LINSCOTT LAW & GREENSPAN engineers

FOCUSED SITE TRAFFIC IMPACT ANALYSIS REPORT

PLANNING AREA 3A

DOS LAGOS COMMERCIAL OFFICE

Corona, California

April 30, 2020

(Update of Approved September 16, 2014 Report)

Prepared for:

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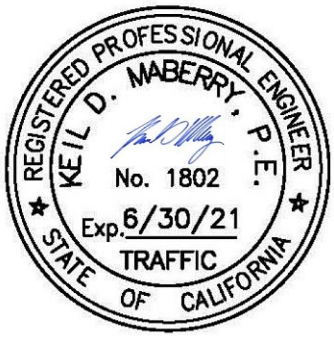

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- The proposed consists of the construction of a 17,164 SF office building and a 5,036 SF commercial/retail building. Project access is proposed via an unsignalized driveway located along Pronio Drive. The proposed land use on the site is generally consistent with the Dos Lagos Specific Plan. The Project is anticipated to be completed and fully occupied by Year 2021.

- The proposed Project is expected to generate 758 net daily trips (one half arriving and one half departing), with 97 net trips (64 inbound, 33 outbound) produced in the AM peak hour and 60 net trips (22 inbound, 38 outbound) produced in the PM peak hour.

- Five (5) existing key study intersections 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. Temescal Canyon Road at Cajalco Road
  2. Temescal Canyon Road at Blue Springs Drive
  3. Temescal Canyon Road at Pronio Drive
  4. Temescal Canyon Road at Lakeshore Drive
  5. Temescal Canyon Road at Dos Lagos Drive

Existing Traffic Conditions

- For the Existing traffic conditions, all five (5) 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, none of the five (5) key study intersections will be significantly impacted based on the LOS criteria defined in this report for the Existing With Project traffic conditions.

Year 2021 With Project Traffic Conditions

- For the Year 2021 With Project traffic conditions, one (1) of the five (5) 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 2021 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 levels.

- 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: Install eastbound right-turn overlap traffic signal phasing and restrict the northbound U-turn movement.

- The internal circulation was evaluated in terms of vehicle-pedestrian conflicts and driveway spacing. Based on our review of the proposed site plan, the overall layout does not create any significant vehicle-pedestrian conflict points as the parking lots are self-contained. As such, motorists entering and exiting the Project site from the two (2) internal driveways will be able to do so comfortably, safely, and without undue congestion. In addition, vehicular access will be provided via a drive aisle connection to the adjacent parcel south of the site.

- Under Existing With Project and Year 2021 With Project traffic conditions, the existing northbound left-turn storage of 135 feet is sufficient at the intersection of Temescal Canyon Road at Pronio Drive.

- The Project's fair share responsibility toward the restriping the northbound approach, the installation of an eastbound right-turn overlap is **6.25%**. As the total cost of the improvements is estimated to be $15,000.00, the Project's fair share contribution is approximately **$937.50**.

FOCUSED SITE TRAFFIC IMPACT ANALYSIS REPORT

PLANNING AREA 3A

DOS LAGOS COMMERCIAL OFFICE

Corona, California

April 30, 2020

(Update of Approved September 16, 2014 Report)

1.0 INTRODUCTION

This updated focused traffic impact analysis evaluates the potential traffic impacts of the proposed Planning Area 3A Dos Lagos Commercial Office project (hereinafter referred to as Project), on the area traffic circulation. The updated proposed Project consists of the construction of a 17,164 SF office building and a 5,036 SF commercial/retail building. Project access is proposed via an unsignalized driveway located along the south side of Pronio Drive. The proposed land use on the site is generally consistent with the Dos Lagos Specific Plan. The Project is anticipated to be completed and fully occupied by Year 2021.

This report documents the findings and recommendations of an updated traffic impact analysis (TIA) to the approved September 16, 2014 TIA 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. Consistent with the approved TIA, the traffic impact analysis evaluates the operating conditions at five (5) existing key study intersections 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 researched at the five (5) 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 2021 traffic conditions without and with the proposed Project. Peak hour traffic forecasts for the Year 2021 traffic conditions have been projected by increasing existing historical traffic volumes by an annual growth rate of two percent (2%) per year and adding the traffic from eleven (11) cumulative projects.

1.1 Study Area

The five (5) existing key study intersections 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. Temescal Canyon Road at Cajalco Road
2. Temescal Canyon Road at Blue Springs Drive

3. Temescal Canyon Road at Pronio Drive
4. Temescal Canyon Road at Lakeshore Drive
5. Temescal Canyon Road at Dos Lagos Drive

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:

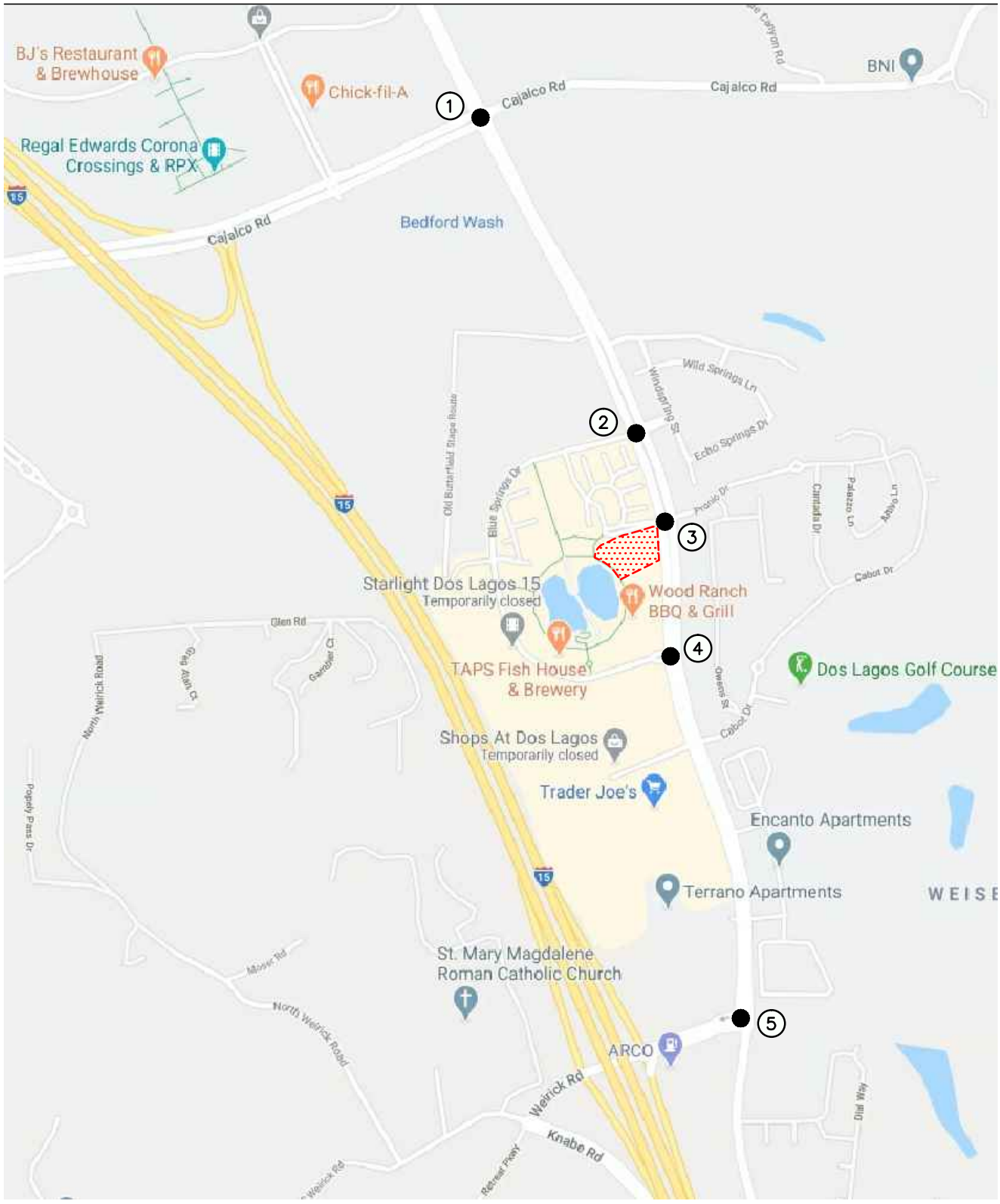
- Existing Traffic Counts,
- Estimated Project traffic generation/distribution/assignment,
- AM and PM peak hour LOS analyses for Existing (i.e. Baseline) Conditions,
- AM and PM peak hour LOS analyses for Existing (i.e. Baseline) Conditions with Project traffic,
- AM and PM peak hour LOS analyses for Near-Term (Year 2021) 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 2021) 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 2021 Without Project Traffic Conditions,
E. Year 2021 With Project Traffic Conditions, and
F. Scenario (E) With Recommended Improvements, if any.



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N NO SCALE

SOURCE: THOMAS BROS.

KEY

(#) = STUDY INTERSECTION

= PROJECT SITE

FIGURE 1-1

VICINITY MAP

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA

2.0 PROJECT DESCRIPTION AND LOCATION

The proposed Project consists of the construction of a 17,164 SF office building and a 5,036 SF commercial/retail building. The proposed land use on the site is generally consistent with the Dos Lagos Specific Plan. The Project is anticipated to be completed and fully occupied by Year 2021.

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 Rexco Development and WHA.

2.1 Site Access

As shown in *Figure 2-2*, primary access to the Project site is proposed via an unsignalized driveway located along the south side Pronio Drive approximately 250 feet west of Temescal Canyon Road. It should be noted that secondary access will be provided to the south via an existing connection to the existing restaurant parking area within the Dos Lagos development south of the Project site.

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N NO SCALE

SOURCE: GOOGLE MAPS

KEY

= PROJECT SITE

FIGURE 2-1

EXISTING SITE

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA

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SOURCE: REXCO REAL ESTATE DEVELOPMENT

N NO SCALE

FIGURE 2-2

PROPOSED SITE PLAN

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, 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, 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 25 mph.

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.

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. ***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, and the PM peak hour, there are two (2) northbound buses and one 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 five (5) key study intersections evaluated in this report were collected by *Counts Unlimited, Inc.* in 2017 and 2019. ***Appendix A*** contains the existing historical 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 five (5) existing key study intersections. It should be noted that given the current State of California "Stay at Home" order as a result of the Covid-19 Coronavirus Pandemic, existing historical data was utilized and grown by 2% per year, accordingly, to represent the existing baseline condition.

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.

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***.

