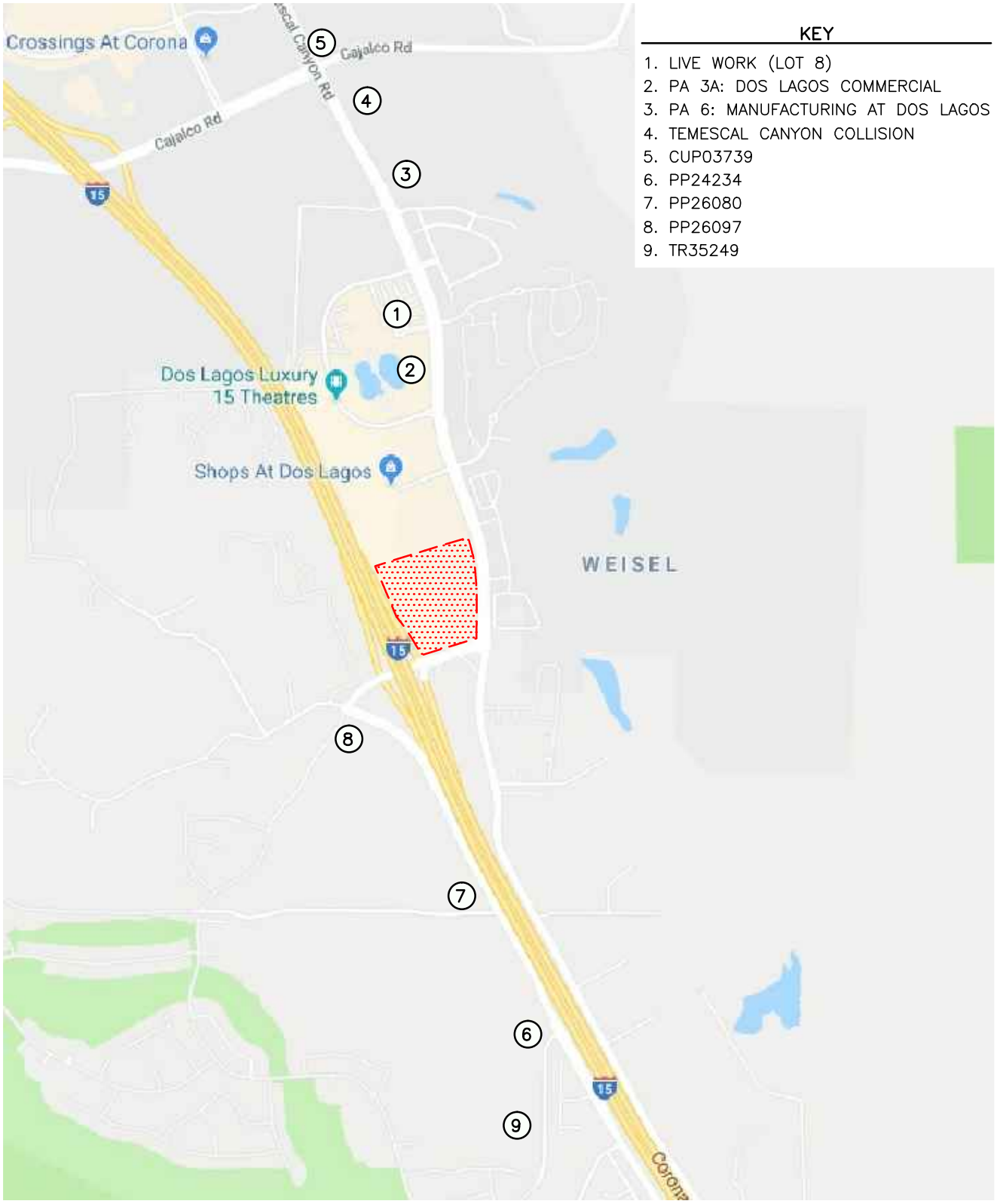
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-2

EXISTING WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



KEY

1. LIVE WORK (LOT 8)
2. PA 3A: DOS LAGOS COMMERCIAL
3. PA 6: MANUFACTURING AT DOS LAGOS
4. TEMESCAL CANYON COLLISION
5. CUP03739
6. PP24234
7. PP26080
8. PP26097
9. TR35249

