Appendix J Traffic Impact Analysis

Appendix

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The Invitation
(formerly known as Renaissance Apartments)

TRAFFIC IMPACT ANALYSIS
CITY OF ANAHEIM

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12830-09 Report REV-2

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LIST OF ABBREVIATED TERMS

(1)	Reference
ATAM	Anaheim Transportation Analysis Model
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CIP	Capital Improvement Program
CMP	Congestion Management Program
CUP	Conditional Use Permit
E+P	Existing Plus Project
EIR	Environmental Impact Report
HCM	Highway Capacity Manual
ICU	Intersection Capacity Utilization
ITE	Institute of Transportation Engineers
LOS	Level of Service
MU	Mixed Use
MUTCD	Manual on Uniform Traffic Control Devices
NP	No Project (or Without Project)
OCTA	Orange County Transportation Authority
PHF	Peak Hour Factor
Project	Renaissance Apartments
RCL	Reclassification
sf	Square Feet
SP	Specific Plan
TIA	Traffic Impact Analysis
v/c	Volume to Capacity Ratio
vph	Vehicles Per Hour
WP	With Project

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) prepared for the proposed Renaissance Apartments development ("Project"), which is located at 1122 Anaheim Boulevard, in the City of Anaheim. The proposed Project is shown on Exhibit 1-1.

The purpose of this traffic impact analysis is to evaluate the potential circulation system deficiencies that could result from the development of the proposed Project, and if necessary to recommend mitigation to achieve acceptable circulation system performance. The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA. It should be noted that the scoping agreement has been prepared in accordance with the City of Anaheim *Criteria for Preparation of Traffic Impact Studies* ("TIA guidelines") (2015). (1)

1.1 SUMMARY OF FINDINGS

The Project is anticipated to generate a net total of 1,140 weekday trip-ends per day with 80 AM peak hour trips and 87 PM peak hour trips. Due to construction of La Palma Village, only one westbound right turn lane at the intersection of Anaheim Boulevard/Lemon Street & La Palma Avenue was open to traffic. La Palma Avenue is currently under construction with two westbound right turn lanes as part of the La Palma Village project.

For Existing (2019), Opening Year Cumulative (2023) Without Project, and Long-Range Without Project traffic conditions, the intersection of Anaheim Boulevard and Carl Karcher Way is identified to operate at an unacceptable LOS.

For Existing (2019) With Project, Opening Year Cumulative (2023) With Project traffic, and Long-Range With Project traffic, the Project contributed to a cumulative deficiency at the intersection of Anaheim Boulevard and Carl Karcher Way. Therefore, the Project should contribute fair-share towards the installation of a traffic signal. The addition of Project traffic did not result in any additional deficient intersection operations.

In order to entitle the proposed project, the Anaheim Municipal Code required Planning Commission approvals of the following entitlements:

- Reclassification (RCL) to apply the Mixed Use (MU) Overlay to the subject property
- Conditional Use Permit (CUP) to allow:
    - "Dwelling - Multi-Family" development within the MU Overlay Zone;

      and
    - Modification of the standards (i.e. street side and building to building setbacks, and increase in maximum height).

EXHIBIT 1-1: PRELIMINARY SITE PLAN

12830 - siteplan.dwg

URBAN CROSSROADS

1.2 PROJECT OVERVIEW

The proposed redevelopment Project is to consist of the demolition of the existing tow yard facility (3 buildings totaling approximately 15,000 square feet of building area) for the development of a multi-family residential community (for-rent, apartments) with 269 dwelling units ranging in size from approximately 700 Square feet to 1,150 square feet.

For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development, and is anticipated to be fully built and operational by Year 2023. Access to the Project site will be provided on Anaheim Boulevard via Driveway 1 (full access). Regional access to the site is provided by the SR-91 Freeway interchange via Anaheim Boulevard.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential impacts to traffic and circulation have been assessed for each of the following conditions:

- Existing (2019)
- Existing plus Project (E+P)
- Opening Year Cumulative (2023) Without Project
- Opening Year Cumulative (2023) With Project
- Long-Range Without Project
- Long-Range With Project

1.3.1 EXISTING (2019) CONDITIONS

Information for Existing (2019) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. The E+P analysis is intended to identify the project-specific traffic impacts associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2019) conditions.

1.3.3 OPENING YEAR CUMULATIVE (2023) CONDITIONS

The Opening Year Cumulative (2023) conditions analysis determines the potential near-term cumulative circulation system deficiencies. The Opening Year Cumulative conditions analysis has been provided to determine if planned and funded improvements can accommodate the near-term cumulative traffic at the target level of service (LOS) identified by the City of Anaheim (lead agency).

To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth from Existing (2019) conditions of

4.06% (1.0 percent per year over 4 years, compounded annually) is included for Opening Year Cumulative traffic conditions. This list was compiled from information provided by the City of Anaheim, and is consistent with recent studies in the study area.

1.3.4 LONG-RANGE CONDITIONS

Traffic projections for Long-Range with Project conditions were derived from the Anaheim Transportation Analysis Model (ATAM) regional traffic model, maintained by the City of Anaheim, using accepted procedures for model forecast refinement and smoothing. For the purpose of this analysis, Long-Range traffic forecasts were either obtained from the ATAM regional traffic model provide by City staff or the Anaheim Boulevard & La Palma Avenue (La Palma Village) Transportation Impact Analysis. (2)

The Long-Range conditions analysis will be utilized to determine if planned and funded improvements can accommodate the long-range cumulative traffic at the target LOS identified by the City of Anaheim (lead agency).

1.4 STUDY AREA

To ensure that this TIA satisfies the City of Anaheim's traffic study requirements, Urban Crossroads, Inc. prepared a project traffic study scoping package for review by City staff prior to the preparation of this report. The Agreement approved by the City is included in Appendix 1.1.