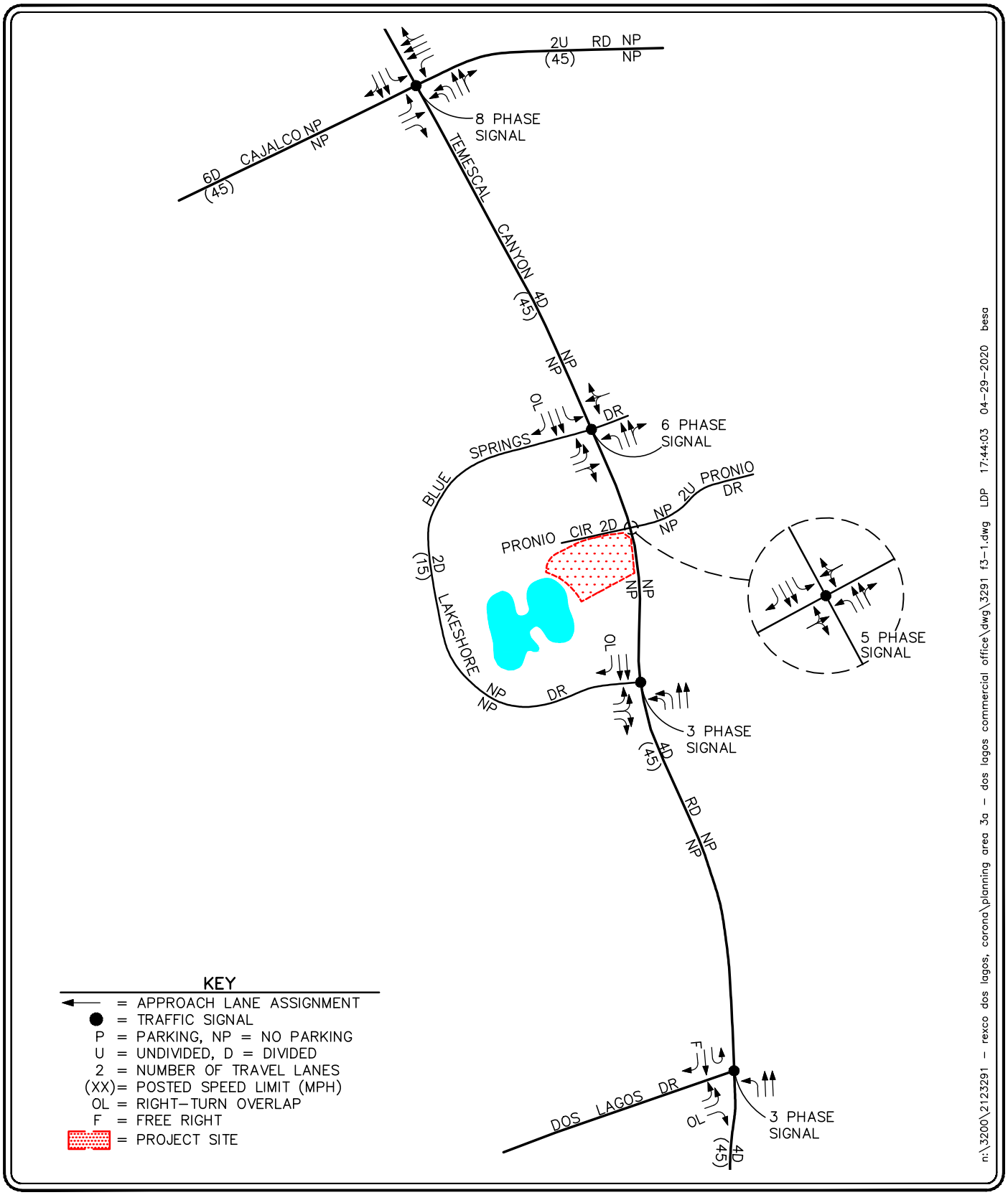
3.5 Impact Criteria and Thresholds

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 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.*



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N NO SCALE

FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA

SOURCE: CITY OF CORONA

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FIGURE 3-2

CITY OF CORONA GENERAL PLAN CIRCULATION ELEMENT

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA

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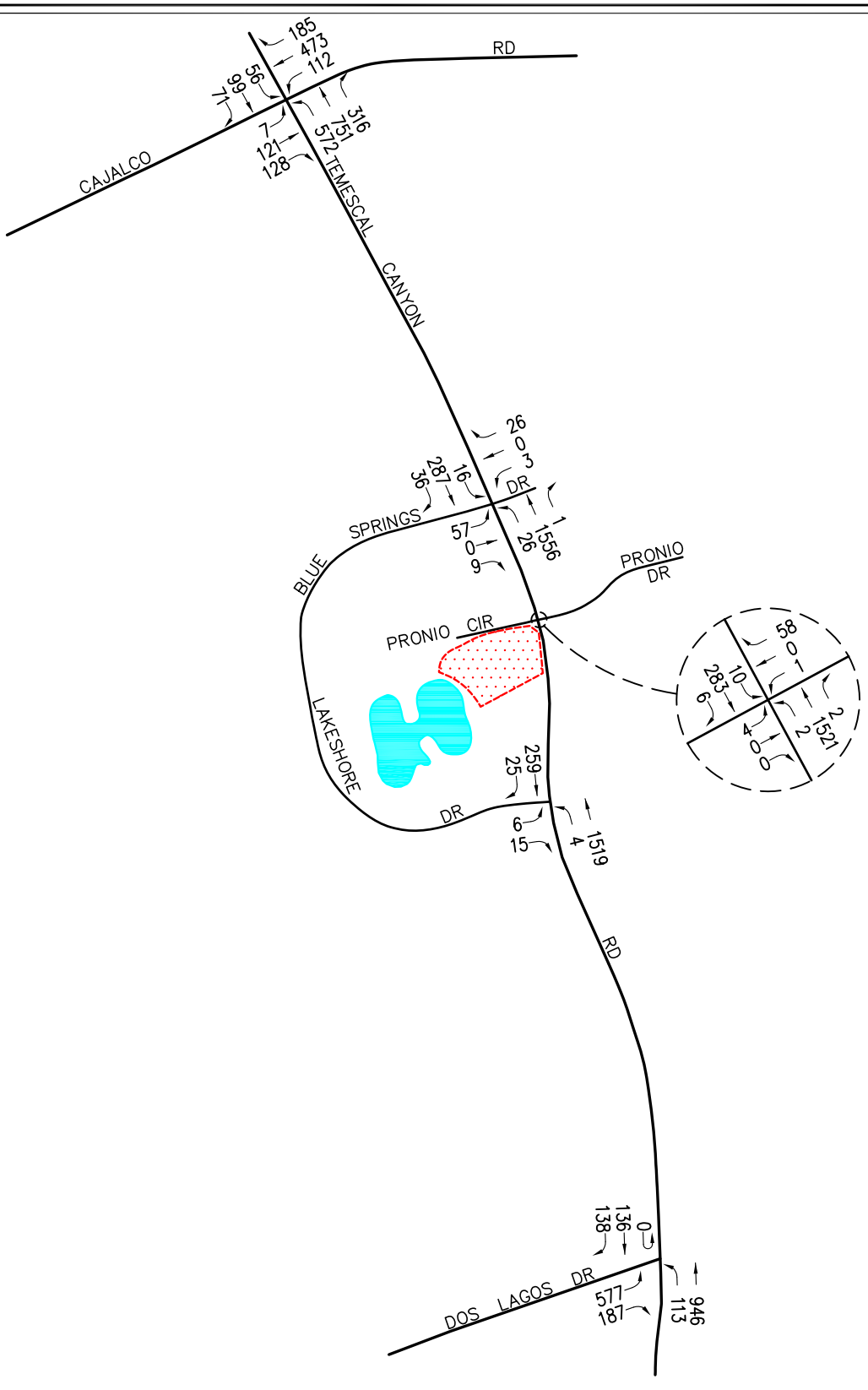

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N NO SCALE

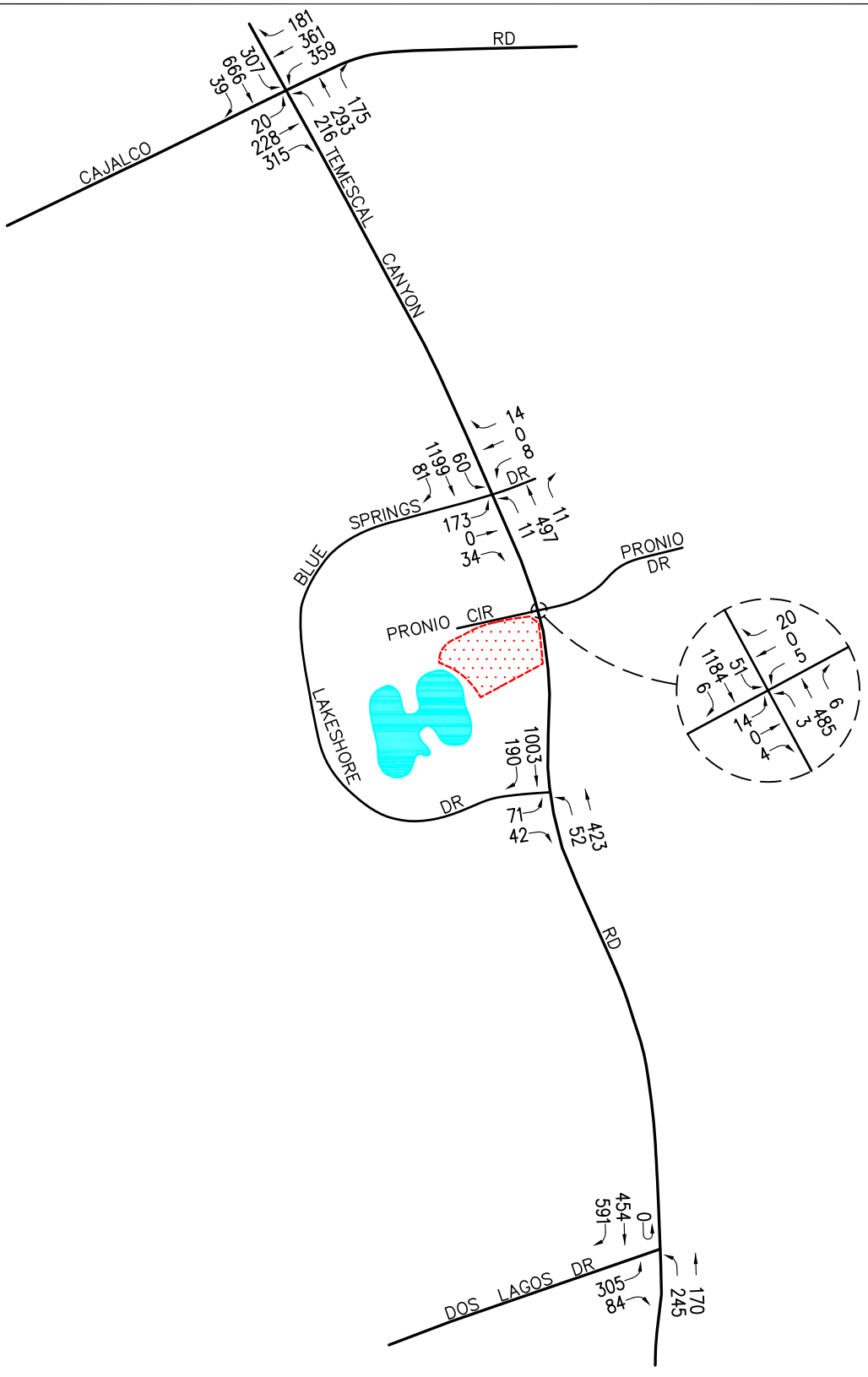
KEY

= PROJECT SITE

FIGURE 3-3

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

KEY

= PROJECT SITE

FIGURE 3-4

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, 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	$\leq$ 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 $\leq$ 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 $\leq$ 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 $\leq$ 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 $\leq$ 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	$\geq$ 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.