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE MAPS

KEY

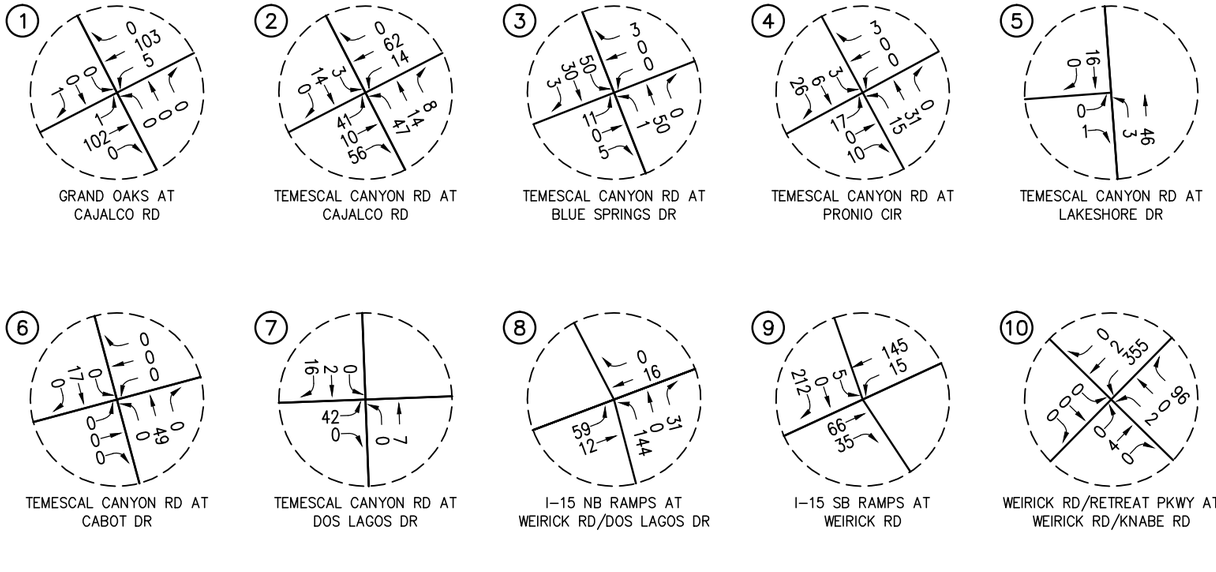
(#) = CUMULATIVE PROJECT LOCATION

= PROJECT SITE

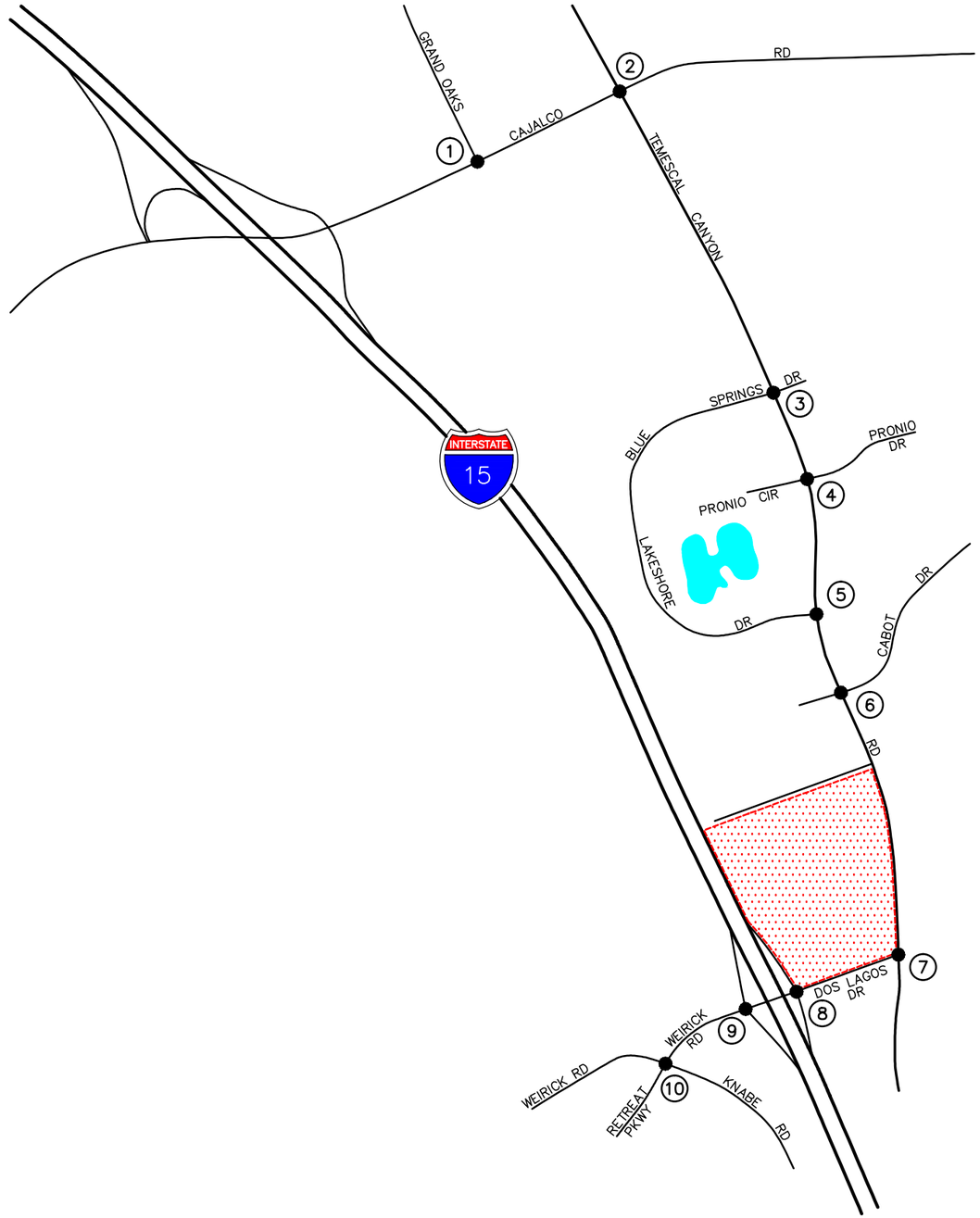
FIGURE 6-3

LOCATION OF CUMULATIVE PROJECTS

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



1. GRAND OAKS AT CAJALCO RD
2. TEMESCAL CANYON RD AT CAJALCO RD
3. TEMESCAL CANYON RD AT BLUE SPRINGS DR
4. TEMESCAL CANYON RD AT PRONIO CIR
5. TEMESCAL CANYON RD AT LAKESHORE DR
6. TEMESCAL CANYON RD AT CABOT DR
7. TEMESCAL CANYON RD AT DOS LAGOS DR
8. I-15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR
9. I-15 SB RAMPS AT WEIRICK RD
10. WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD



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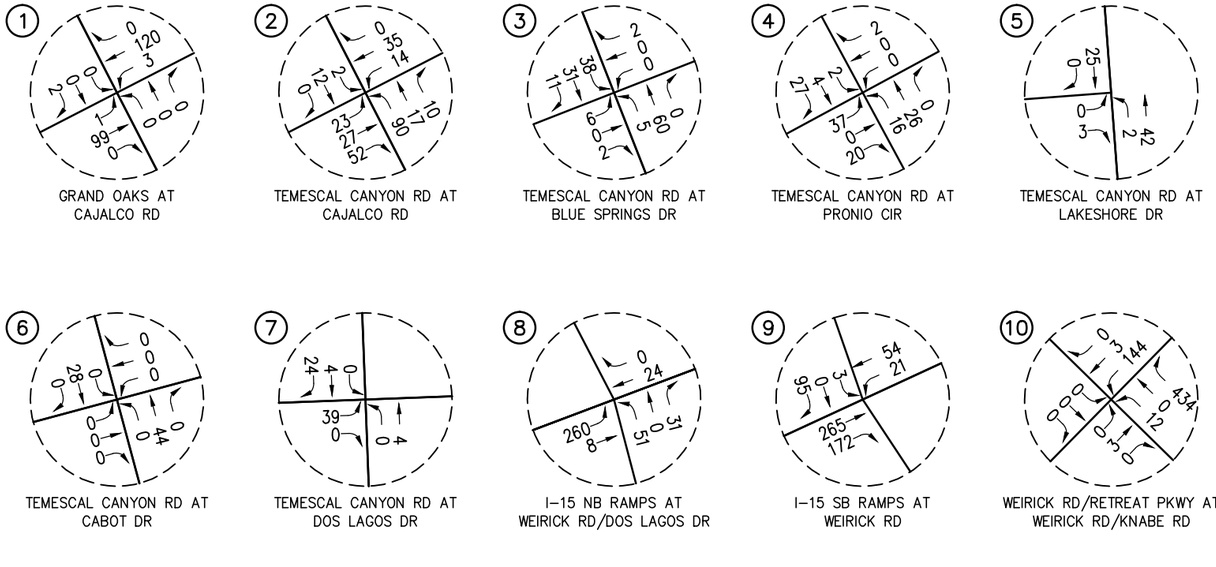
N NO SCALE

KEY
(#) = STUDY INTERSECTION
= PROJECT SITE

FIGURE 6-4

CUMULATIVE PROJECTS AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



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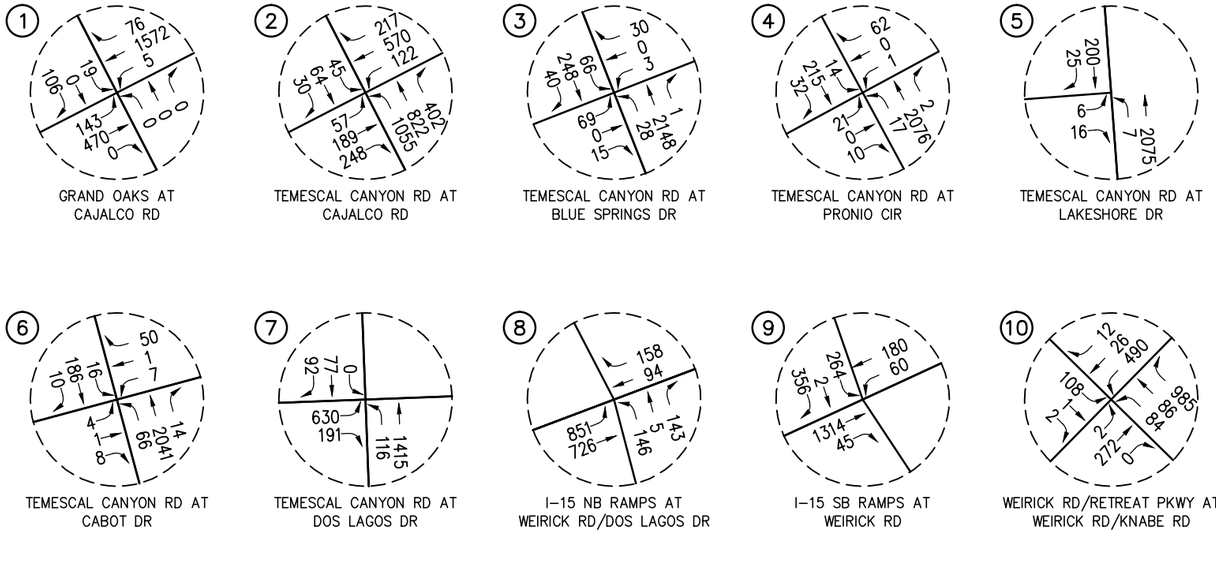
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-5