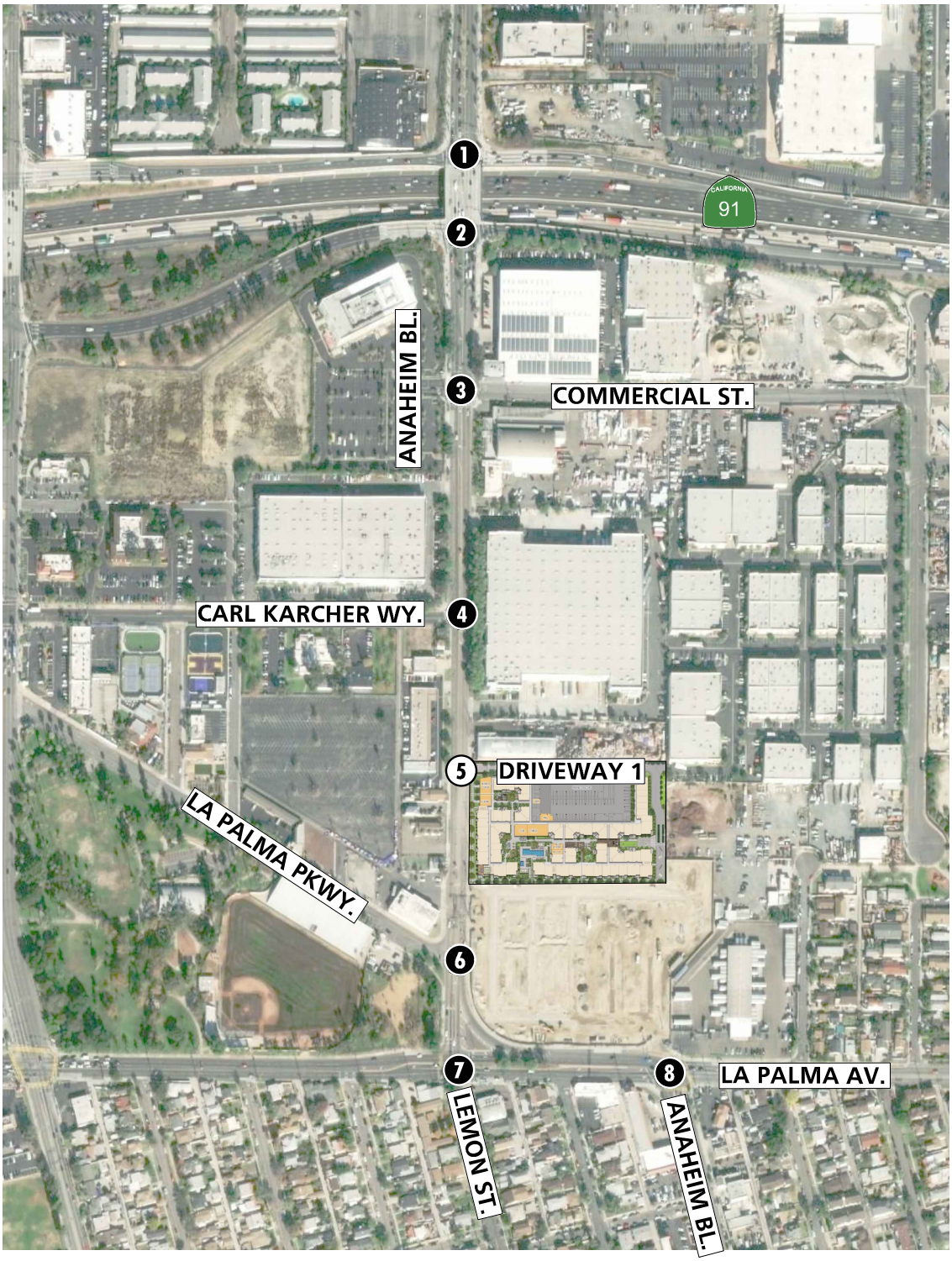
The following 8 study area intersections shown on Exhibit 1-2 and listed in Table 1-1 were selected for this TIA based on consultation with City of Anaheim staff. In general, the study area intersection locations have been defined based on the City's 50 peak hour trip threshold to any surrounding intersections and/or are requested to be evaluated by City staff.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Anaheim Bl. & SR-91 Westbound Ramps	Caltrans, Anaheim	No
2	Anaheim Bl. & SR-91 Eastbound Ramps	Caltrans, Anaheim	No
3	Anaheim Bl. & Commercial St.	Anaheim	No
4	Anaheim Bl. & Carl Karcher Wy.	Anaheim	No
5	Anaheim Bl. & Driveway 1	Anaheim	No
6	Anaheim Bl. & La Palma Pkwy.	Anaheim	No
7	Anaheim Bl./Lemon St. & La Palma Av.	Anaheim	No
8	Anaheim Bl. & La Palma Av.	Anaheim	No

Based on a review of the Orange County Congestion Management Program (CMP), there are no CMP facilities within the study area.

EXHIBIT 1-2: LOCATION MAP



1.5 ANALYSIS FINDINGS

This section provides a summary of the analysis results for Existing (2019), Opening Year Cumulative (2023), and Long-Range traffic conditions (see Exhibit 1-3 and Table 1-2).

1.5.1 INTERSECTIONS

Existing (2019) Conditions

For Existing (2019) traffic conditions, the study area intersection of Anaheim Boulevard and Carl Karcher Way is currently operating at an unacceptable LOS (i.e., LOS E or F) during one or both of the peak hours.

E+P Conditions

No additional study area intersections are anticipated to operate at an unacceptable LOS (i.e., LOS E or F) during one or more peak hours with the addition of Project traffic for E+P traffic conditions.

Opening Year Cumulative (2023) Without Project Conditions

For Opening Year Cumulative (2023) Without Project traffic conditions, no additional study area intersections are anticipated to operate at an unacceptable LOS (i.e., LOS E or F) during one or more peak hours, consistent with Existing (2019) traffic conditions. The intersection of Anaheim Boulevard/Lemon Street & La Palma Avenue would require two westbound right turn lanes to operate at an acceptable LOS. La Palma Avenue will be constructed with two westbound right turn lanes as part of the La Palma Village project.

Opening Year Cumulative (2023) With Project Conditions

No additional study area intersections are anticipated to operate at an unacceptable LOS (i.e., LOS E or F) during one or more peak hours with the addition of Project traffic for Opening Year Cumulative (2023) With Project traffic conditions.

Long-Range Without Project Conditions

For Long-Range Without Project traffic conditions, no additional study area intersections are anticipated to operate at an unacceptable LOS (i.e., LOS E or F) during one or more peak hours, consistent with Existing (2019) traffic conditions.

Long-Range With Project Conditions

No additional study area intersections are anticipated to operate at an unacceptable LOS (i.e., LOS E or F) during one or more peak hours with the addition of Project traffic for Long-Range With Project traffic conditions.

EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2019)	E+P	Opening Year Cumulative (2023) Without Project	Opening Year Cumulative (2023) With Project	Long-Range Without Project	Long-Range With Project
1	Anaheim Bl. & SR-91 WB Ramps						
2	Anaheim Bl. & SR-91 EB Ramps						
3	Anaheim Bl. & Commercial St.						
4	Anaheim Bl. & Carl Karcher Wy.						
5	Anaheim Bl. & Dwy. 1	NA		NA		NA	
6	Anaheim Bl. & La Palma Pkwy.						
7	Anaheim Bl. / Lemon St & La Palma Av.						
8	Anaheim Bl. & La Palma Av.						

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS E
- = LOS F
- NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

1.6 ON-SITE ROADWAY AND SITE ACCESS IMPROVEMENTS

The Project site plan proposes access onto Anaheim Boulevard via Driveway 1. Roadway improvements necessary to provide site access and on-site circulation are assumed to be constructed in conjunction with site development and are described below. These improvements are required to be in place prior to occupancy.

The recommended site-adjacent roadway improvements for the Project are described below. These improvements need to be incorporated into the Project description prior to Project approval or imposed as conditions of approval as part of the Project approval. Exhibit 1-4 illustrates the recommended on-site and site adjacent roadway lane improvements for the Project. Construction of on-site and site adjacent improvements are recommended to occur in conjunction with adjacent Project development activity or as needed for Project access purposes.

1.6.1 SITE ADJACENT ROADWAY IMPROVEMENT RECOMMENDATIONS

Anaheim Boulevard is a north-south oriented roadway located along the Project's western boundary. Anaheim Boulevard is currently built at its ultimate full-section width as a Secondary Arterial (90-foot right-of-way) between the Project's northern boundary and the Project's southern boundary. Improvements along Anaheim Boulevard would be those required by final conditions of approval for the proposed Project and applicable City of Anaheim standards.

1.6.2 SITE ACCESS IMPROVEMENT RECOMMENDATIONS

The recommended site access improvements for the Project are described below and illustrated on Exhibit 1-4.