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 10th Edition of *Trip Generation*, published by the Institute of Transportation Engineers (ITE) [Washington D.C., 2017].

The first part of ***Table 5-1*** summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and the lower part presents the forecast daily and peak hour Project traffic volumes for a "typical" weekday. The trip generation potential for the proposed Project was forecast using ITE Land Use Code 710: General Office Building average rates and ITE Land Use Code 820: Shopping Center equations.

Review of the lower portion of *Table 5-1* indicates that the proposed Project is expected to generate 758 net daily trips (one half arriving and one half departing), with 97 net trips (64 inbound, 33 outbound) produced in the AM peak hour and 60 net trips (22 inbound, 38 outbound) produced in the PM peak hour.

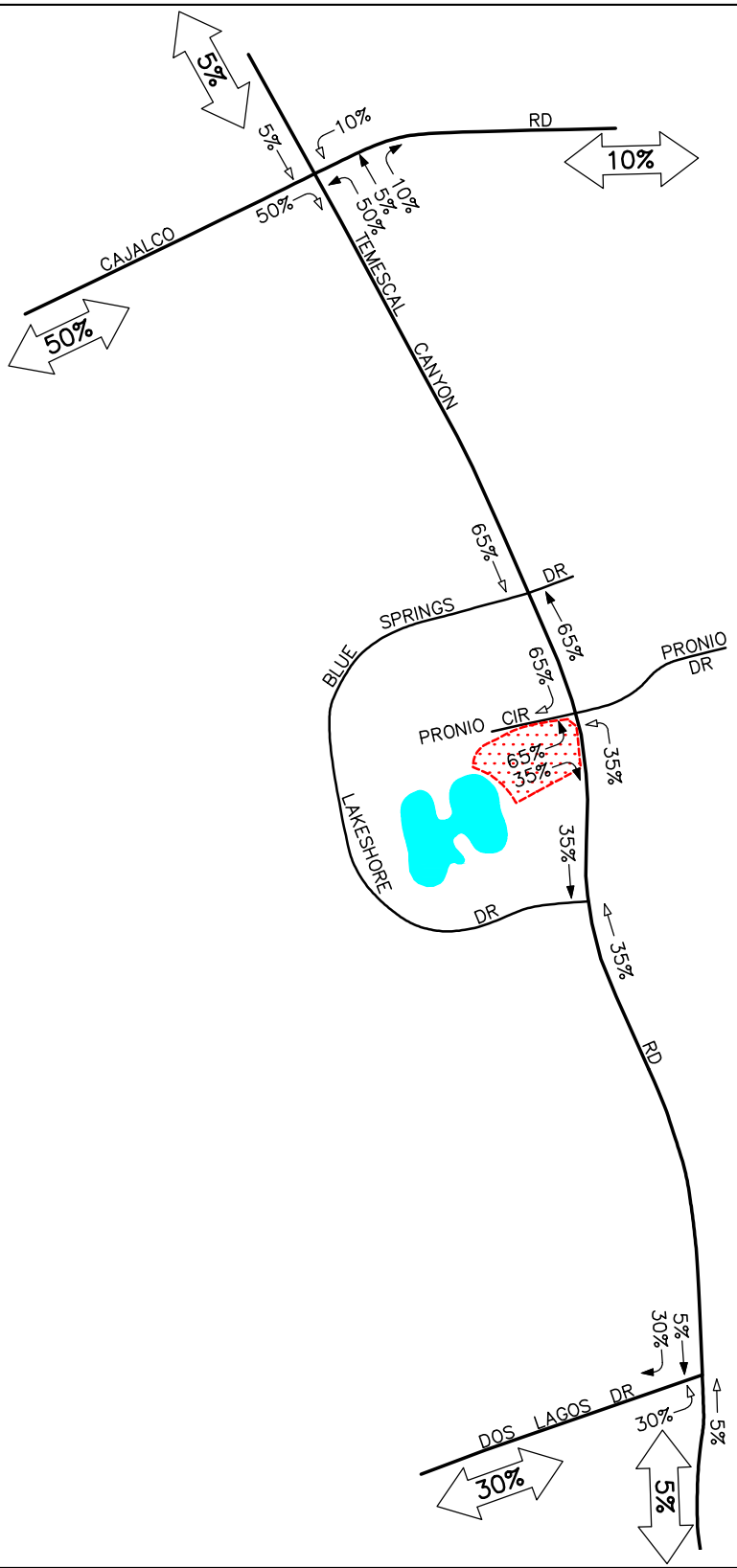
5.2 Project Trip Distribution and Assignment

The directional trip distribution pattern for the Project is presented in ***Figure 5-1***. 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 and "No U-turn" restrictions;
- 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 patterns were 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 five (5) key study intersections is presented in ***Figures 5-2*** and ***5-3***, 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 5-1*.



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N NO SCALE

KEY

= INBOUND PERCENTAGE

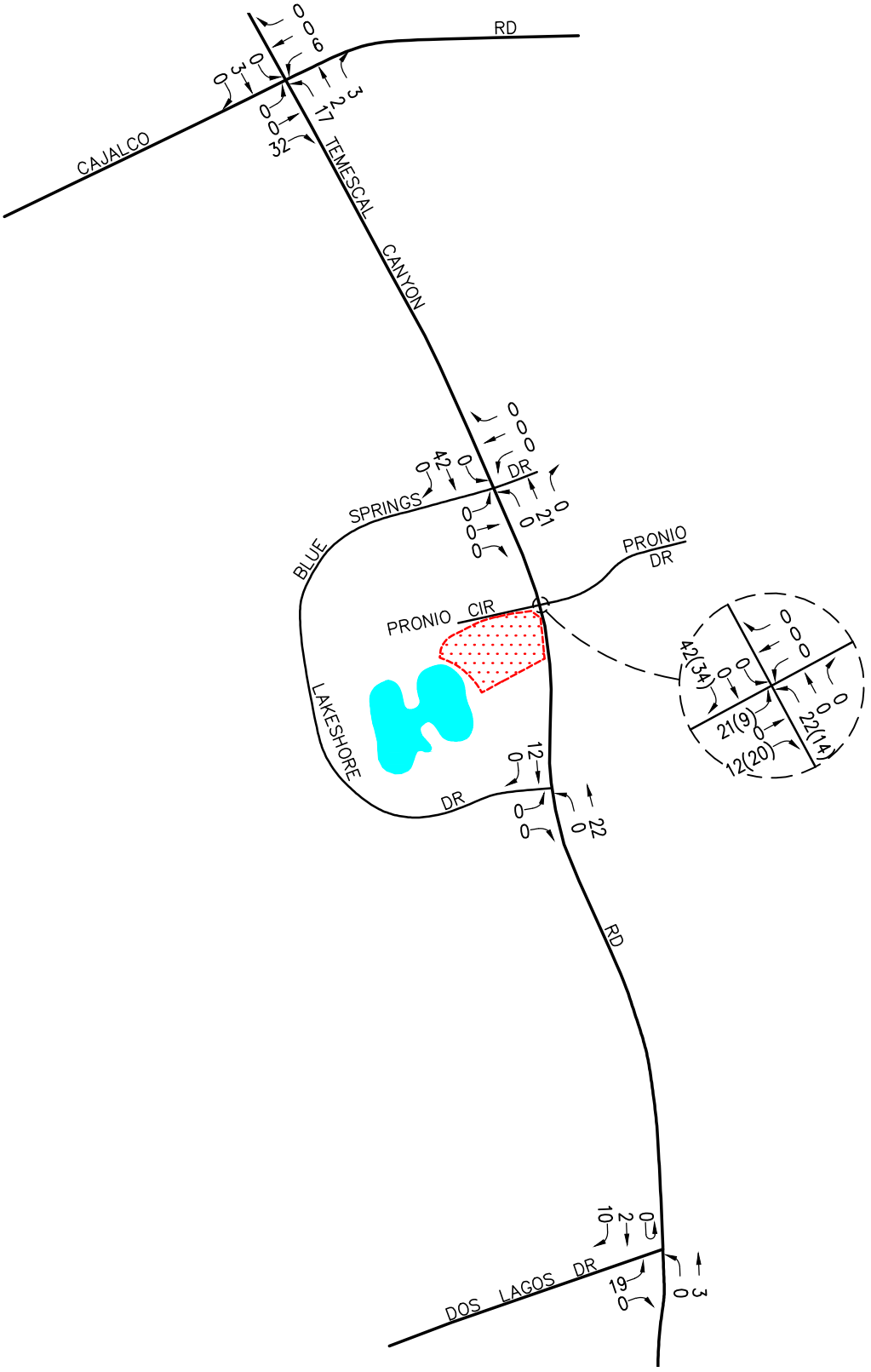
= OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 5-1

PROJECT DISTRIBUTION PATTERN

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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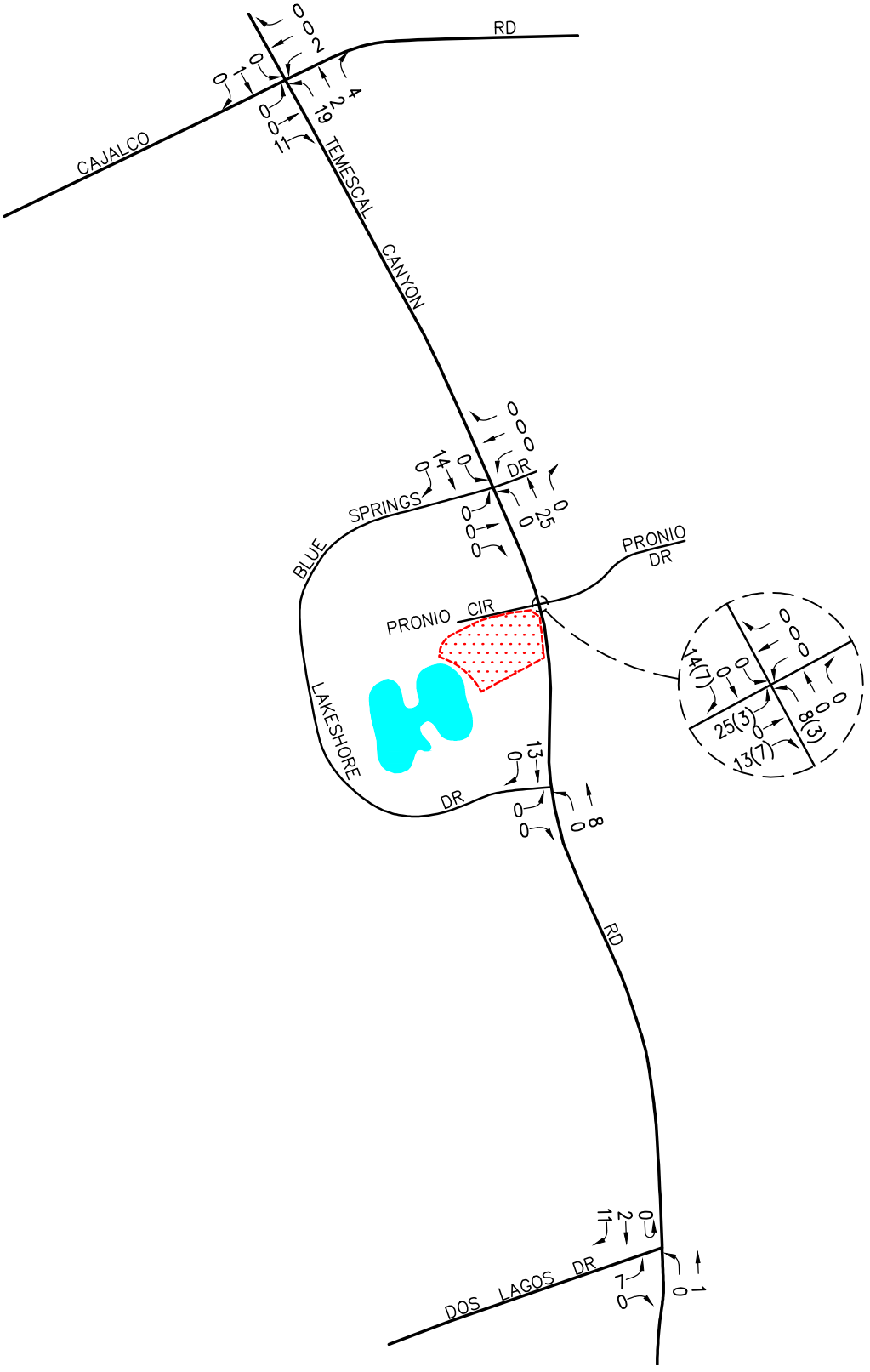
N NO SCALE