CUMULATIVE PROJECTS PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



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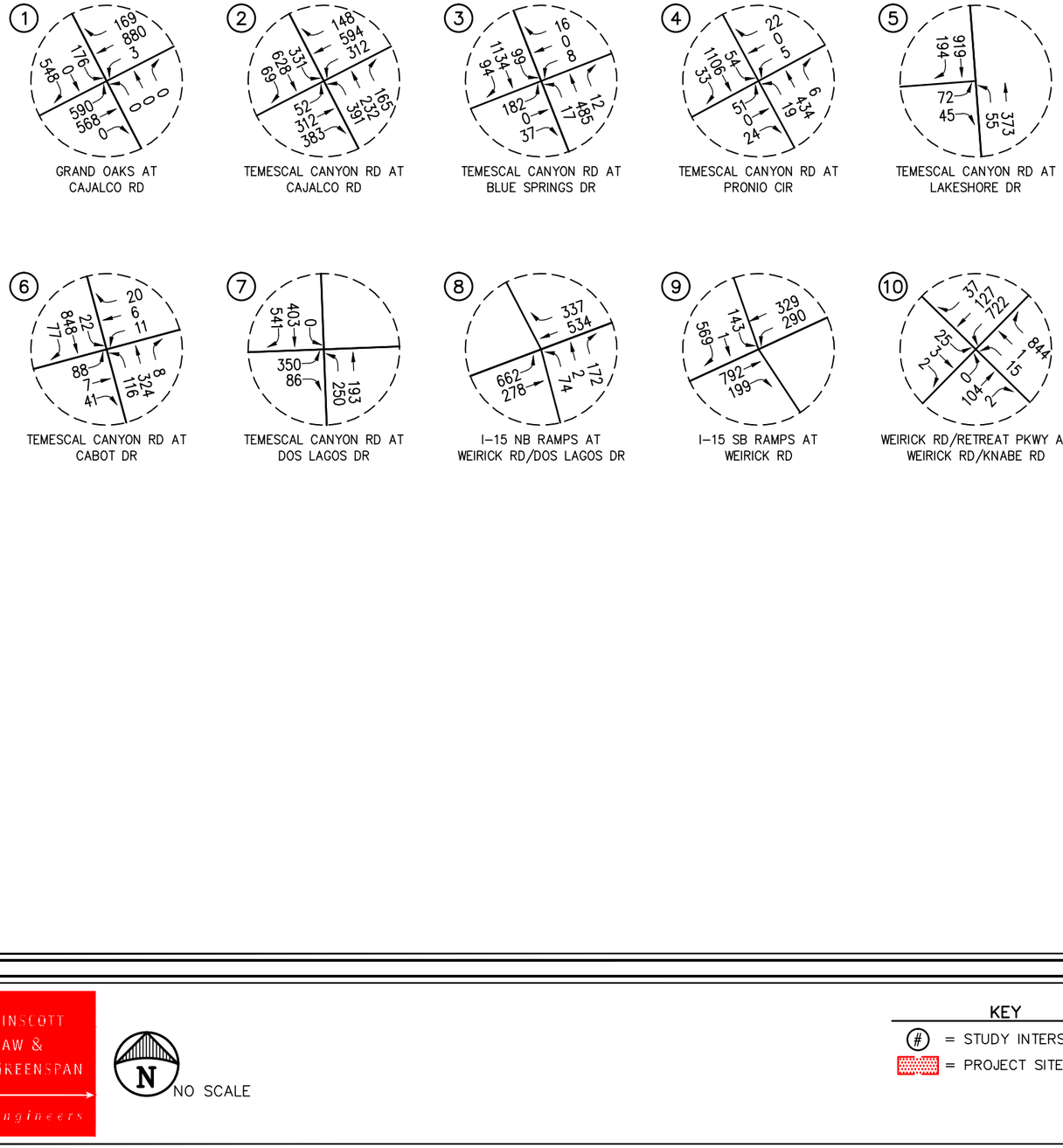
(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-6

YEAR 2020 WITHOUT PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



1. GRAND OAKS AT CAJALCO RD
2. TEMESCAL CANYON RD AT CAJALCO RD
3. TEMESCAL CANYON RD AT BLUE SPRINGS DR
4. TEMESCAL CANYON RD AT PRONIO CIR
5. TEMESCAL CANYON RD AT LAKESHORE DR
6. TEMESCAL CANYON RD AT CABOT DR
7. TEMESCAL CANYON RD AT DOS LAGOS DR
8. I-15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR
9. I-15 SB RAMPS AT WEIRICK RD
10. WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD

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N NO SCALE

KEY

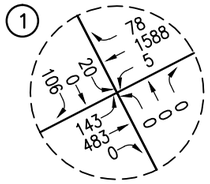
(#) = STUDY INTERSECTION

= PROJECT SITE

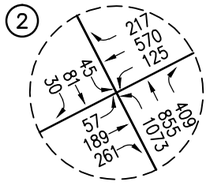
FIGURE 6-7

YEAR 2020 WITHOUT PROJECT PM PEAK HOUR TRAFFIC VOLUMES

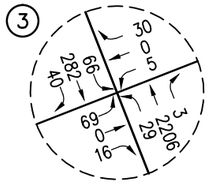
PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



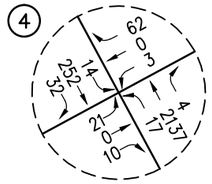
GRAND OAKS AT
CAJALCO RD



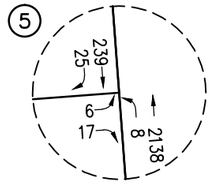
TEMESCAL CANYON RD AT
CAJALCO RD



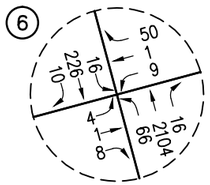
TEMESCAL CANYON RD AT
BLUE SPRINGS DR



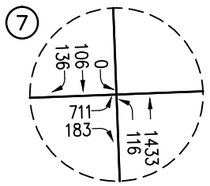
TEMESCAL CANYON RD AT
PRONIO CIR



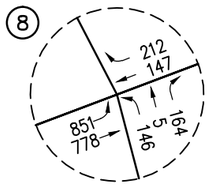
TEMESCAL CANYON RD AT
LAKESHORE DR



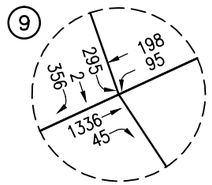
TEMESCAL CANYON RD AT
CABOT DR



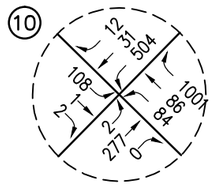
TEMESCAL CANYON RD AT
DOS LAGOS DR



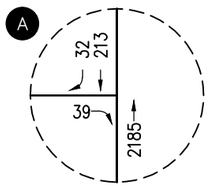
I-15 NB RAMPS AT
WEIRICK RD/DOS LAGOS DR



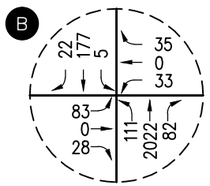
I-15 SB RAMPS AT
WEIRICK RD



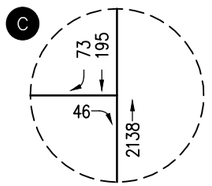
WEIRICK RD/RETREAT PKWY AT
WEIRICK RD/KNABE RD



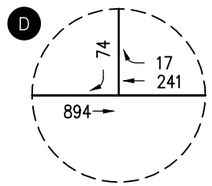
TEMESCAL CANYON RD AT
PROJECT DRIVEWAY 1