Anaheim Boulevard & Driveway 1:

- Install a stop control at the driveway exit.
- On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.
- Sight distance at each project access point should be reviewed with respect to City of Anaheim standards at the time of preparation of final grading, landscape and street improvement plans.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS

LEGEND:

= STOP SIGN
= EXISTING LANE
= LANE IMPROVEMENT
TWLTL = TWO WAY LEFT TURN LANE

N

J-21

Table 1-2

Summary of Intersection Improvements

#	Intersection Location	Jurisdiction	Existing (2019)	E+P	Opening Year Cumulative (2023) Without Project	Opening Year Cumulative (2023) With Project	Long-Range Without Project	Long-Range With Project	Fair Share %[2]
4	Anaheim Bl. & Carl Karcher Wy.	City of Anaheim	- Install a traffic signal	- Same	- Same	- Same	- Same	- Same	27.2%

[1] Fair share percentage based on Long-Range traffic conditions.

1.7 VEHICLE MILES TRAVELED (VMT) ASSESSMENT

The California Natural Resources Agency adopted revised CEQA Guidelines on December 28, 2018. Among the changes to the guidelines was the removal of vehicle delay and Level of Service (LOS) from consideration for transportation impacts under CEQA. With the adopted guidelines, transportation impacts were to be evaluated based on a project's effect on vehicle miles traveled (VMT). Lead agencies were allowed to continue using their current impact criteria until June 30, 2020, or to opt into the revised transportation guidelines. On June 23, 2020, the City of Anaheim City Council adopted the VMT Thresholds of Significance for purpose of analyzing transportation impacts and also approved the Traffic Impact Analysis Guidelines for California Environmental Quality Act Analysis (Guidelines).

Based on the City Guidelines, the Proposed Project's proximity to high quality transit is one of the screening thresholds that could be used for determining if a VMT analysis is required. CEQA Section 15064.3, subdivision (b)(1) states that lead agencies should generally presume that certain projects, including residential, will have a less than significant impact on VMT within one half mile of a fixed stop along a high-quality transit corridor. The Public Resources Code 21155 defines a high-quality transit corridor as a fixed route bus corridor with headways of 15 minutes or less during peak commute hours. The City Guidelines states that this presumption would not apply if any of the following is true:

- Has a Floor Area Ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction
- Is inconsistent with the applicable Sustainable Communities Strategy (SCS) (as determined by the lead agency, with input from the Metropolitan Planning Organization)

The Proposed Project is located immediately adjacent to bus stops on Anaheim Boulevard and less than ½ mile from bus stops on La Palma Avenue. The peak hour headways for buses on both streets are 15 minutes or less. The proposed project's dwelling units will total over 230,000 square feet on a 195,584 square foot site, so the FAR will exceed 0.75. The Proposed Project meets but does not exceed the parking required by the City. Additionally, the Project is consistent with the applicable SCS as the Project's land use is consistent with the City's General Plan land use designation. Therefore, the Project could be screened from a VMT analysis, and would be considered a less than significant impact on VMT, per the City of Anaheim TIA Guidelines for CEQA Analysis.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with the City of Anaheim and Caltrans traffic study guidelines.

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) (Latest Edition) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (3) The HCM uses different procedures depending on the type of intersection control. In comparison, the Intersection Capacity Utilization (ICU) methodology expresses the LOS at a signalized intersection in terms of volume-to-capacity ratio (v/c). (4)

2.2.1 SIGNALIZED INTERSECTIONS

City of Anaheim

The City of Anaheim requires signalized intersection operations analysis based on the methodology described in the ICU for signalized intersections and HCM for unsignalized intersections. (3) (4) Intersection LOS operations are based on an intersection's average control delay per the HCM methodology. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections evaluated using the HCM methodology, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. ICU study area intersections located within the City of Anaheim have been analyzed using Traffix (Version 8).

The ICU methodology is utilized at signalized intersections only. A minimum clearance interval of 0.05 in association with lane capacities of 1,700 vehicles per hour of green time for through lanes and turn lanes were assumed for the ICU calculations.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS FOR HCM

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths	80.01 and up	F	F

Source: HCM

TABLE 2-2: SIGNALIZED INTERSECTION LOS THRESHOLDS FOR ICU

Description	ICU	Level of Service
Little or no capacity deficiencies.	< 0.60	A
Short-term capacity deficiencies.	0.61 – 0.70	B
Average capacity deficiencies.	0.71 – 0.80	C
Long-term capacity deficiencies.	0.81 – 0.90	D
Very high capacity deficiencies.	0.91 – 1.00	E
Extremely high capacity deficiencies, with intersection capacity exceeded.	> 1.00	F

Source: County of Orange CMP, ICU Methodology

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Anaheim requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. (3) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-3).

TABLE 2-3: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM 6th Edition

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15 minute volumes. Common practice for LOS analysis (per the HCM methodology) is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (3) In an effort to conduct a conservative analysis, a minimum PHF of 0.92 has been utilized at all new study area intersections that currently do not exist.

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD), for all study area intersections. (5)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CAMUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (5) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major

streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future intersections that do not currently exist have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

Traffic signal warrant analyses were performed for all of the following unsignalized study area intersections (see Table 2-4):

TABLE 2-4: UNSIGNALIZED INTERSECTION LOCATIONS

ID	Intersection Location
4	Anaheim Bl. & Carl Karcher Wy.
5	Anaheim Bl. & Driveway 1 – Future Intersection
6	Anaheim Bl. & La Palma Pkwy.

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Existing Conditions* of this report. The traffic signal warrant analysis for future conditions is presented Section 5 *E+P Traffic Analysis*, Section 6 *Opening Year Cumulative (2023) Traffic Analysis*, and Section 7 *Long-Range Traffic Analysis,* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 FREEWAY OFF-RAMP QUEUING ANALYSIS

The study area for this TIA includes the freeway-to-arterial interchange of the SR-91 Freeway at Anaheim Boulevard off-ramps. Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing impacts at the freeway ramp intersections on Anaheim Boulevard . Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the SR-91 Freeway mainline from the off-ramp.

2.5 MINIMUM LEVEL OF SERVICE (LOS)

The definition of an intersection deficiency has been obtained from each of the applicable surrounding jurisdictions.

2.5.1 CITY OF ANAHEIM

Per City's Growth Management Element requirements, a volume/capacity ratio of 0.90 (Level of Service D) shall be the lowest acceptable Service Level at intersections following implementation

of mitigation measures. Mitigation measures sufficient to bring intersections and roadway segments to the acceptable service levels must be identified. In order to maintain LOS "D "at intersections, arterial highway links should be maintained at LOS "C" or better.

2.5.2 CALTRANS

Based on recent guidance from Caltrans District 8, the LOS for operating State highway facilities is based on Measures of Effectiveness (MOE) identified in the Highway Capacity Manual (HCM). Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing MOE should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadways segments, and intersections is D. For undeveloped or not densely developed locations, the goal may be to achieve LOS C.

2.6 THRESHOLDS OF SIGNIFICANCE

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

2.6.1 CITY OF ANAHEIM

A transportation impact on an intersection shall be deemed "significant" in accordance with the following table:

TABLE 2-5: CITY OF ANAHEIM THRESHOLD OF SIGNIFICANCE

Level of Service	Final V/C Ratio	Project-Related Increase In V/C
C	> 0.700-0.800	Equal to or greater than 0.050
D	> 0.800-0.900	Equal to or greater than 0.030
E, F	> 0.900	Equal to or greater than 0.010

For purposes of this calculation, the "Final V/C Ratio" shall mean the future V/C ratio at an intersection considering impacts with Project, Ambient Growth and Related Projects but without any proposed mitigation.

2.6.2 CALTRANS FACILITIES

To determine that the addition of project traffic to the SHS freeway segments would result in a deficiency, both of the following must be found:

- The traffic study finds that the LOS of a segment will degrade from D or better to E or F.
- The traffic study finds that the project will exacerbate an already deficient condition by contributing 50 or more peak hour trips. A segment that is operating at or near capacity is deemed to be deficient.