KEY
(XX) = PASS-BY TRIPS
= PROJECT SITE

FIGURE 5-2

AM PEAK HOUR PROJECT TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY
(XX) = PASS-BY TRIPS
= PROJECT SITE

FIGURE 5-3

PM PEAK HOUR PROJECT TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA

TABLE 5-1
PROJECT TRAFFIC GENERATION FORECAST[2]

Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Rates:							
▪ 710: General Office Building (TE/TSF)	9.74	86%	14%	1.16	16%	84%	1.15
▪ 820: Shopping Center (TE/TSF)	Eq.[3]	62%	38%	Eq.[3]	48%	52%	Eq.[3]
Project Trip Generation:							
▪ Building 1 Office (17,164 SF)	167	17	3	20	3	17	20
▪ Building 2 Retail (5,036 SF)	788	95	59	154	29	31	60
Pass-by Reduction (25% Daily, 50% AM, 34% PM)	-197	-48	-29	-77	-10	-10	-20
Retail Subtotal	*591*	*47*	*30*	*77*	*19*	*21*	*40*
Net Project Total	**758**	**64**	**33**	**97**	**22**	**38**	**60**

Notes:

- TE/TSF = Trip End per 1,000 Square Feet of Gross Floor Area

[2] Source: *Trip Generation*, 10th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2017).

[3] Trip Generation rates based on the following equations:

- Daily: Ln(T) = 0.68Ln(X) + 5.57
- AM Peak Hour: T = 0.50(X) + 151.78
- PM Peak Hour: Ln(T) = 0.74Ln(X) + 2.89

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 five (5) key study intersections.

6.2 Year 2021 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 the baseline traffic volumes results in a four percent (4%) growth in existing baseline volumes at the five (5) key study intersections to horizon Year 2021.

6.2.2 *Cumulative Projects Traffic*

The City of Corona and Riverside County identified eleven (11) 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***. It should be noted that since historical data from 2017 and 2019 were utilized for the analysis, all cumulative projects completed or entitled in 2017 or thereafter were considered.

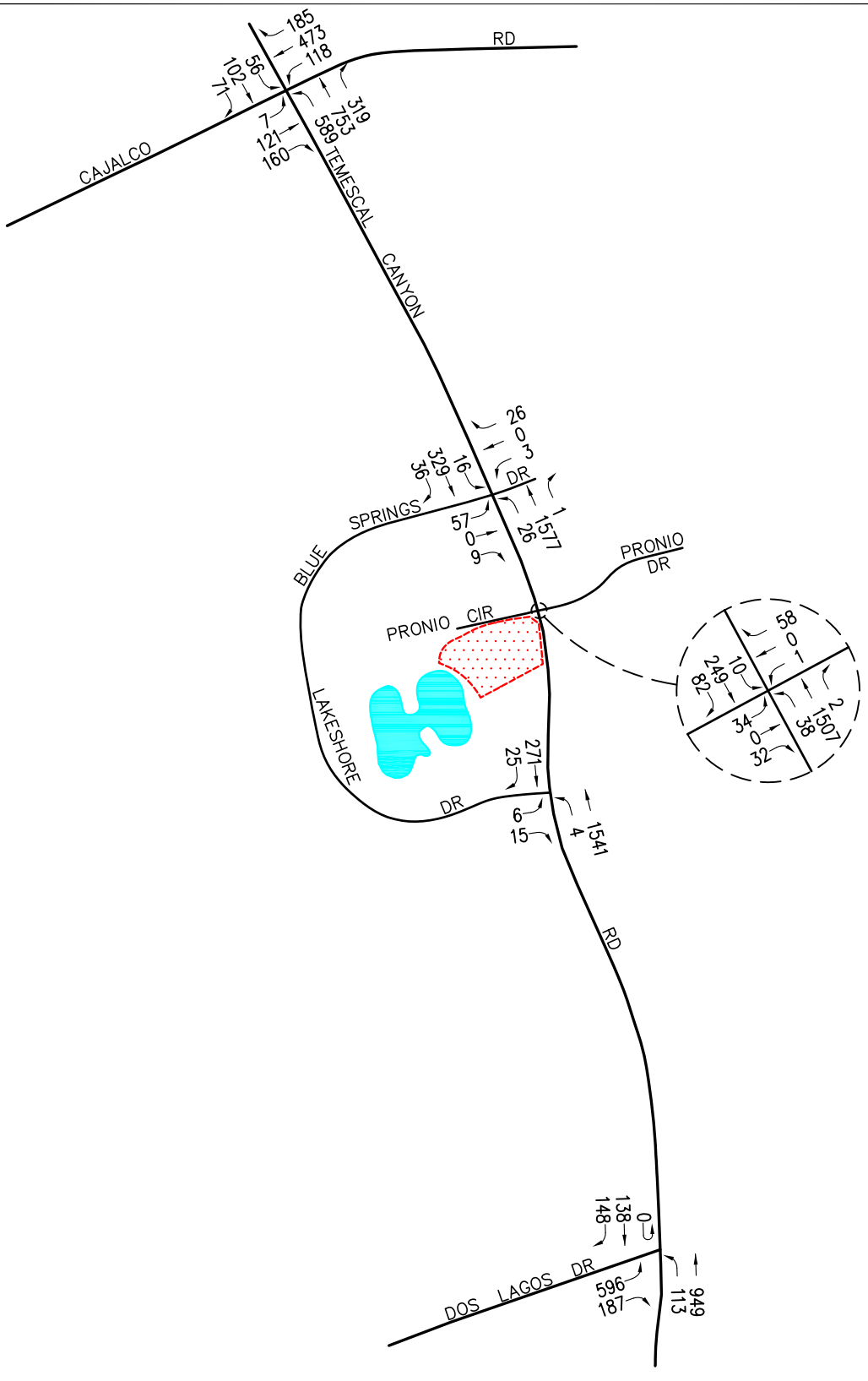
Table 6-1 presents the location, description, and development totals of the cumulative projects. ***Table 6-2*** presents the resultant trip generation for cumulative projects. As shown in *Table 6-2*, the eleven (11) cumulative projects are expected to generate 17,778 daily trips (one half arriving, one half departing) on a "typical" weekday, with 1,560 trips forecast during the AM peak hour and 1,686 trips forecast during the PM peak hour.

The anticipated AM and PM peak hour cumulative projects traffic volumes at the five (5) key study intersections are presented in ***Figures 6-4*** and ***6-5***, respectively. ***Figures 6-6*** and ***6-7*** present Year 2021 Without Project AM and PM peak hour traffic volumes at the five (5) key study intersections, respectively. It should be noted that Year 2021 Without Project traffic volumes include ambient traffic growth as well as the traffic from the eleven (11) 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 2021 With Project Traffic Volumes

The estimates of Project-generated traffic volumes were added to the Year 2021 Without Project traffic conditions to develop traffic projections for the Year 2021 With Project traffic conditions. ***Figures 6-8*** and ***6-9*** present the anticipated AM and PM peak hour Year 2021 With Project traffic volumes, respectively, at the five (5) key study intersections.