TEMESCAL CANYON RD AT
PROJECT DRIVEWAY 2



PROJECT DRIVEWAY 3 AT
DOS LAGOS DR



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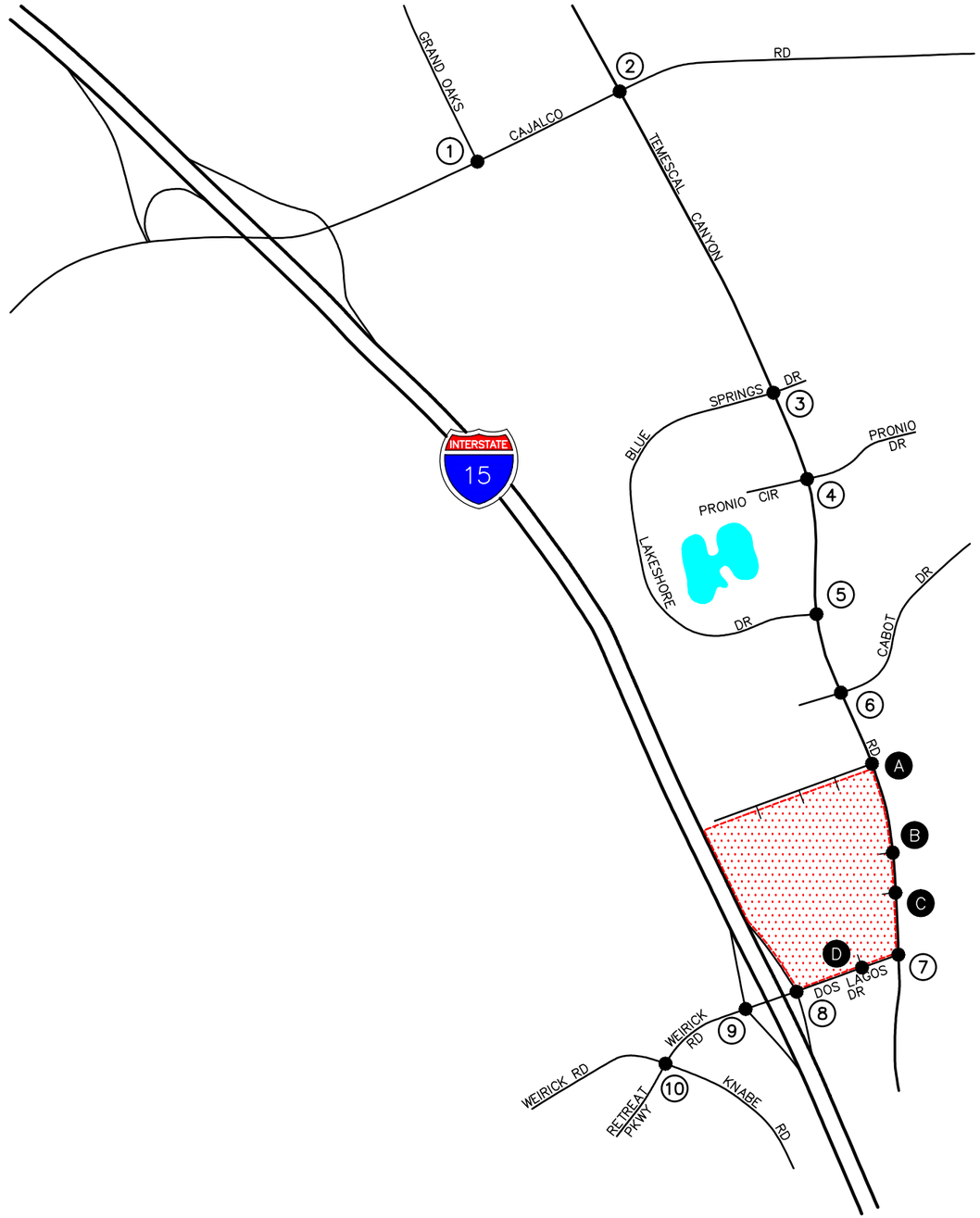
DOS LAGOS DR



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N NO SCALE

KEY

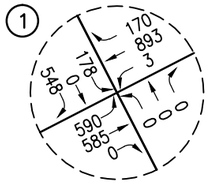
(#) = STUDY INTERSECTION

= PROJECT SITE

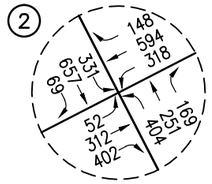
FIGURE 6-8

YEAR 2020 WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

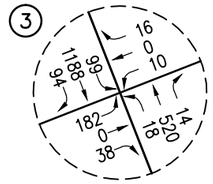
PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA



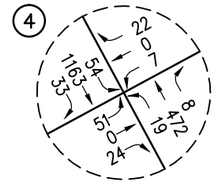
GRAND OAKS AT
CAJALCO RD



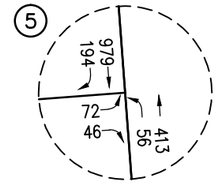
TEMESCAL CANYON RD AT
CAJALCO RD



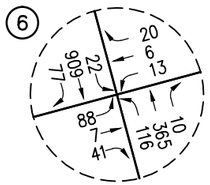
TEMESCAL CANYON RD AT
BLUE SPRINGS DR



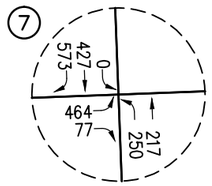
TEMESCAL CANYON RD AT
PRONIO CIR



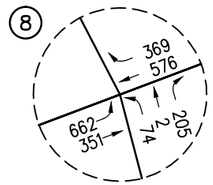
TEMESCAL CANYON RD AT
LAKESHORE DR



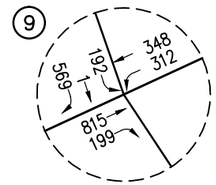
TEMESCAL CANYON RD AT
CABOT DR



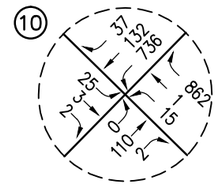
TEMESCAL CANYON RD AT
DOS LAGOS DR



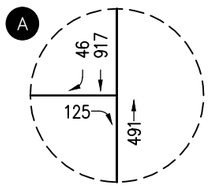
I-15 NB RAMPS AT
WEIRICK RD/DOS LAGOS DR