2.7 FAIR SHARE CONTRIBUTION

Project's equitable share is to be calculated using the following equation:

$P = T / (To - Te)$

Where:

P = The equitable share for the proposed project's traffic impact.

T = The vehicle trips generated by the project during peak hour of adjacent street, vph.

To = Opening Year + Cumulative + Project traffic volume, vph.

Te = Existing traffic, vph.

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Anaheim General Plan Circulation Network, and a review of existing peak hour intersection operations and traffic signal warrant analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Anaheim staff (Appendix 1.1), the study area includes a total of 8 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF ANAHEIM GENERAL PLAN CIRCULATION ELEMENT

As noted previously, the Project site is located within the City of Anaheim. Exhibit 3-2 shows the City of Anaheim General Plan Circulation Element. (6) The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the City of Anaheim in the vicinity of the proposed Project, as identified on the City's General Plan Circulation Element, are described subsequently.

Primary Arterial. Roadways that provide for circulation within the City and to its adjacent communities. Primary arterials are typically six lane divided facilities with no parking or four lane divided with left turn pockets and two parking lanes. The typical right-of-way width of a primary arterial is 106 feet. The following study area roadways within the City of Anaheim are classified as primary arterials:

- La Palma Avenue

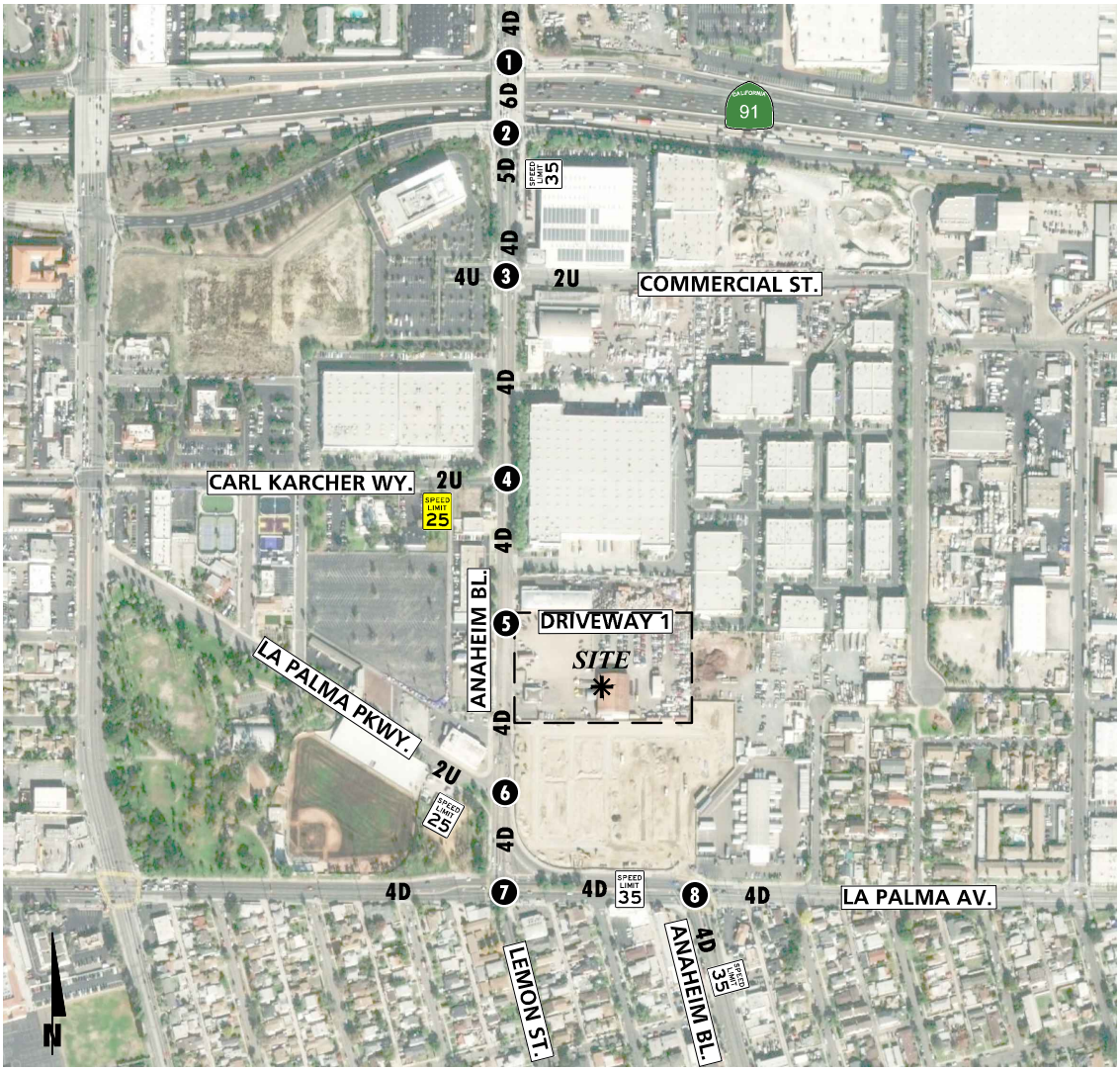
Secondary Arterial. Roadways that provide for circulation within the City. Secondary arterial facilities are four-lane roadways, with two parking lanes, that are undivided. These facilities have a typical right-of-way width of 90 feet. The following study area roadways within the City of Anaheim are classified as secondary arterials:

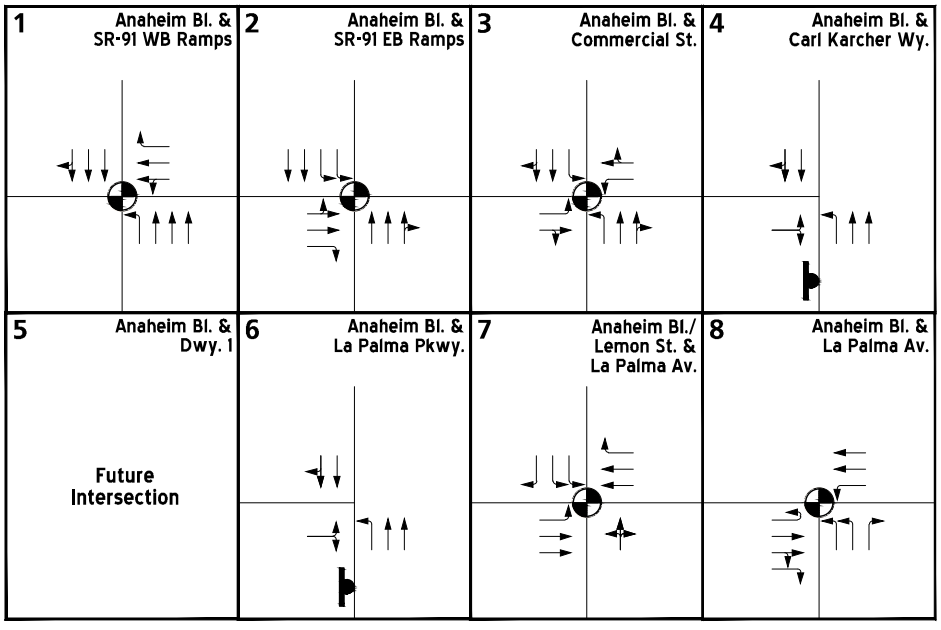
- Anaheim Boulevard/Lemon Street

Collector Street. Roadways that distribute residential traffic from its point of origin to higher capacity facilities. They are typically two-lane undivided roadways with a 64-foot right of way width. The following study area roadways within the City of Anaheim are classified as collector streets:

- Carl Karcher Way

EXHIBIT 3-1: EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

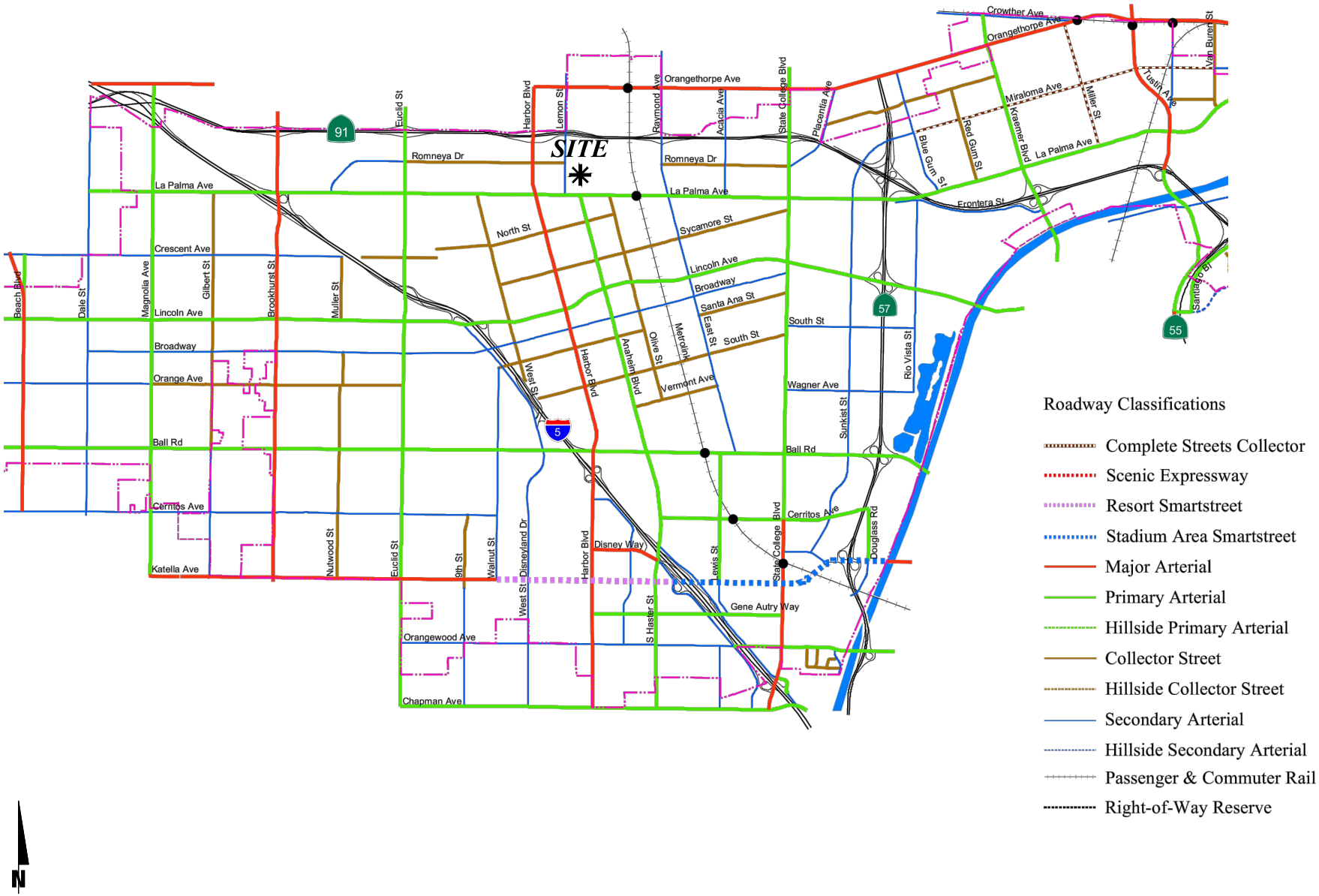




LEGEND:

- = TRAFFIC SIGNAL
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- SPEED LIMIT 25 = SPEED LIMIT (MPH)
- SPEED LIMIT 25 = SCHOOL SPEED LIMIT (MPH)

EXHIBIT 3-2: CITY OF ANAHEIM GENERAL PLAN CIRCULATION ELEMENT



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3.3 TRANSIT SERVICE

Consistent with statewide mandates (see AB 32, SB 375, SB 743) and SCAG's 2016-2040 RTP/SCS to place increased density near major transportation and employment center, the Proposed Project would introduce a diverse mix of land uses; places residents in the immediate vicinity of County and city governmental offices, shops, restaurants, bars, local art scenes, parks; and would be within walking distance to several major public transit opportunities.

Bus routes serving the Project area within ¼-mile of the Project's location include OCTA route 38. These routes provide connections to several areas countywide. In addition, the project site is about 1 and ¼ mile from the Fullerton Station, which is served by regional trains including Amtrak and Metrolink.

The Project is within a transit priority area as defined by Public Resources Code (PRC) Section 21099(a)(7). A transit priority area is an area within one-half mile of a major transit stop that is existing (or planned under certain conditions).

Existing transit routes within the study area are shown on Exhibit 3-3. Transit service is reviewed and updated by OCTA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.4 BICYCLE & PEDESTRIAN FACILITIES

Field observations indicate active pedestrian and bicycle activity within the study area. Exhibit 3-4 illustrates the City of Anaheim Existing and Planned Bicycle Facilities, which includes a planned Class II bike lane along Lemon Street and La Palma Avenue near the vicinity of the Project. A Class III bike route is planned along Carl Karcher Way, west of the Project.

Existing pedestrian facilities within the study area, which include sidewalks, bus stop locations, and crosswalks are shown on Exhibit 3-5.

3.5 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in November 2019. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area (i.e., near-by schools were in session and operating on normal schedules, clear weather conditions, etc.). Observations were made in the field that would indicate atypical traffic conditions on the count dates. Construction activity of the future project, La Palma Village, began in 2019 and is anticipated to continue into 2020. The construction activity removed the channelized yield on La Palma Avenue. As a result of the construction, only one westbound right turn lane was open for traffic.