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N NO SCALE

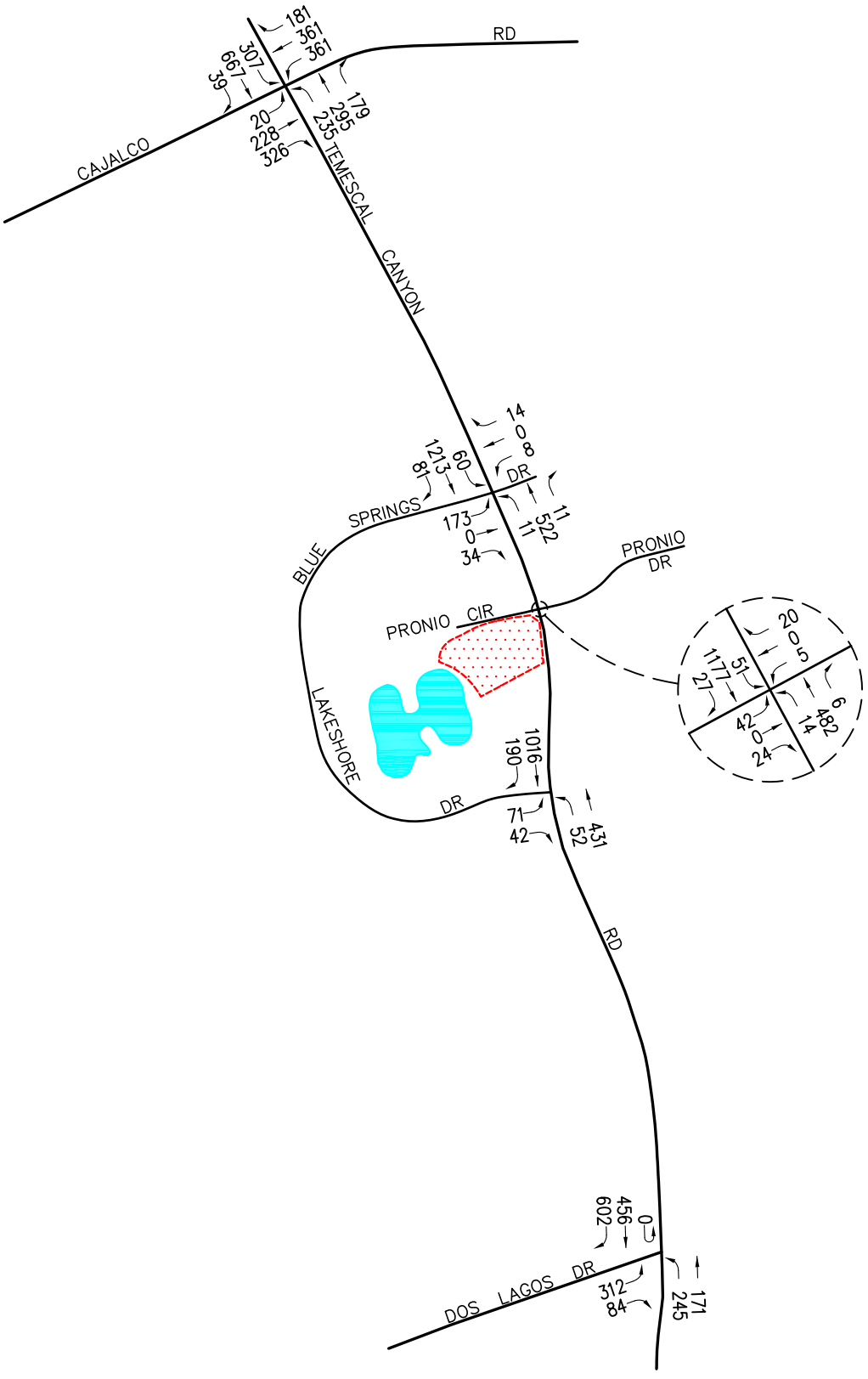
KEY

= PROJECT SITE

FIGURE 6-1

EXISTING WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

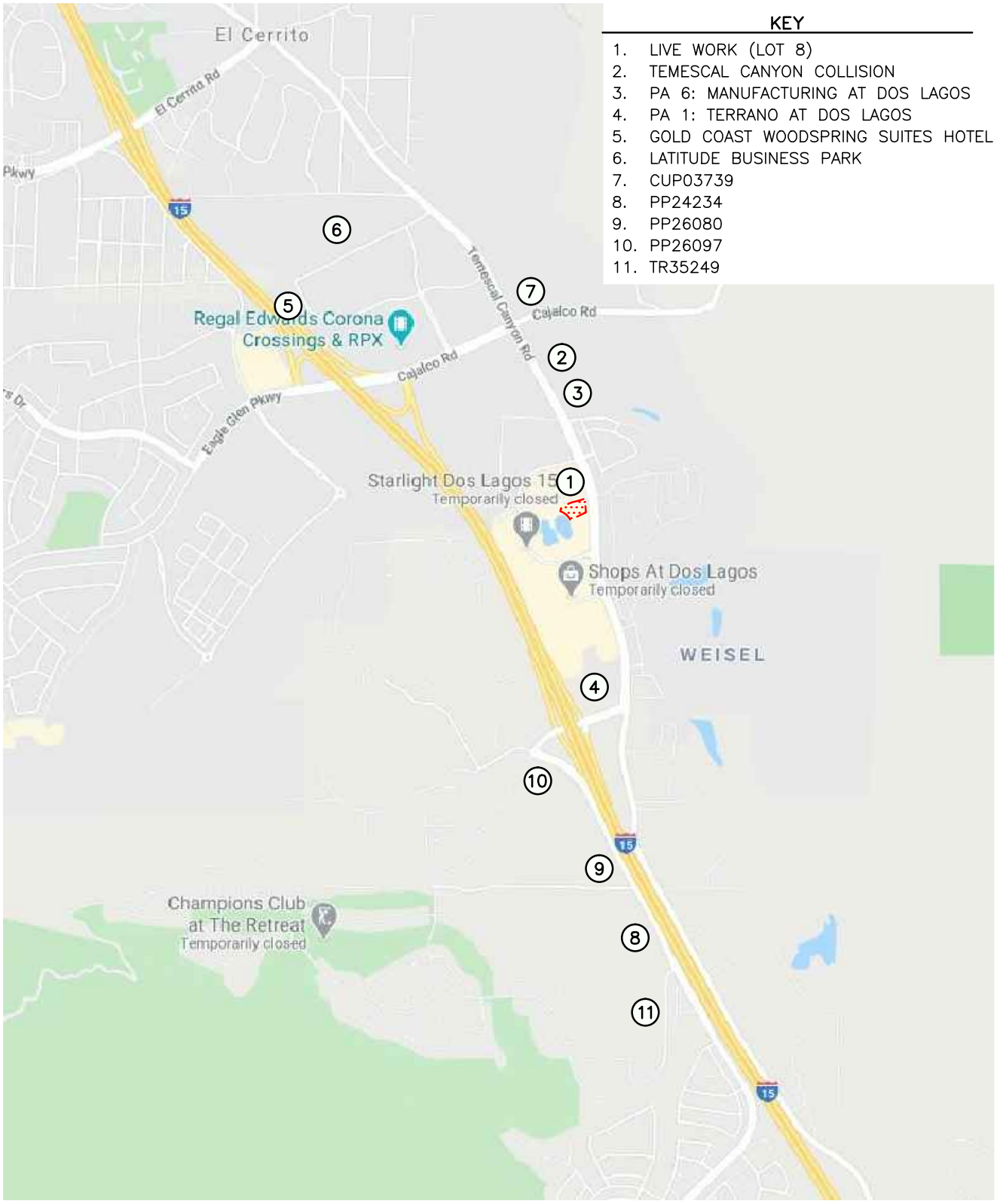
KEY

= PROJECT SITE

FIGURE 6-2

EXISTING WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE MAPS

KEY

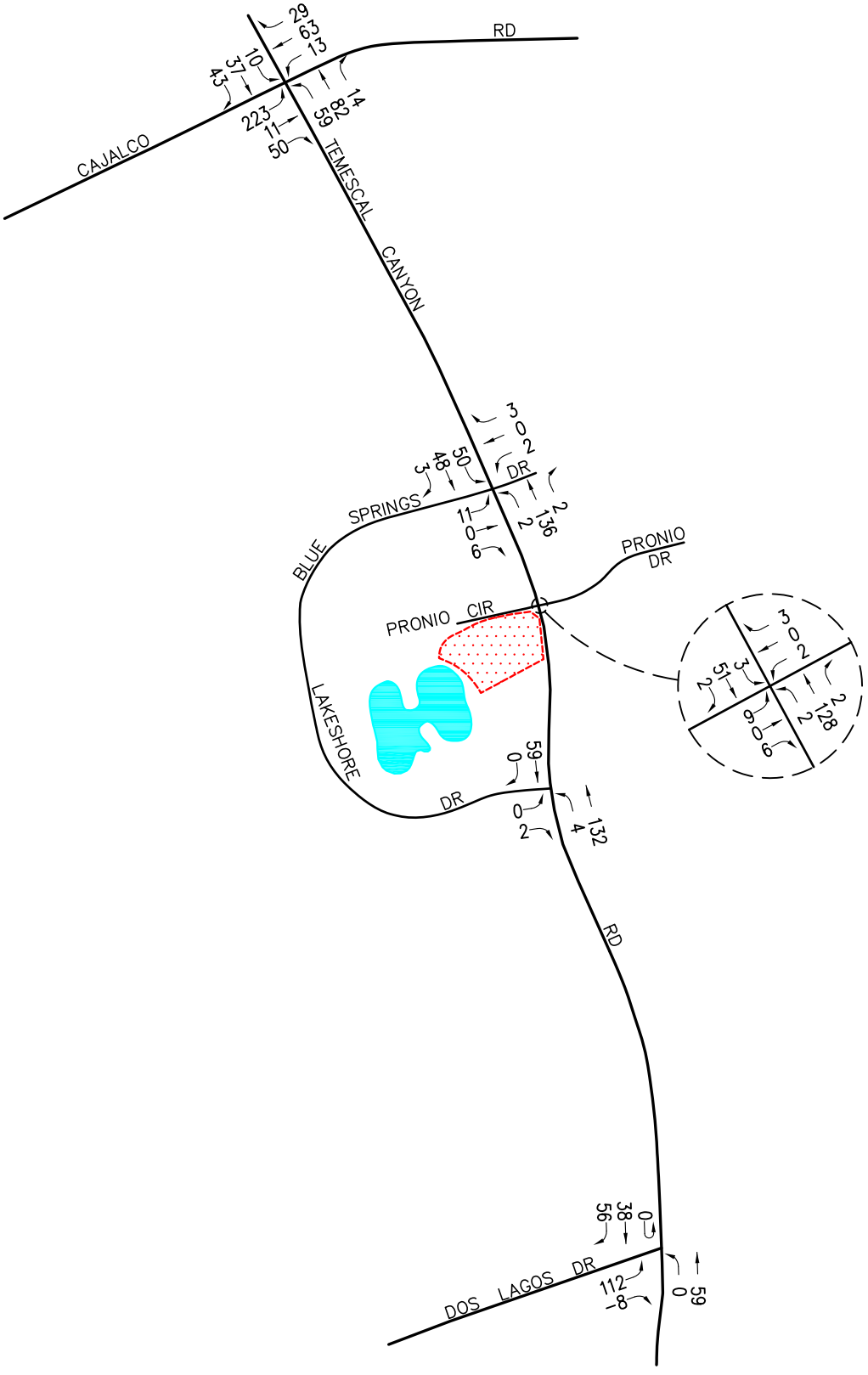
(#) = CUMULATIVE PROJECT LOCATION

= PROJECT SITE

FIGURE 6-3

LOCATION OF CUMULATIVE PROJECTS

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

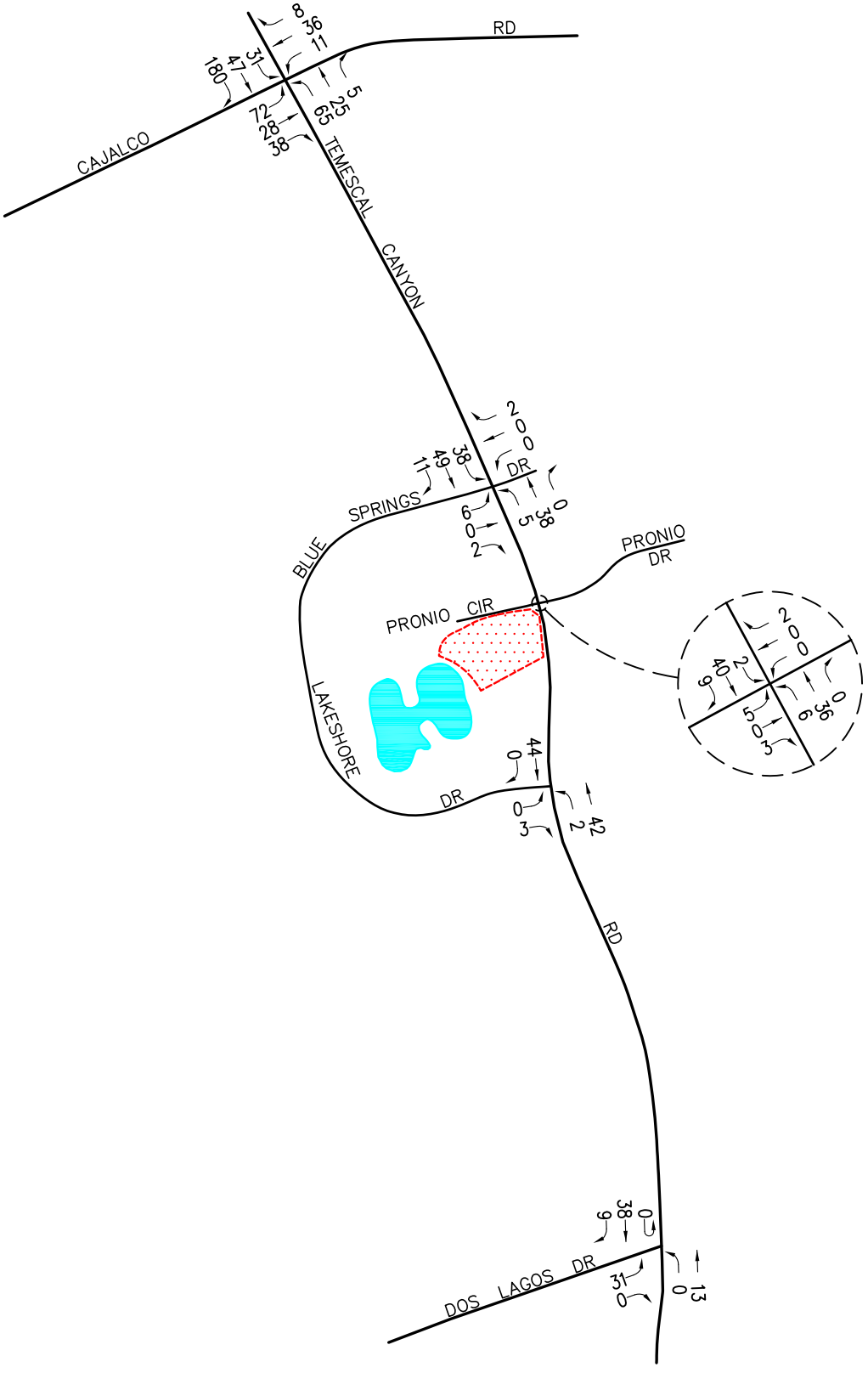
KEY

= PROJECT SITE

FIGURE 6-4

CUMULATIVE PROJECTS AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

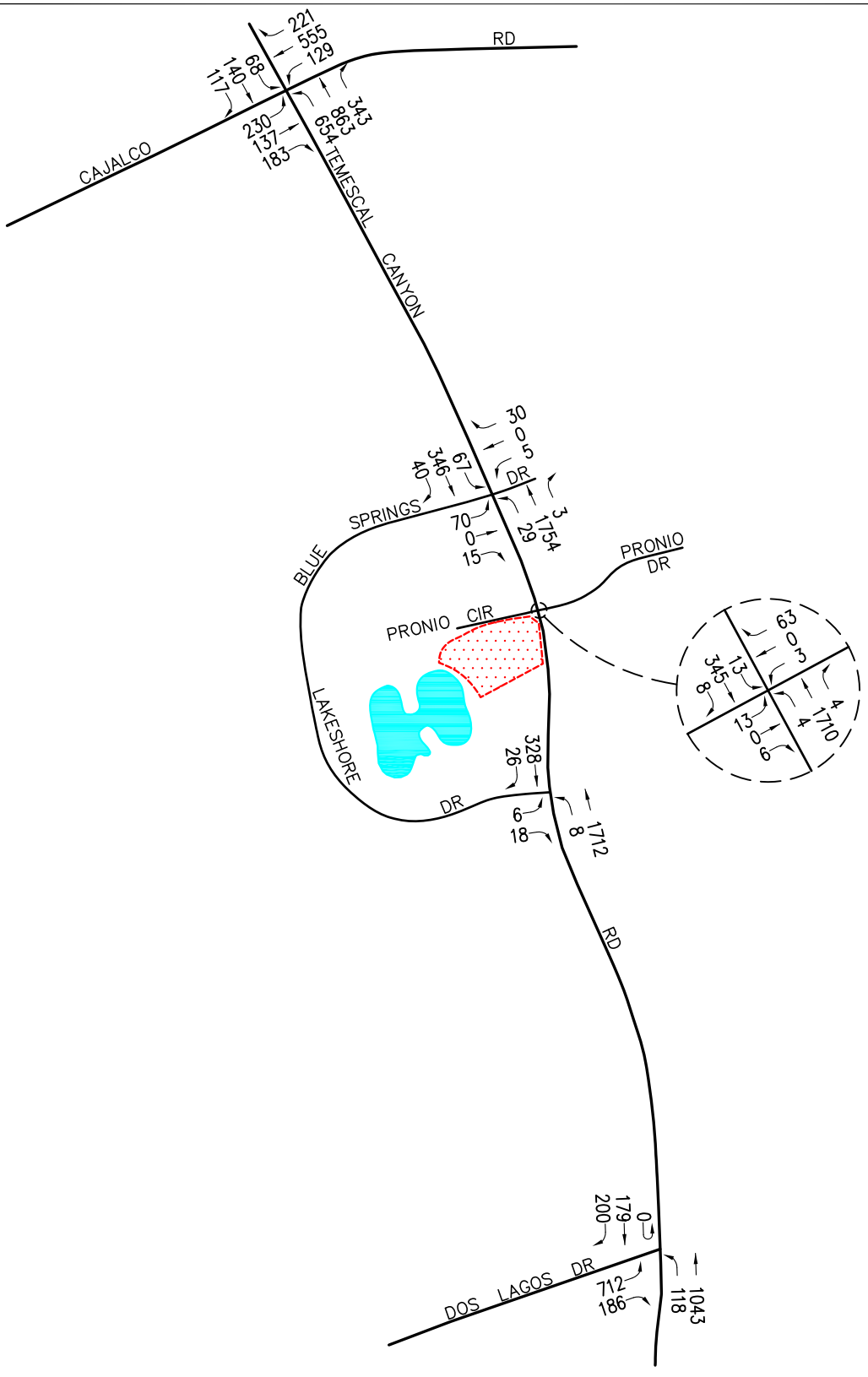
KEY

= PROJECT SITE

FIGURE 6-5

CUMULATIVE PROJECTS
PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

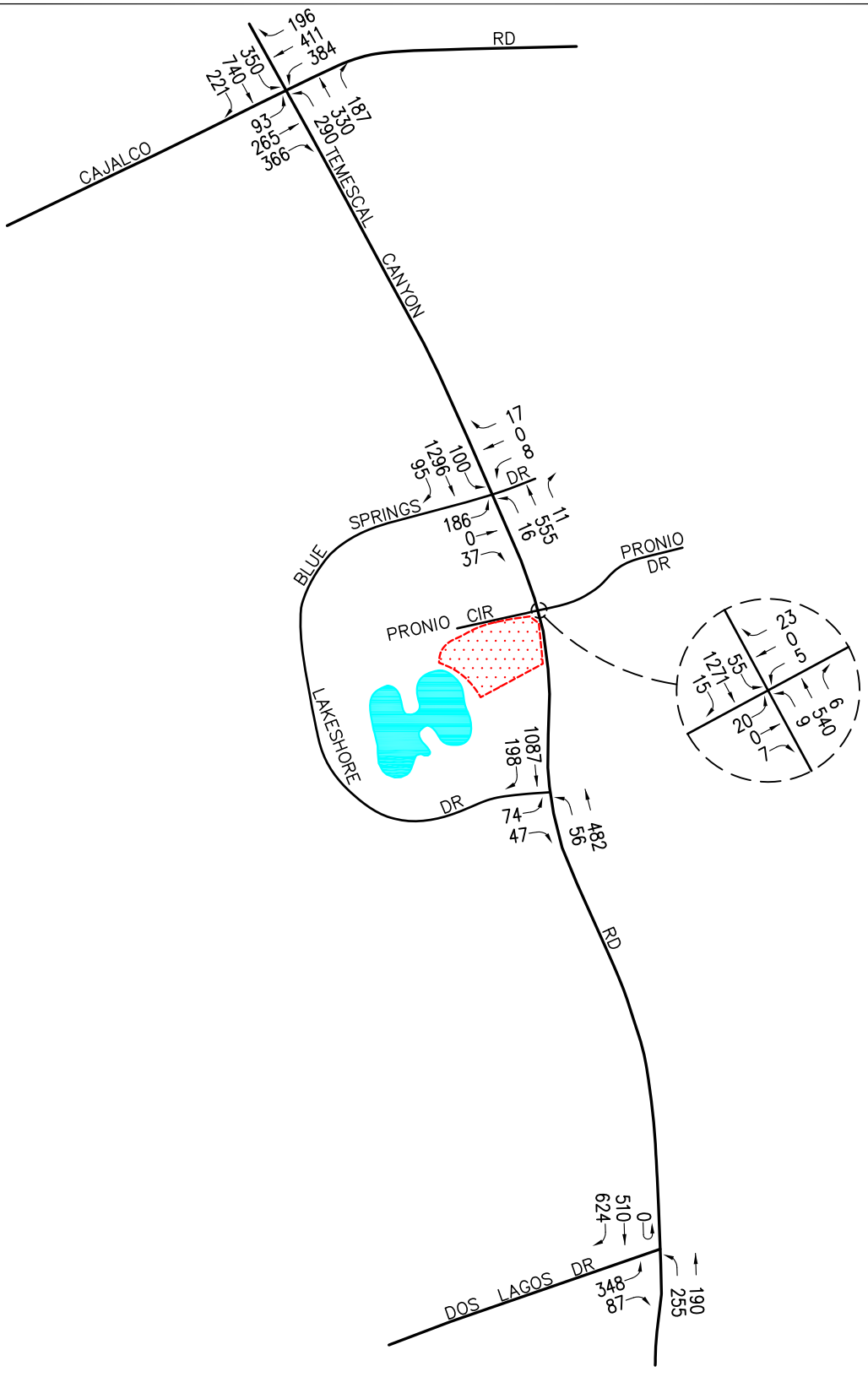
KEY

= PROJECT SITE

FIGURE 6-6

YEAR 2021 WITHOUT PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

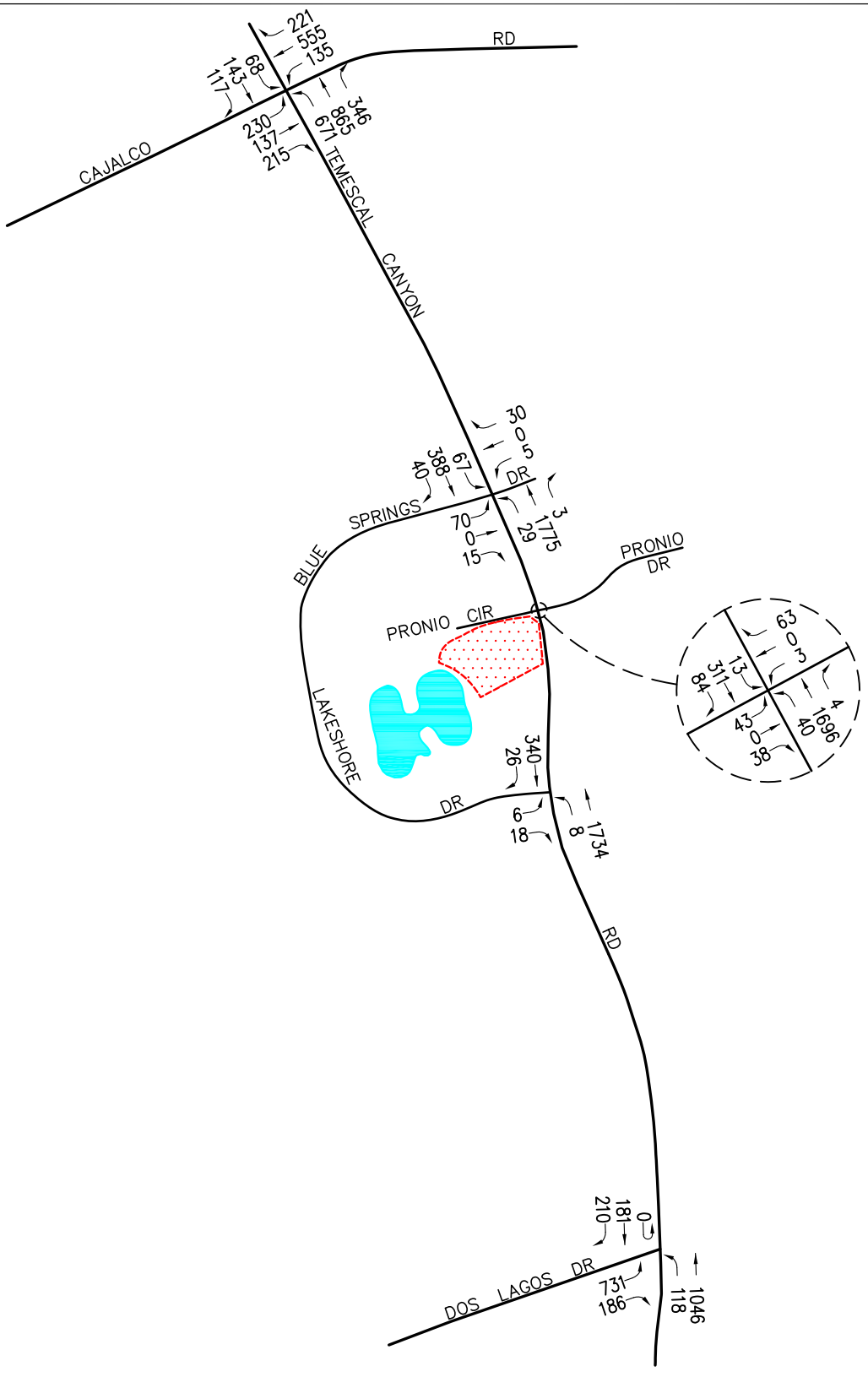
KEY

= PROJECT SITE

FIGURE 6-7

YEAR 2021 WITHOUT PROJECT PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

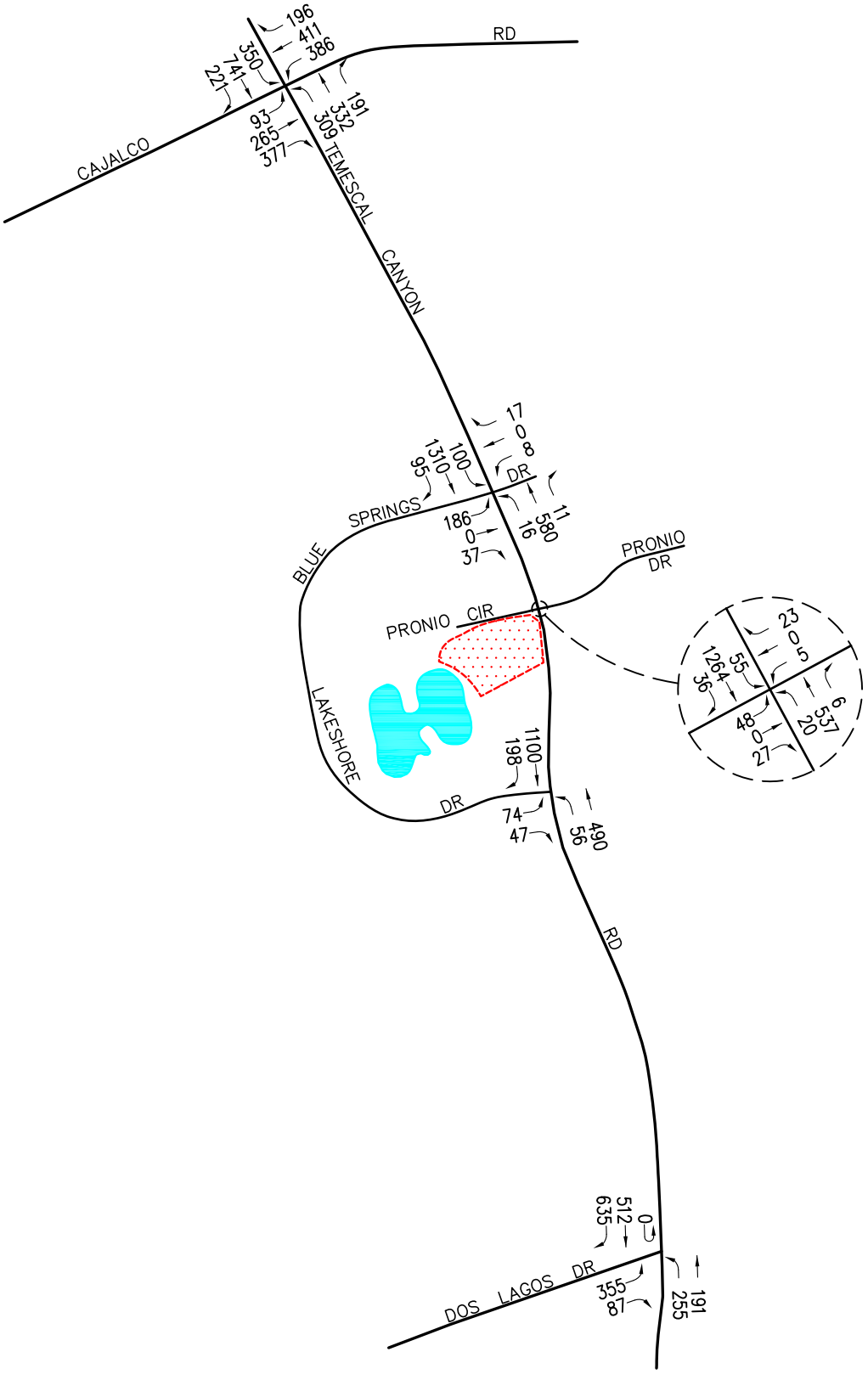
KEY

= PROJECT SITE

FIGURE 6-8

YEAR 2021 WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA



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N NO SCALE

KEY

= PROJECT SITE

FIGURE 6-9

YEAR 2021 WITH PROJECT PM PEAK HOUR TRAFFIC VOLUMES

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, 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.	Planning Area 3A Dos Lagos Commercial Office[4]	South of Cajalco Road, East of Temescal Canyon Road	25,038 SF Auto Collision Repair Facility
3.	PA 6: Manufacturing at Dos Lagos[5]	East of Temescal Canyon Road, Between Cajalco Road and Breezy Meadow Lane	67,737 SF Manufacturing