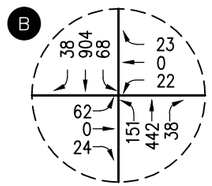
I-15 SB RAMPS AT
WEIRICK RD



WEIRICK RD/RETREAT PKWY AT
WEIRICK RD/KNABE RD



TEMESCAL CANYON RD AT
PROJECT DRIVEWAY 1



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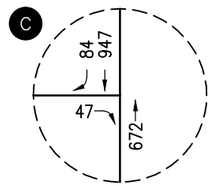
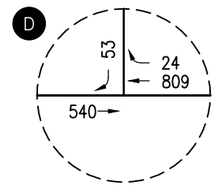
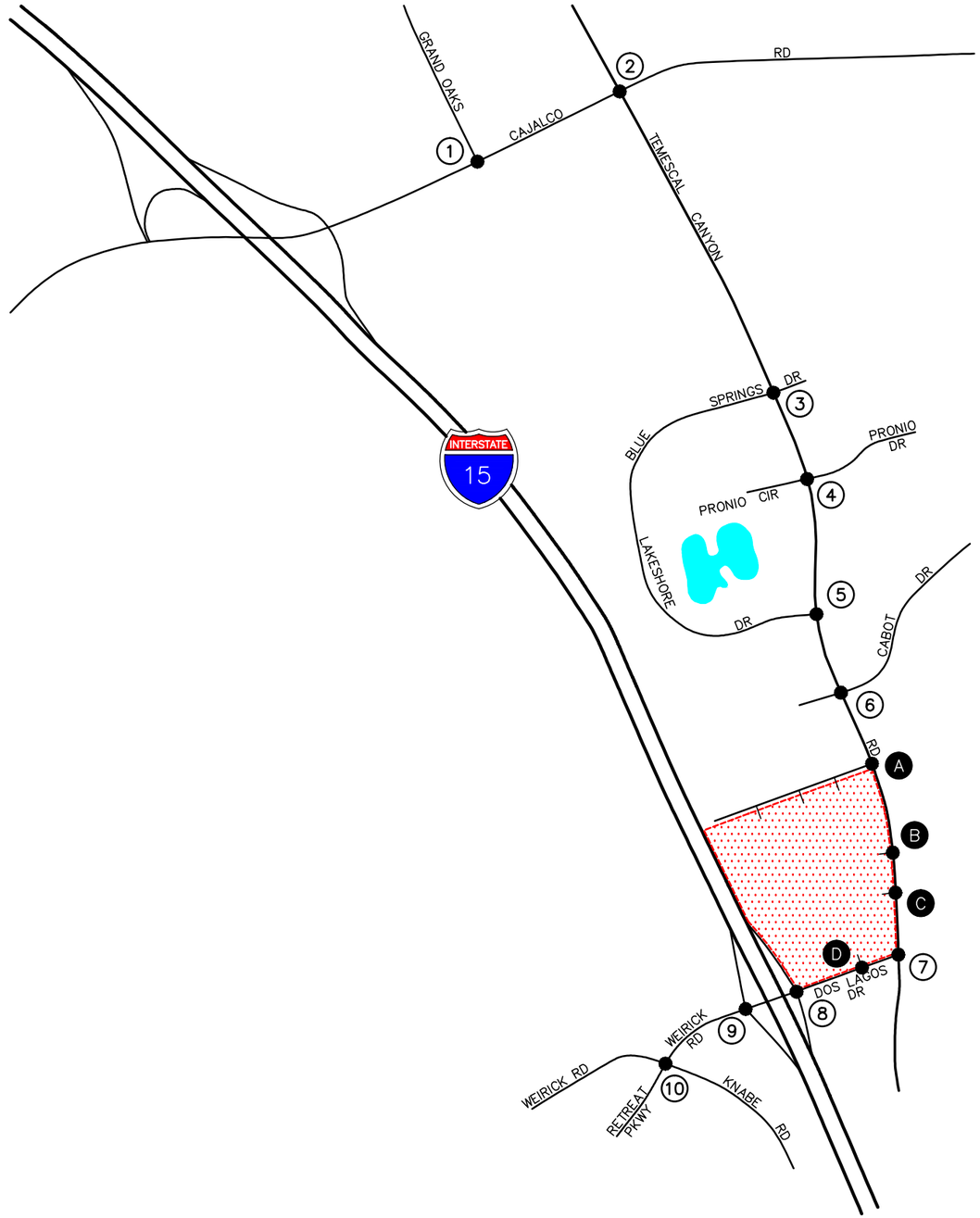
PROJECT DRIVEWAY 2



PROJECT DRIVEWAY 3 AT
DOS LAGOS DR



PROJECT DRIVEWAY 3 AT
DOS LAGOS DR



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KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 6-9

YEAR 2020 WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

TABLE 6-1
DESCRIPTION OF CUMULATIVE PROJECTS

No.	Cumulative Project	Location/Address	Description
1.	Live Work (Lot 8)	Dos Lagos	75 DU Apartment
2.	PA 3A: Dos Lagos Commercial[7]	South of Pronio Circle, West of Temescal Canyon Road	17,164 SF Office, 4,735 SF Commercial
3.	PA 6: Manufacturing at Dos Lagos[8]	East of Temescal Canyon Road, Between Cajalco Road and Breezy Meadow Lane	67,737 SF Manufacturing
4.	Temescal Canyon Collision	East of Temescal Canyon Road, South of Cajalco Road	25,038 SF High End Auto Collision Repair Facility
5.	CUP03739	Northeast corner of Temescal Canyon Road at Cajalco Road	10 Fueling Positions Gas Station With Convenience Market and Car Wash
6.	PP24234	Northwest of Knabe Road at Forest Boundary Road	77,231 SF Industrial
7.	PP26080	Northwest corner of Knabe Road at Bedford Motor Way	140,000 SF Industrial
8.	PP26097	South corner of Retreat Parkway at Knabe Road	94,000 SF Medical Outpatient Clinic
9.	TR35249	22395 Forest Boundary Road	51 DU Single Family Detached

Notes:

- DU = Dwelling Units
- SF = Square-Feet

[7] Source: *PA 3A Dos Lagos Commercial Office Focused Site Traffic Impact Analysis Report,* prepared by LLG Engineers, dated September 16, 2014.

[8] Source: *PA6 – Manufacturing Focused Site Traffic Impact Analysis Report,* prepared by LLG Engineers, dated June 13, 2016.

TABLE 6-2
CUMULATIVE PROJECTS TRIP GENERATION FORECAST[9]

Cumulative Project Description		Daily 2-Way	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
1.	Live Work (Lot 8)	499	8	30	38	31	16	47
2.	PA 3A: Dos Lagos Commercial[10]	890	37	12	49	28	49	77
3.	PA 6: Manufacturing at Dos Lagos[11]	283	40	16	56	20	32	52
4.	Temescal Canyon Collision	779	37	19	56	37	41	78
5.	CUP03739	1,375	54	52	106	31	30	61
6.	PP24234	538	62	9	71	9	66	75
7.	PP26080	976	114	15	129	16	120	136
8.	PP26097	3,396	178	47	225	94	242	336
9.	TR35249	486	10	28	38	32	19	51
Cumulative Projects Total Trip Generation Potential		**9,222**	**540**	**228**	**768**	**298**	**615**	**913**

9 Source*: Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)]. Average rates used.

10 Source: *PA 3A Dos Lagos Commercial Office Focused Site Traffic Impact Analysis Report*, prepared by LLG Engineers, dated September 16, 2014.

11 Source: *PA6 – Manufacturing Focused Site Traffic Impact Analysis Report*, prepared by LLG Engineers, dated June 13, 2016.

7.0 EXISTING CONDITIONS TRAFFIC IMPACT ANALYSIS

The existing conditions analysis establishes the basis for the future forecasts for the Project. This analysis is based on existing intersection counts collected in October 2017. The existing conditions analysis reflects these counts as well as existing lane configurations for all analyzed intersections.

7.1 Existing Conditions Intersection Capacity Analysis

Table 7-1 summarizes the peak hour Level of Service results at the key study intersections for existing traffic conditions, with and without the Project. The first column (1) of Delay/LOS values in *Table 7-1* presents a summary of Existing AM and PM peak hour traffic conditions. The second column (2) in *Table 7-1* presents forecast Existing With Project traffic conditions. The third column (3) of *Table 7-1* shows whether the traffic associated with the Project will have a significant impact based on the LOS standards and the significance impact criteria defined in this report. The fourth column (4) of *Table 7-1* presents the Level of Service with the implementation of traffic mitigation improvements, if necessary.

7.1.1 *Existing Traffic Conditions*

Review of column (1) of *Table 7-1* indicates that for the Existing traffic conditions, all ten (10) existing key study intersections currently operate at acceptable levels of service (LOS D or better) during the AM and PM peak hours when compared to the LOS standards defined in this report.

7.1.2 *Existing With Project Traffic Conditions*

Review of column (2) of *Table 7-1* indicates that for the Existing With Project traffic conditions, all ten (10) key study intersections are forecast to operate at acceptable levels of service (LOS D or better) during the AM and PM peak hours when compared to the LOS standards defined in this report.

Review of column (3) of *Table 7-1* indicates that none of the ten (10) key study intersections will be significantly impacted based on the LOS criteria defined in this report for the Existing With Project traffic conditions.

Appendix D contains the Delay/LOS calculation worksheets for the Existing Traffic Conditions.