EXHIBIT 3-3: EXISTING TRANSIT ROUTES

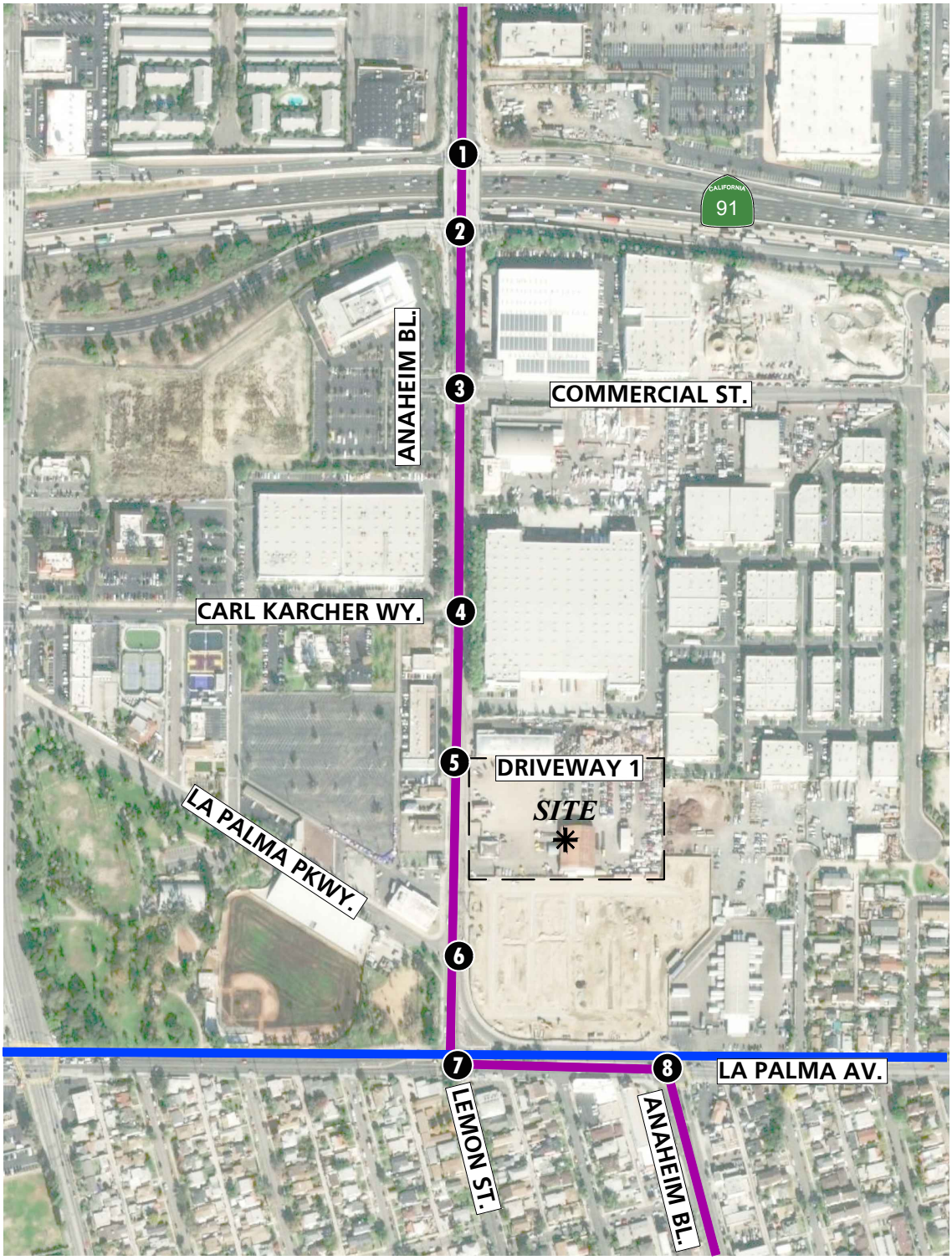
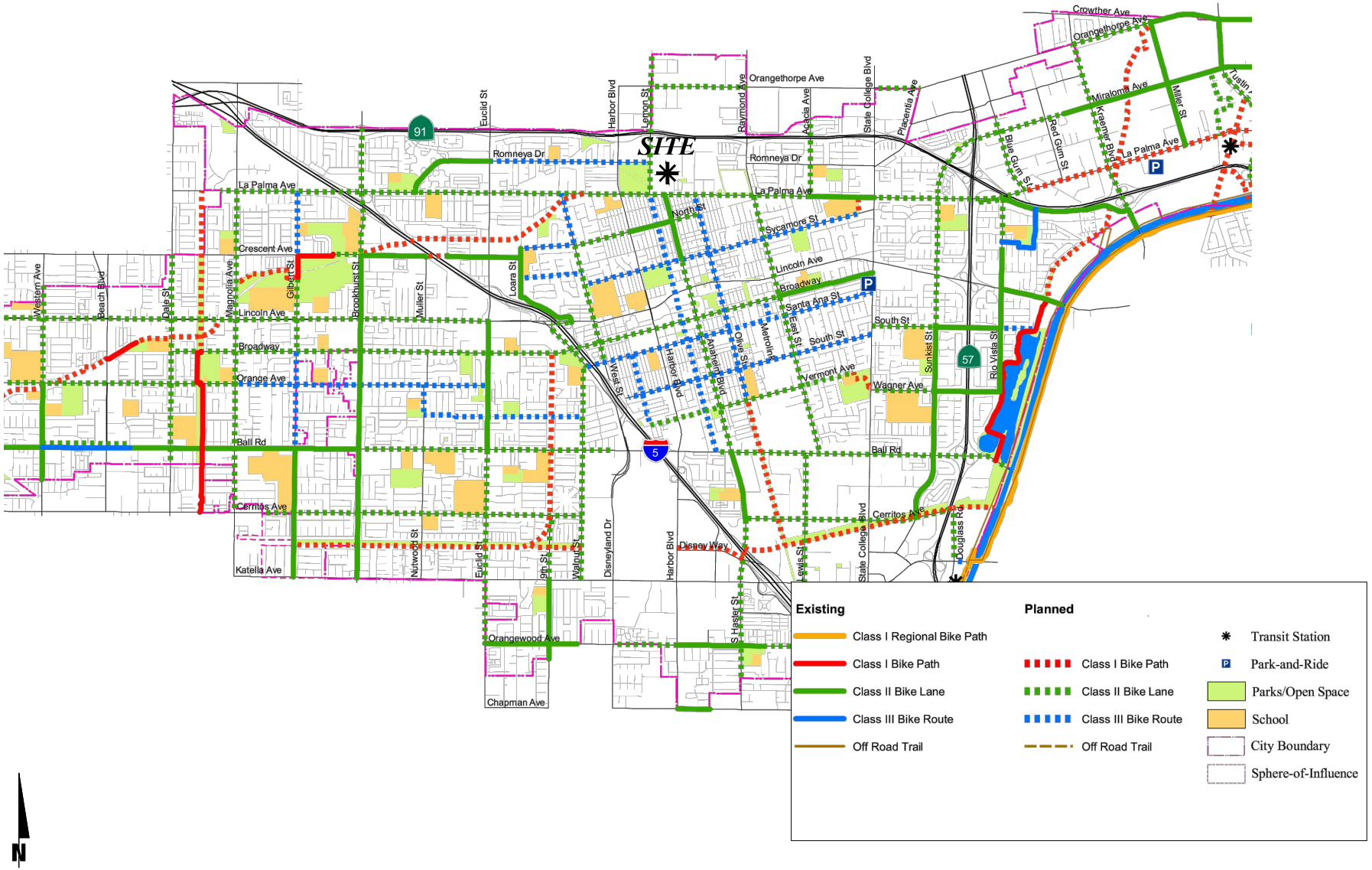
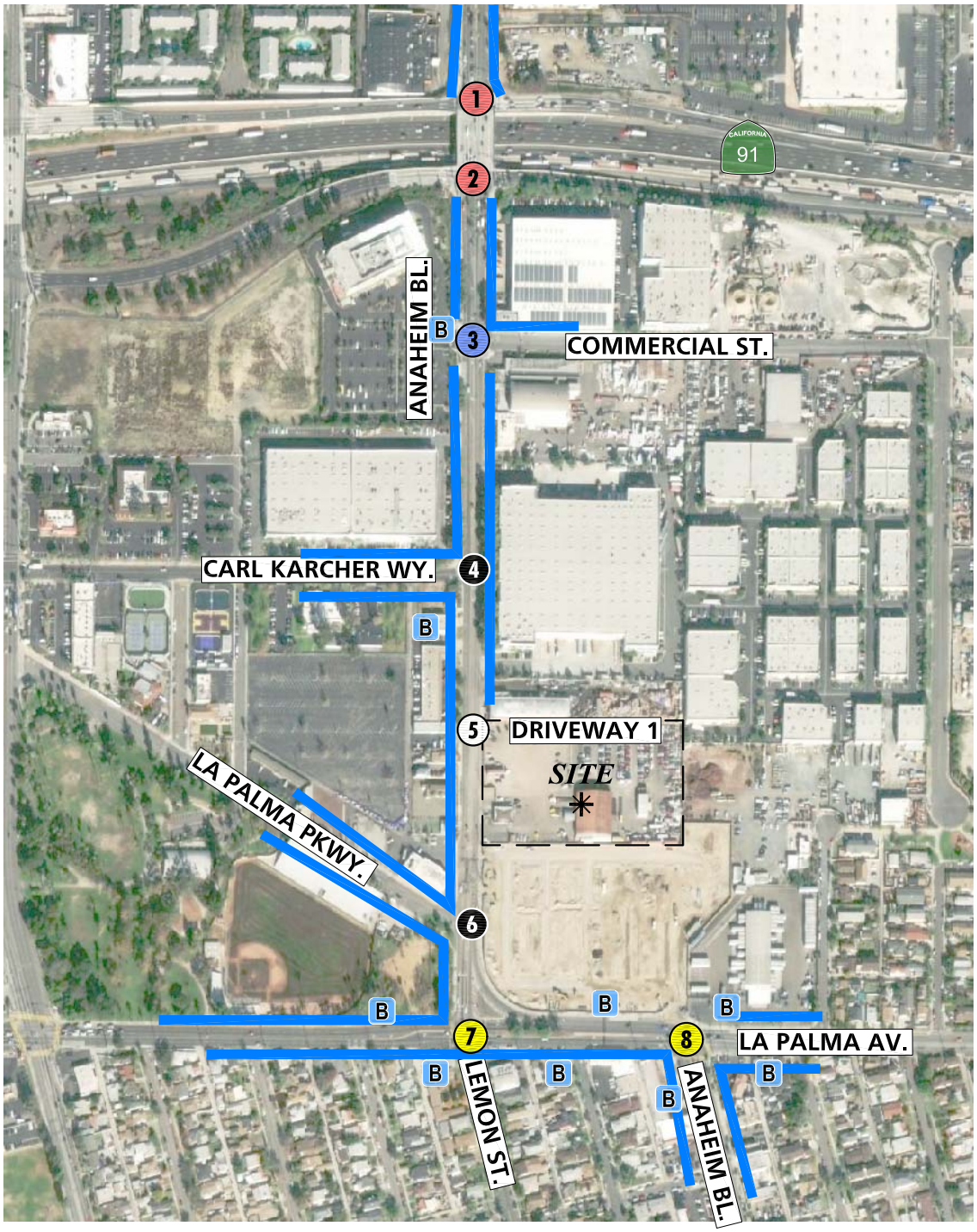