4.	PA 1: Terrano at Dos Lagos[6]	Northwest quadrant of Temescal Canyon Road and Dos Lagos Drive	276 DU Apartment, 107 Room Hotel, 6,100 SF Commercial, 4,000 SF Quality Restaurant, 6,300 SF High-Turnover Restaurant, 20 Vehicle Fueling Position Gas Station With Convenience Store and Car Wash
5.	Gold Coast Woodspring Suites Hotel[7]	Crossings at Corona	122 Room All-Suites Hotel
6.	Latitude Business Park[8]	Northwest corner of Temescal Canyon Road and Tom Barnes Street	1,124,290 SF Warehousing, Industrial Park, and Office
7.	CUP03739	Northeast corner of Temescal Canyon Road at Cajalco Road	10 Fueling Positions Gas Station With Convenience Market and Car Wash
8.	PP24234	Northwest of Knabe Road at Forest Boundary Road	77,231 SF Industrial
9.	PP26080	Northwest corner of Knabe Road at Bedford Motor Way	140,000 SF Industrial
10.	PP26097	South corner of Retreat Parkway at Knabe Road	94,000 SF Medical Outpatient Clinic
11.	TR35249	22395 Forest Boundary Road	51 DU Single Family Detached

Notes:

- DU = Dwelling Units
- SF = Square-Feet

[4] Source: *Planning Area 3A Dos Lagos Commercial Office Focused Site Traffic Impact Analysis Report* prepared by LLG Engineers, dated May 16, 2018.

[5] Source: *PA 6 – Manufacturing Focused Site Traffic Impact Analysis Report,* prepared by LLG Engineers, dated June 13, 2016.

[6] Source: *PA 1 – Terrano at Dos Lagos Traffic Impact Analysis Report,* prepared by LLG Engineers, dated May 21, 2018.

[7] Source: *Gold Coast Woodspring Suites Hotel Focused Traffic Impact Analysis Report,* prepared by LLG Engineers, dated October 8, 2019.

[8] Source: *Latitude Business Park Traffic Impact Analysis Report,* prepared by LLG Engineers, dated September 23, 2019.