TABLE 7-1

EXISTING CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[12]

Key Intersection	Control Type	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact	(4) Existing With Project With Mitigation	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1. Grand Oaks at Cajalco Road	6∅ Traffic Signal	D	AM	10.9	B	10.9	B	No	--	--
			PM	28.1	C	28.0	C	No	--	--
2. Temescal Canyon Road at Cajalco Road	8∅ Traffic Signal	D	AM	43.7	D	45.6	D	No	--	--
			PM	50.1	D	51.3	D	No	--	--
3. Temescal Canyon Road at Blue Springs Drive	6∅ Traffic Signal	D	AM	13.1	B	13.8	B	No	--	--
			PM	12.4	B	12.5	B	No	--	--
4. Temescal Canyon Road at Pronio Circle	5∅ Traffic Signal	D	AM	7.3	A	7.6	A	No	--	--
			PM	5.1	A	5.1	A	No	--	--
5. Temescal Canyon Road at Lakeshore Drive	3∅ Traffic Signal	D	AM	3.2	A	3.4	A	No	--	--
			PM	7.7	A	7.7	A	No	--	--
6. Temescal Canyon Road at Cabot Drive	6∅ Traffic Signal	D	AM	12.7	B	13.1	B	No	--	--
			PM	14.6	B	14.4	B	No	--	--
7. Temescal Canyon Road at Dos Lagos Drive	3∅ Traffic Signal	D	AM	17.7	B	18.8	B	No	--	--
			PM	26.9	C	27.9	C	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

[12] *Appendix D* contains the Delay/LOS calculation worksheets for all study intersections.

TABLE 7-1 (CONTINUED)
EXISTING CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[13]

Key Intersection	Control Type	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact	(4) Existing With Project With Mitigation	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
8. I-15 Northbound Ramps at Weirick Road/Dos Lagos Drive	3∅ Traffic Signal	D	AM	19.6	B	19.2	B	No	--	--
			PM	17.7	B	17.5	B	No	--	--
9. I-15 Southbound Ramps at Weirick Road	3∅ Traffic Signal	D	AM	17.3	B	19.4	B	No	--	--
			PM	25.0	C	25.4	C	No	--	--
10. Weirick Road/Retreat Parkway at Weirick Road/Knabe Road	8∅ Traffic Signal	D	AM	33.4	C	34.7	C	No	--	--
			PM	36.1	D	35.7	D	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

[13] *Appendix D* contains the Delay/LOS calculation worksheets for all study intersections.

8.0 YEAR 2020 CONDITIONS TRAFFIC IMPACT ANALYSIS

The relative impacts of the added Project traffic volumes generated by proposed Project during the AM and PM peak hour conditions was evaluated based on analysis of future Year 2020 operating conditions at the ten (10) key study intersections, with and without the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future Delay 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 traffic impact criteria mentioned in this report.

8.1 Year 2020 Conditions Intersection Capacity Analysis

Table 8-1 summarizes the AM and PM peak hour Level of Service results at the key study intersections for the Year 2020 traffic conditions. The first column (1) of Delay/LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 7-1*). The second column (2) presents forecast Year 2020 Without Project traffic conditions and the third column (3) identifies forecast Year 2020 With Project traffic conditions. The fourth column (4) indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria mentioned in this report. The fifth column (5) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

8.1.1 *Year 2020 Without Project Traffic Conditions*

Review of column (2) of *Table 8-1* indicates that for the Year 2020 Without Project traffic conditions, one (1) of the ten (10) key study intersections is forecast to operate at an unacceptable level of service during the AM and PM peak hours when compared to the LOS standards defined in this report. This intersection, reported below, is forecast to continue to operate at an adverse level of service during the peak hours indicated:

		AM Peak Hour		PM Peak Hour	
Key Intersection		**Delay (s/v)**	**LOS**	**Delay (s/v)**	**LOS**
2.	Temescal Canyon Road at Cajalco Road	63.4	E	62.8	E

The remaining nine (9) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours.

8.1.2 *Year 2020 With Project Traffic Conditions*

Review of column (3) of *Table 8-1* indicates that for the Year 2020 With Project traffic conditions, one (1) of the ten (10) key study intersections is forecast to operate at an unacceptable level of service during the AM and PM peak hours when compared to the LOS standards defined in this report. This intersection, reported below, is forecast to continue to operate at an adverse level of service during the peak hours indicated:

Key Intersection	AM Peak Hour Delay (s/v)	AM Peak Hour LOS	PM Peak Hour Delay (s/v)	PM Peak Hour LOS
2. Temescal Canyon Road at Cajalco Road	66.0	E	66.2	E

The remaining nine (9) key study intersections are forecast to continue to operate at acceptable levels of service during the AM and PM peak hours.

Review of column (4) of *Table 8-1* indicates that one (1) of the ten (10) key study intersections will be significantly impacted based on the LOS criteria defined in this report for the Year 2020 With Project traffic conditions. However, as shown in column (5) of *Table 8-1*, the implementation of the recommended improvements will offset the Project impacts and return the operating condition of the intersection to an acceptable level of service. The remaining key study intersections are projected to operate at acceptable service.

Appendix E contains the Delay/LOS calculation worksheets for the Year 2020 Traffic Conditions.

TABLE 8-1

YEAR 2020 CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[14]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2020 Without Project Traffic Conditions		(3) Year 2020 With Project Traffic Conditions		(4) Significant Impact	(5) Year 2020 With Project With Mitigation	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1.	Grand Oaks at Cajalco Road	D	AM	10.9	B	11.0	B	11.0	B	No	--	--
			PM	28.1	C	28.1	C	28.1	C	No	--	--
2.	Temescal Canyon Road at Cajalco Road	D	AM	43.7	D	**63.4**	**E**	**66.0**	**E**	**Yes**	39.6	D
			PM	50.1	D	**62.8**	**E**	**66.2**	**E**	**Yes**	54.8	D
3.	Temescal Canyon Road at Blue Springs Drive	D	AM	13.1	B	19.9	B	21.2	C	No	--	--
			PM	12.4	B	14.0	B	14.1	B	No	--	--
4.	Temescal Canyon Road at Pronio Circle	D	AM	7.3	A	9.4	A	9.8	A	No	--	--
			PM	5.1	A	7.9	A	7.9	A	No	--	--
5.	Temescal Canyon Road at Lakeshore Drive	D	AM	3.2	A	3.8	A	4.0	A	No	--	--
			PM	7.7	A	7.7	A	7.8	A	No	--	--
6.	Temescal Canyon Road at Cabot Drive	D	AM	12.7	B	14.5	B	15.1	B	No	--	--
			PM	14.6	B	14.6	B	14.4	B	No	--	--
7.	Temescal Canyon Road at Dos Lagos Drive	D	AM	17.7	B	18.7	B	19.5	B	No	--	--
			PM	26.9	C	28.7	C	29.7	C	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

[14] *Appendix E* contains the Delay/LOS calculation worksheets for all study intersections.

TABLE 8-1 (CONTINUED)

YEAR 2020 CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[15]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2020 Without Project Traffic Conditions		(3) Year 2020 With Project Traffic Conditions		(4) Significant Impact	(5) Year 2020 With Project With Mitigation	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
8.	I-15 Northbound Ramps at Weirick Road/Dos Lagos Drive	D	AM	19.6	B	22.0	C	21.7	C	No	--	--
			PM	17.7	B	22.2	C	21.8	C	No	--	--
9.	I-15 Southbound Ramps at Weirick Road	D	AM	17.3	B	19.5	B	21.2	C	No	--	--
			PM	25.0	C	25.4	C	27.0	C	No	--	--
10.	Weirick Road/Knabe Road at Weirick Road/Retreat Parkway	D	AM	33.4	C	36.0	D	35.8	D	No	--	--
			PM	36.1	D	37.3	D	39.3	D	No	--	--

Notes:

- s/v = seconds per vehicle (delay)
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions
- **Bold Delay/LOS values** indicate adverse service levels based on the LOS standards mentioned in this report

[15] *Appendix E* contains the Delay/LOS calculation worksheets for all study intersections.