EXHIBIT 3-4: CITY OF ANAHEIM EXISTING AND PLAN BICYCLE FACILITIES



URBAN CROSSROADS

EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES



As discussed with City staff, existing volumes from the La Palma Village TIA will be utilized for the overlapping intersections and credit will be taken for the existing tow yard where the Project resides. A compounded growth rate of 1.0 percent per year for 5 years will be applied to the intersection volumes. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-6. Existing ADT volumes are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 11.35 = Leg Volume

For those roadway segments which have 24-hour tube count data available in close proximity to the study area, a comparison between the PM peak hour and daily traffic volumes indicated that the peak-to-daily relationship of approximately 8.81 percent would sufficiently estimate ADT volumes for planning-level analyses. As such, the above equation utilizing a factor of 11.35 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 8.81 percent (i.e., 1/0.0881 = 11.35). Existing weekday ADT and weekday AM and weekday PM peak hour intersection volumes are shown on Exhibit 3-6.

3.6 EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that the following intersection is currently operating at an unacceptable LOS during one or more peak hours:

- Anaheim Bl. & Carl Karcher Wy. (#4) –LOS F AM and PM peak hours

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-7. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

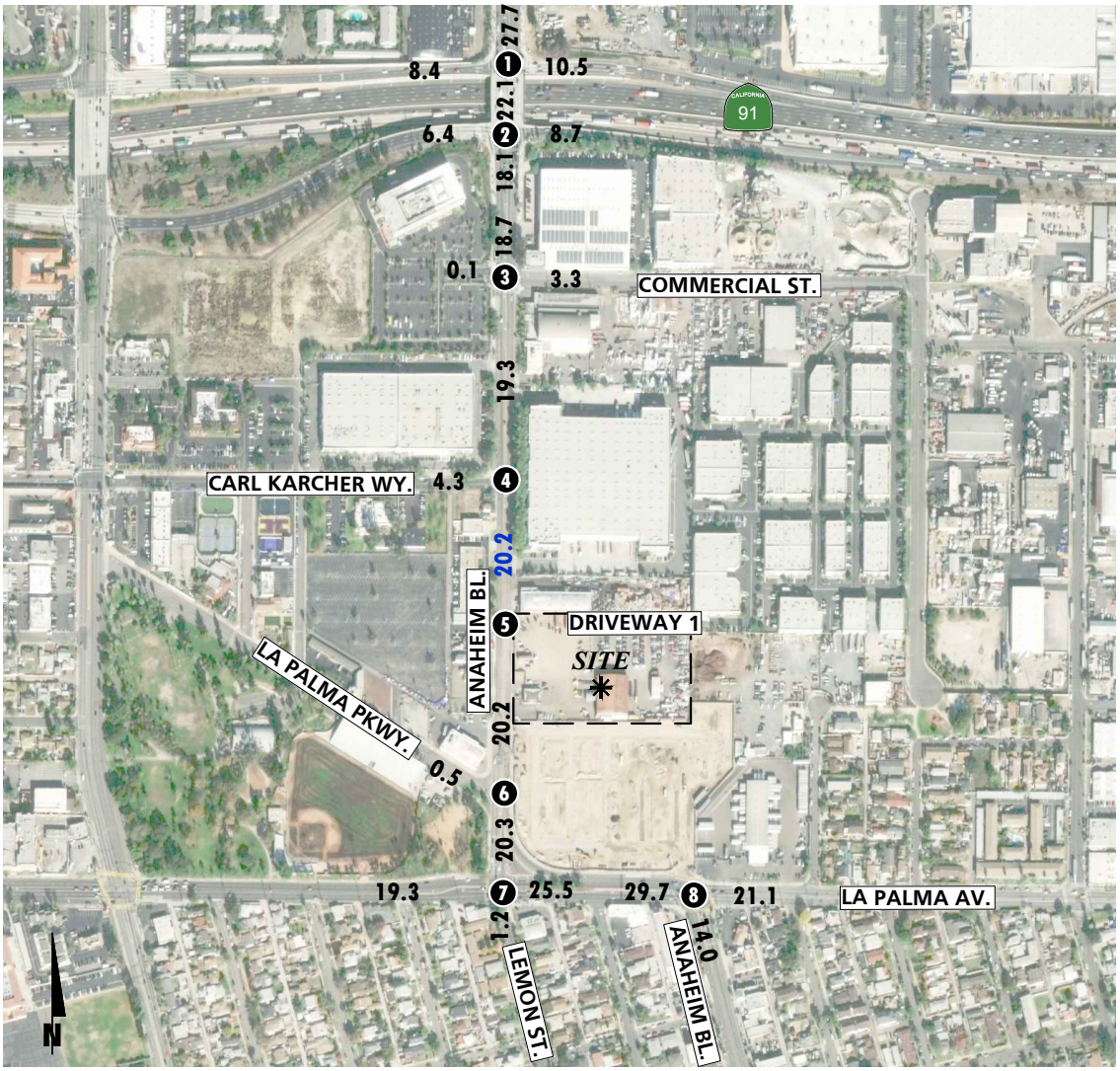
3.7 EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. The intersection of Anaheim Boulevard and Carl Karcher Way currently warrants a traffic signal under Existing traffic conditions. Existing conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