TABLE 6-2
CUMULATIVE PROJECTS TRIP GENERATION FORECAST

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.	Planning Area 3A Dos Lagos Commercial Office[9]	779	37	19	56	37	41	78
3.	PA 6: Manufacturing at Dos Lagos[10]	283	40	16	56	20	32	52
4.	PA 1: Terrano at Dos Lagos[11]	4,775	134	195	329	192	134	326
5.	Gold Coast Woodspring Suites Hotel[12]	544	22	19	41	21	23	44
6.	Latitude Business Park[13]	4,127	382	89	471	102	378	480
7.	CUP03739	1,375	54	52	106	31	30	61
8.	PP24234	538	62	9	71	9	66	75
9.	PP26080	976	114	15	129	16	120	136
10.	PP26097	3,396	178	47	225	94	242	336
11.	TR35249	486	10	28	38	32	19	51
Cumulative Projects Total Trip Generation Potential		**17,778**	**1,041**	**519**	**1,560**	**585**	**1,101**	**1,686**

[9] Source: *Planning Area 3A Dos Lagos Commercial Office Focused Site Traffic Impact Analysis Report* prepared by LLG Engineers, dated May 16, 2018.

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

[11] Source: *PA 1 – Terrano at Dos Lagos Traffic Impact Analysis Report,* prepared by LLG Engineers, dated May 21, 2018.

[12] Source: *Gold Coast Woodspring Suites Hotel Focused Traffic Impact Analysis Report,* prepared by LLG Engineers, dated October 8, 2019.

[13] Source: *Latitude Business Park Traffic Impact Analysis Report,* prepared by LLG Engineers, dated September 23, 2019.

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 historical intersection counts. 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 five (5) 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 five (5) 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 five (5) key study intersections will be significantly impacted based on the LOS criteria defined in this report for the Existing With Project traffic conditions.