9.0 RECOMMENDED IMPROVEMENTS

For those intersections where projected traffic volumes are expected to result in unacceptable operating conditions, this report recommends improvement measures that change the intersection geometry to increase capacity. These capacity improvements may involve roadway widening and/or re-striping to reconfigure specific approaches of a key intersection. The identified improvements are expected to:

- mitigate the impact of existing traffic, Project traffic and future non-Project (ambient traffic growth and cumulative projects) traffic and
- improve Levels of Service to an acceptable range and/or to pre-Project conditions.

9.1 Existing With Project Traffic Conditions

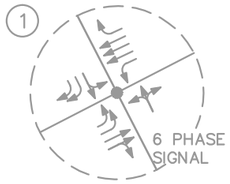
The results of the Existing With Project intersection capacity analysis presented previously in *Table 7-1* indicate that the proposed Project will not impact any of the key study intersections. As such, no improvements are recommended for the Existing With Project traffic conditions.

9.2 Year 2020 With Project Traffic Conditions

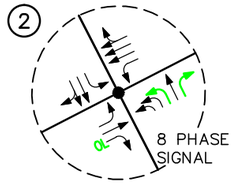
The results of the Year 2020 With Project intersection capacity analysis presented previously in *Table 8-1* indicate that the proposed Project will impact one (1) of the key study intersections. The following improvements listed below have been identified to mitigate the traffic impacts at the intersection impacted by Project traffic:

- Temescal Canyon Road at Cajalco Road: Restripe the northbound approach to provide a third exclusive northbound left-turn lane and restripe the shared northbound through/right-turn lane to an exclusive northbound right-turn lane. Install eastbound right-turn overlap traffic signal phasing that will yield to northbound U-turn movements.

Figure 9-1 presents the recommended improvements at the key study intersections for the Year 2020 With Project traffic conditions.



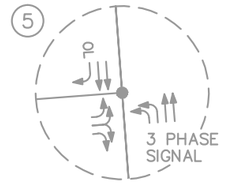
GRAND OAKS AT CAJALCO RD



TEMESCAL CANYON RD AT CAJALCO RD

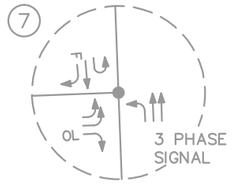
TEMESCAL CANYON RD AT BLUE SPRINGS DR

TEMESCAL CANYON RD AT PRONIO CIR

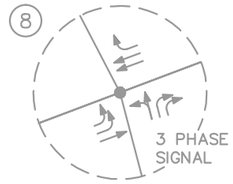


TEMESCAL CANYON RD AT LAKESHORE DR

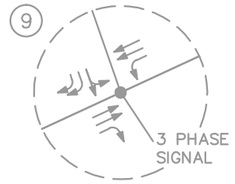
TEMESCAL CANYON RD AT CABOT DR



TEMESCAL CANYON RD AT DOS LAGOS DR

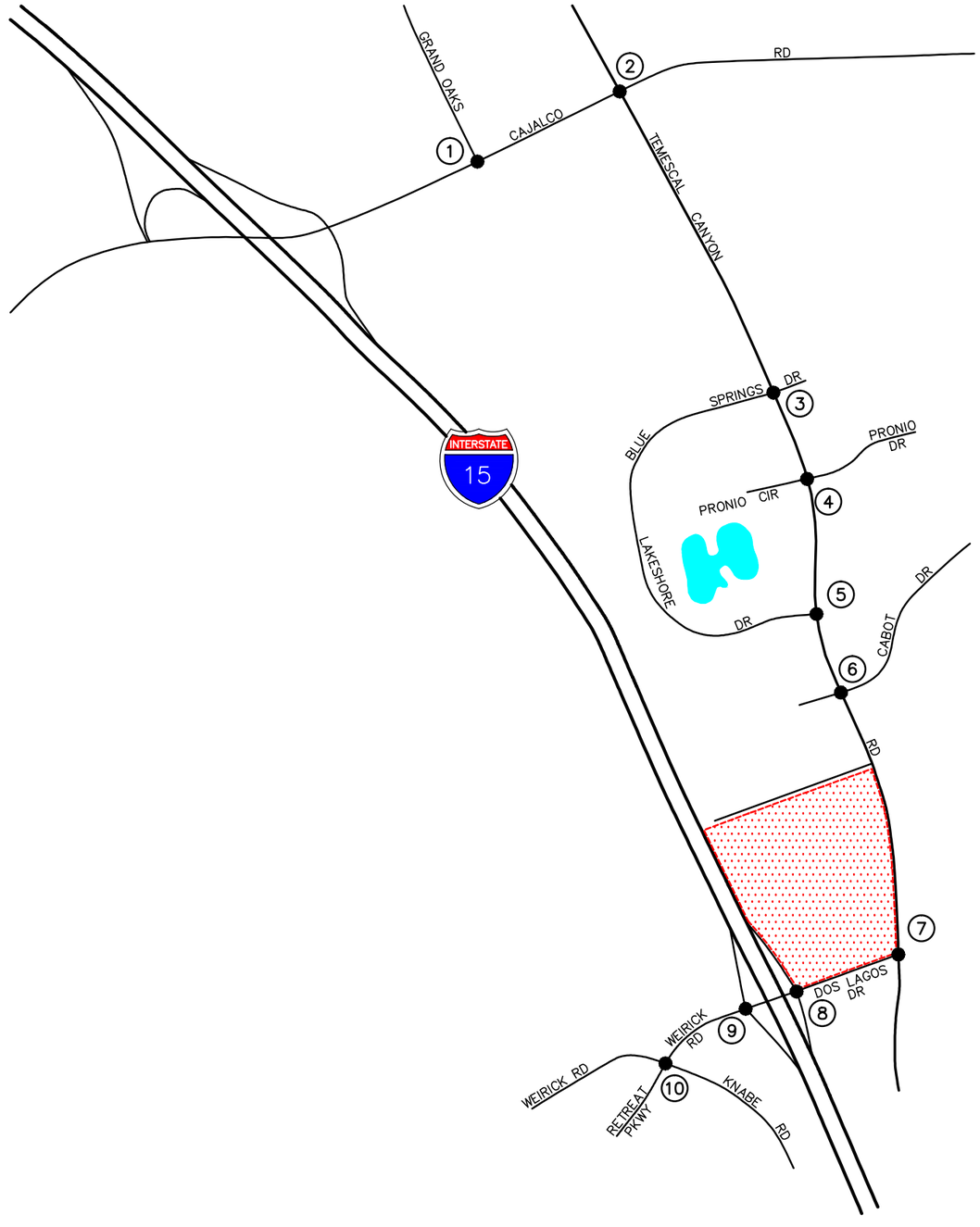


I-15 NB RAMPS AT WEIRICK RD/DOS LAGOS DR



I-15 SB RAMPS AT WEIRICK RD

WEIRICK RD/RETREAT PKWY AT WEIRICK RD/KNABE RD



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= APPROACH LANE ASSIGNMENT

= YEAR 2020 WITH PROJECT RECOMMENDED IMPROVEMENTS

= TRAFFIC SIGNAL

OL = OVERLAP, F = FREE RIGHT-TURN

FIGURE 9-1

YEAR 2020 WITH PROJECT RECOMMENDED IMPROVEMENTS

PLANNING AREA 1 (TERRANO AT DOS LAGOS), CORONA

10.0 PROJECT FAIR SHARE ANALYSIS

The transportation impacts associated with the development of the proposed Project were determined based on the future conditions analysis with and without the proposed Project. The key study locations forecast to operate at adverse levels of service are discussed below. As such, the proposed Project's "fair-share" of the recommended traffic improvements has been calculated for the key study locations that are forecast to operate at adverse levels of service in the Year 2020 traffic conditions.

10.1 Existing With Project Traffic Conditions

None of the ten (10) key study intersections are forecast to have a significant impact under Existing With Project traffic conditions when compared to the LOS criteria defined in this report. Thus, no mitigation measures are necessary.