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

TABLE 7-1

EXISTING CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[14]

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. Temescal Canyon Road at Cajalco Road	8∅ Traffic Signal	D	AM	28.8	C	29.0	C	No	--	--
			PM	42.7	D	46.4	D	No	--	--
2. Temescal Canyon Road at Blue Springs Drive	6∅ Traffic Signal	D	AM	10.8	B	10.8	B	No	--	--
			PM	12.4	B	12.4	B	No	--	--
3. Temescal Canyon Road at Pronio Drive	5∅ Traffic Signal	D	AM	6.1	A	8.6	A	No	--	--
			PM	5.0	A	7.2	A	No	--	--
4. Temescal Canyon Road at Lakeshore Drive	3∅ Traffic Signal	D	AM	2.6	A	2.7	A	No	--	--
			PM	7.6	A	7.6	A	No	--	--
5. Temescal Canyon Road at Dos Lagos Drive	3∅ Traffic Signal	D	AM	19.0	B	19.2	B	No	--	--
			PM	27.9	C	28.0	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 B* contains the Delay/LOS calculation worksheets for all study intersections.

8.0 YEAR 2021 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 2021 operating conditions at the five (5) 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 2021 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 2021 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 2021 Without Project traffic conditions and the third column (3) identifies forecast Year 2021 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 2021 Without Project Traffic Conditions*

Review of column (2) of *Table 8-1* indicates that for the Year 2021 Without Project traffic conditions, one (1) of the five (5) 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**
1.	Temescal Canyon Road at Cajalco Road	--	--	65.5	E

The remaining four (4) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours.

8.1.2 *Year 2021 With Project Traffic Conditions*

Review of column (3) of *Table 8-1* indicates that for the Year 2021 With Project traffic conditions, one (1) of the five (5) 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		PM Peak Hour	
	Delay (s/v)	LOS	Delay (s/v)	LOS
1. Temescal Canyon Road at Cajalco Road	--	--	66.2	E

The remaining four (4) 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 five (5) key study intersections will be significantly impacted based on the LOS criteria defined in this report for the Year 2021 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 C contains the Delay/LOS calculation worksheets for the Year 2021 Traffic Conditions.

TABLE 8-1

YEAR 2021 CONDITIONS PEAK HOUR INTERSECTION CAPACITY ANALYSIS SUMMARY[15]

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2021 Without Project Traffic Conditions		(3) Year 2021 With Project Traffic Conditions		(4) Significant Impact	(5) Year 2021 With Project With Mitigation	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Yes/No	Delay (s/v)	LOS
1.	Temescal Canyon Road at	D	AM	28.8	C	40.0	D	40.1	D	No	39.9	D
	Cajalco Road		PM	42.7	D	**65.5**	**E**	**66.2**	**E**	**Yes**	50.1	D
2.	Temescal Canyon Road at	D	AM	10.8	B	15.5	B	15.5	B	No	--	--
	Blue Springs Drive		PM	12.4	B	14.0	B	14.0	B	No	--	--
3.	Temescal Canyon Road at	D	AM	6.1	A	7.3	A	10.1	B	No	--	--
	Pronio Drive		PM	5.0	A	5.7	A	7.8	A	No	--	--
4.	Temescal Canyon Road at	D	AM	2.6	A	3.1	A	3.1	A	No	--	--
	Lakeshore Drive		PM	7.6	A	7.7	A	7.8	A	No	--	--
5.	Temescal Canyon Road at	D	AM	19.0	B	19.8	B	20.0	B	No	--	--
	Dos Lagos Drive		PM	27.9	C	28.2	C	28.3	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

[15] *Appendix C* 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.

Figure 9-1 presents the planned and recommended improvements at the key study intersections for the Year 2021, discussed in more detail in the sections below:

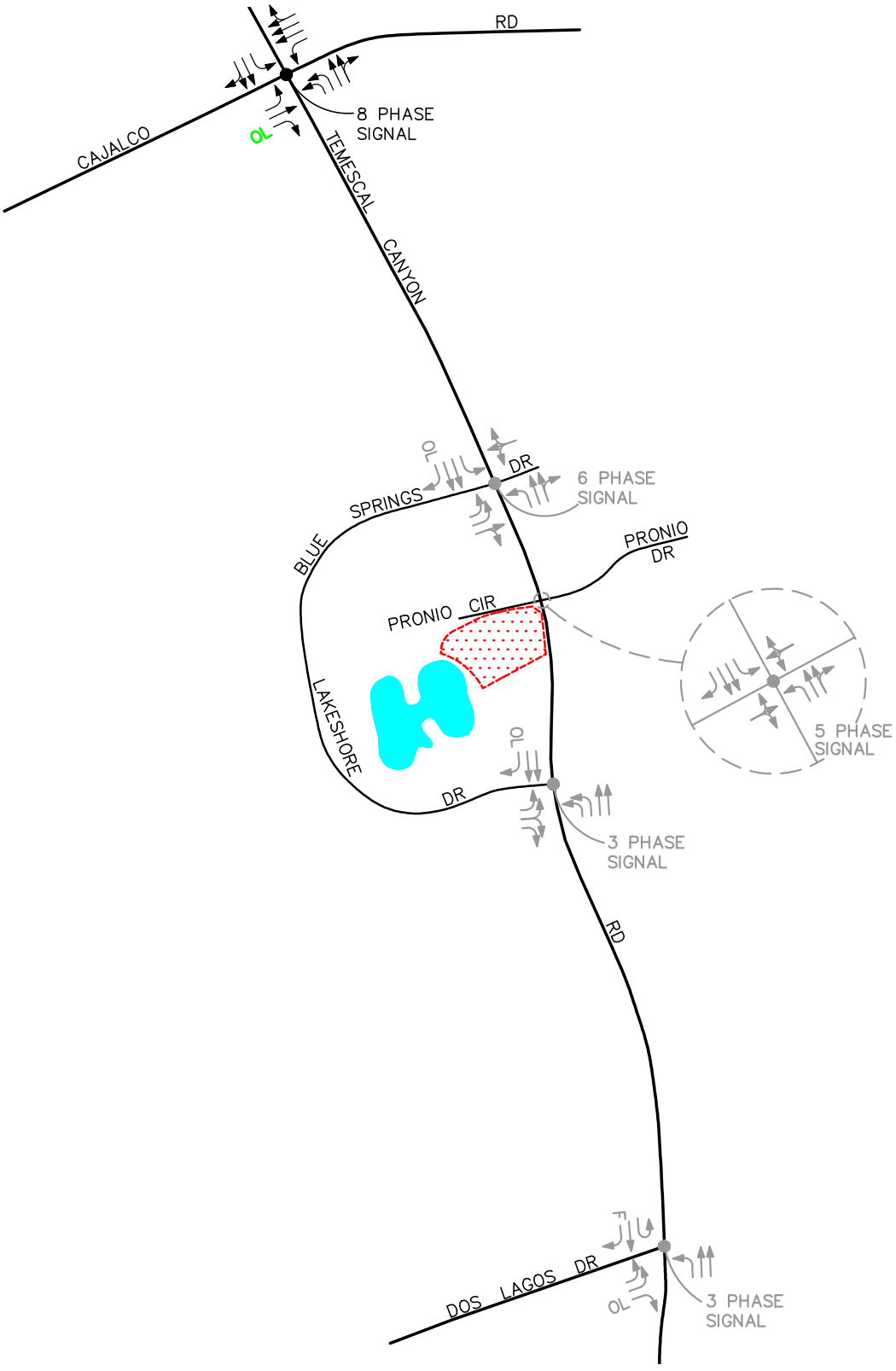
9.1 Existing With Project Traffic Conditions

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 2021 With Project Traffic Conditions

The results of the Year 2021 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: Install eastbound right-turn overlap traffic signal phasing and restrict the northbound U-turn movement.



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N NO SCALE

KEY

= APPROACH LANE ASSIGNMENT
= YEAR 2021 RECOMMENDED IMPROVEMENTS
= TRAFFIC SIGNAL
OL = OVERLAP, F = FREE RIGHT-TURN
= PROJECT SITE

FIGURE 9-1

RECOMMENDED IMPROVEMENTS

PLANNING AREA 3A: DOS LAGOS COMMERCIAL OFFICE, CORONA

10.0 INTERNAL CIRCULATION EVALUATION

The internal circulation was evaluated in terms of vehicle-pedestrian conflicts and driveway spacing. Based on our review of the proposed site plan, the overall layout does not create any significant vehicle-pedestrian conflict points as the parking lots are self-contained. As such, motorists entering and exiting the Project site from the two (2) internal driveways will be able to do so comfortably, safely, and without undue congestion. In addition, vehicular access will be provided via a drive aisle connection to the adjacent parcel south of the site.

11.0 INTERSECTION QUEUE LENGTH ANALYSIS

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

- Temescal Canyon Road at Pronio Drive
  - Northbound Left

Table 11-1 identifies the minimum required stacking/storage lengths for affected left-turn lanes for the study intersections for the Existing With Project and Year 2021 With Project traffic conditions. Column (1) shows the existing storage length in feet. Column (2) shows the left-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 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 2021 With Project traffic conditions.

11.1 Existing With Project Intersection Queuing Evaluation

As presented in Column (2) of *Table 11-1* under Existing With Project traffic conditions, the existing northbound left-turn storage of 135 feet is sufficient at the intersection of Temescal Canyon Road at Pronio Drive.

11.2 Year 2021 With Project Intersection Queuing Evaluation

As presented in Column (3) of *Table 11-1* under Year 2021 With Project traffic conditions, the existing northbound left-turn storage of 135 feet is sufficient at the intersection of Temescal Canyon Road at Pronio Drive.

TABLE 11-1
INTERSECTION QUEUE LENGTH ANALYSIS[16]

Key Intersection	Approach	Time Period	(1) Existing Storage Length (ft)	(2) Existing With Project Traffic Conditions: 95th Percentile Queue (vpl)	(2) Minimum Required Storage Length (ft)	(2) Existing Storage Sufficient? (yes/no)	(3) Year 2021 With Project With Improvements Traffic Conditions: 95th Percentile Queue (vpl)	(3) Minimum Required Storage Length (ft)	(3) Existing Storage Sufficient? (yes/no)
3. Temescal Canyon Road at Pronio Drive	NBL	AM	135	3	75	Yes	3	75	Yes
		PM	135	1	25	Yes	1	25	Yes

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

12.0 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 2021 traffic conditions.

12.1 Existing With Project Traffic Conditions

None of the five (5) 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.

12.2 Year 2021 With Project Traffic Conditions

Table 12-1 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 2021 With Project traffic conditions. As presented in *Table 12-1*, 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 2021 With Project traffic conditions is shown below:

- Temescal Canyon Road at Cajalco Road 6.25%

As shown in *Table 12-1*, the Project's fair share responsibility toward the installation of an eastbound right-turn overlap is **6.25%**. As the total cost of the improvements is estimated to be $95,000, the Project's fair share contribution is approximately **$937.50**.

TABLE 12-1

YEAR 2021 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
1. Temescal Canyon Road at Cajalco Road	AM	--	--	--	--	$15,000.00	$937.50
	PM	0.7	66.2	55.0	**6.25%**		

Notes:

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