10.2 Year 2020 With Project Traffic Conditions

Table 10-1 presents the AM and PM peak hour Project fair share percentage at the key study intersections that are forecast to operate at adverse levels of service in the Year 2020 With Project traffic conditions. As presented in *Table 10-1*, the first column (1) presents the increase in intersection delay due to Project traffic only. The second column (2) presents the total intersection delay of the intersection. The third column (3) presents the acceptable LOS delay as defined in *Chapter 19 of the Highway Capacity Manual 6*. The fourth column (4) represents the Project's fair share based on the following formula:

- Project Fair Share (4) = Column (1)/[Column (2) – Column (3)]*100

The fifth column (5) presents the total estimated improvement cost for the recommended improvements. The sixth column (6) presents the Project's fair share contribution, based on the fair share percentage and the total estimated improvement cost.

The Project fair share percentage (worse time period impacted) for the impacted intersection for the Year 2020 With Project traffic conditions is shown below:

- Temescal Canyon Road at Cajalco Road 30.36%

As shown in *Table 10-1*, the Project's fair share responsibility toward the restriping the northbound approach and the installation of an eastbound right-turn overlap is **30.36%**. As the total cost of the improvements is estimated to be $20,000, the Project's fair share contribution is approximately **$6,072.00**.

TABLE 10-1
YEAR 2020 INTERSECTION FAIR SHARE CONTRIBUTION

Key Intersection	Impacted Time Period	(1) Project Only Delay Increase (s/v)	(2) Total Delay of Intersection (s/v)	(3) Maximum Acceptable Delay at LOS D (s/v)	(4) Project Fair Share Responsibility	(5) Total Improvement Cost	(6) Project Fair Share Contribution
2. Temescal Canyon Road at Cajalco Road	AM	2.6	66.0	55.0	23.64%	$20,000.00	$6,072.00
	PM	3.4	66.2	55.0	**30.36%**		

Notes:

- Net Project Percent Increase (4) = Column (1) / [Column (2) – Column (3)]
- **Bold Project Fair Share Responsibility** is based on worse case

11.0 SITE ACCESS AND INTERNAL CIRCULATION ANALYSIS

11.1 Site Access

As previously detailed, Project access will be provided via three (3) driveways along Temescal Canyon Road and one (1) driveway along Dos Lagos Drive. Driveways 1 and 3 (located along Temescal Canyon Road) and Driveway 4 (located along Dos Lagos Road) will be stop-controlled right-in/right-out only driveways, while Driveway 2 (located along Temescal Canyon Road) will be a signalized (six-phase) full movement driveway.

11.1.1 *Year 2020 With Project Traffic Conditions*

Table 11-1 summarizes the levels of service at the Project driveways for Year 2020 With Project traffic conditions. The operations analysis for the Project access is based on the *Highway Capacity Manual 6* (HCM 6) Method of Analysis for unsignalized intersections. As shown in column (1) of *Table 11-1* the Project access is forecast to operate at acceptable levels of service during the AM and PM peak hours under the Year 2020 With Project traffic conditions. ***Appendix F*** contains the Delay/LOS calculation worksheets for the Year 2020 With Project Traffic Conditions.

11.2 Internal Circulation

The on-site circulation was evaluated in terms of vehicle-pedestrian conflicts. Based on our review of the preliminary site plan, the overall layout does not create significant vehicle-pedestrian conflict points such that access for the residential and commercial components are not impacted by internal vehicle queuing/stacking. Project traffic is not anticipated to cause significant internal queuing/ stacking at the Project driveway. The on-site circulation is acceptable based on our review of the proposed site plan. The alignment and spacing of the Project driveway is also deemed adequate. Turning movements into and out of the Project site at the Project driveway are anticipated to operate at an acceptable service levels. As such, motorists entering and exiting the Project site from this driveway will be able to do so comfortably, safely, and without undue congestion.

TABLE 11-1
PROJECT ACCESS PEAK HOUR CAPACITY ANALYSIS SUMMARY[16]

Project	Driveway	Time Period	(1) Year 2020 With Project Traffic Conditions	
			Delay (s/v)	LOS
A.	Temescal Canyon Road at Project Driveway 1	AM	9.2	A
		PM	14.5	B
B.	Temescal Canyon Road at Project Driveway 2	AM	17.1	B
		PM	16.9	B
C.	Temescal Canyon Road at Project Driveway 3	AM	9.3	A
		PM	13.3	B
D.	Project Driveway 4 at Dos Lagos Drive	AM	9.4	A
		PM	11.9	B

Notes:

- s/v = seconds per vehicle (delay).
- LOS = Level of Service, please refer to *Table 3-2* for the LOS definitions.
- **Bold Delay/LOS values** indicate unacceptable service levels.

[16] *Appendix F* contains the Delay/LOS calculation worksheets for the Project driveway.

12.0 INTERSECTION QUEUE LENGTH ANALYSIS

To address City staff concerns regarding left-turn and right-turn stacking/storage lengths at several locations, a queuing evaluation was prepared for the following movements:

- Temescal Canyon Road at Project Driveway 1
  - Eastbound Right-turn
- Temescal Canyon Road at Project Driveway 2
  - Northbound Left-turn
  - Southbound Right-turn
  - Eastbound Left-turn
- Project Driveway 4 at Dos Lagos Drive
  - Southbound Right-turn

Table 12-1 identifies the minimum required stacking/storage lengths for affected left-turn and right-turn lanes for the Project driveways for the Existing With Project and Year 2020 With Project traffic conditions. Column (1) shows the existing or proposed storage length, in feet. Column (2) shows the left-turn or right-turn queue (in vehicles per lane), the corresponding required storage necessary to accommodate the vehicles (in feet, assuming 25 feet per vehicle), and indicates whether or not the existing storage is sufficient based on the calculated 95th percentile queue for Existing With Project traffic conditions. Column (3) shows the left-turn or right-turn queue (in vehicles per lane), the corresponding required storage necessary to accommodate the vehicles (in feet, assuming 25 feet per vehicle), and indicates whether or not the existing storage is sufficient based on the calculated 95th percentile queue, for Year 2020 With Project traffic conditions.

12.1 Existing With Project Intersection Queuing Evaluation

As presented in Column (2) of *Table 12-1* under Existing With Project traffic conditions, all existing or proposed left-turn or right-turn storage is sufficient at the Project driveways along Temescal Canyon Road and Dos Lagos Drive.

12.2 Year 2020 With Project Intersection Queuing Evaluation

As presented in Column (3) of *Table 12-1* under Year 2020 With Project traffic conditions, all existing or proposed left-turn or right-turn storage is sufficient at the Project driveways along Temescal Canyon Road and Dos Lagos Drive.

TABLE 12-1
PROJECT DRIVEWAY QUEUE LENGTH ANALYSIS[17]

Key Intersection		Approach	Time Period	(1) Existing/ Proposed Storage Length (ft)	(2) Existing With Project Traffic Conditions			(3) Year 2020 With Project Traffic Conditions		
					95th Percentile Queue (vpl)	Minimum Required Storage Length (ft)	Existing Storage Sufficient? (yes/no)	95th Percentile Queue (vpl)	Minimum Required Storage Length (ft)	Existing Storage Sufficient? (yes/no)
A.	Temescal Canyon Road at Project Driveway 1	EBR	AM	85	1	25	Yes	1	25	Yes
			PM	85	1	25	Yes	1	25	Yes
B.	Temescal Canyon Road at Project Driveway 2	NBL	AM	220	6	150	Yes	7	175	Yes
			PM	220	7	175	Yes	7	175	Yes
		SBR	AM	150	1	25	Yes	1	25	Yes
			PM	150	1	25	Yes	1	25	Yes
		EBL	AM	110	2	50	Yes	3	75	Yes
			PM	110	2	50	Yes	2	50	Yes
D.	Project Driveway 4 at Dos Lagos Drive	SBR	AM	60	1	25	Yes	1	25	Yes
			PM	60	1	25	Yes	1	25	Yes

[17] *Appendices D* and *E* contain the Delay/LOS calculation worksheets which show the 95th percentile queuing.