3.8 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramp at the SR-91 Freeway at Anaheim Boulevard interchange to assess vehicle queues for the off ramp that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-91 Freeway mainline. Queuing analysis findings are presented in Table 3-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 3-2, there are no existing queuing issues. Worksheets for Existing traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

EXHIBIT 3-6: EXISTING (2019) TRAFFIC VOLUMES



1 Anaheim Bl. & SR-91 WB Ramps	2 Anaheim Bl. & SR-91 EB Ramps	3 Anaheim Bl. & Commercial St.	4 Anaheim Bl. & Carl Karcher Wy.	5 Anaheim Bl. & Dwy. 1
222(364) 952(1074) 483(496) 338(428) 309(179)	900(858) 361(395)	4(1) 869(870) 165(79) 92(201) 0(0) 10(45)	87(119) 681(842)	Future Intersection
77(97) 649(987)	175(269) 401(354) 117(60) 551(815) 198(174)	1(6) 0(0) 1(1) 0(0) 628(813) 32(24)	89(59) 65(102) 89(170) 728(1013)	

6 Anaheim Bl. & La Palma Pkwy.	7 Anaheim Bl./ Lemon St. & La Palma Av.	8 Anaheim Bl. & La Palma Av.
3(8) 757(952)	235(309) 561(529) 516(627) 708(887)	904(1133) 94(132)
1(2) 16(20) 12(22) 817(1152)	240(193) 1009(631) 15(12) 114(100) 15(14)	0(15) 695(802) 529(498) 485(687) 122(160)

LEGEND:

- **10.0** = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)
- **10.0** = ESTIMATED VEHICLES PER DAY (1000'S)
- **10(10)** = AM(PM) PEAK HOUR INTERSECTION VOLUMES

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URBAN CROSSROADS

EXHIBIT 3-7: EXISTING (2019) SUMMARY OF LOS

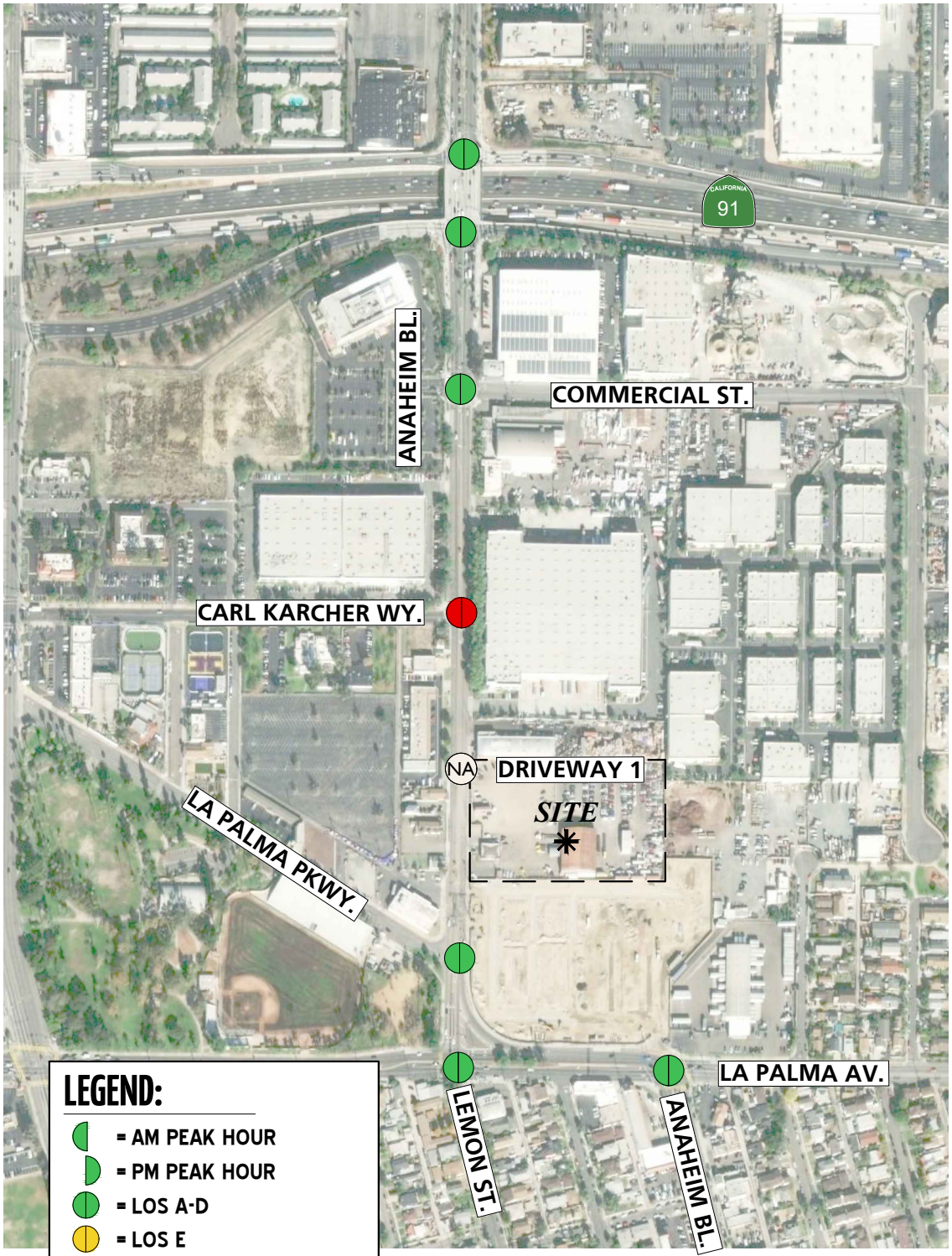

Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay (secs.) ICU (v/c)[2]		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Anaheim Bl. & SR-91 Westbound Ramps	TS	1	3	0	0	3	0	0	0	0	0	2	1				
	- ICU Methodology														0.677	0.692	B	B
	- HCM Methodology														16.4	16.0	B	B
2	Anaheim Bl. & SR-91 Eastbound Ramps	TS	0	3	0	2	2	0	0	2	1	0	0	0				
	- ICU Methodology														0.532	0.554	A	A
	- HCM Methodology														15.3	17.0	B	B
3	Anaheim Bl. & Commercial St.	TS	1	2	0	1	2	0	1	1	0	1	1	0	0.426	0.482	A	A
4	Anaheim Bl. & Carl Karcher Wy.	CSS	1	2	0	0	2	0	0	1	0	0	0	0	**60.4**	**>100.0**	**F**	**F**
5	Anaheim Bl. & Driveway 1		Future Intersection															
6	Anaheim Bl. & La Palma Pkwy.	CSS	1	2	0	0	2	0	0	1	0	0	0	0	12.2	15.7	B	C
7	Anaheim Bl./Lemon St. & La Palma Av.	TS	0	1	0	2	0	1	1	2	0	0	2	1	0.771	0.857	C	D
8	Anaheim Bl. & La Palma Av.	TS	2	0	1	0	0	0	1	2	1	1	2	0	0.515	0.633	A	B

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right

[2] Overall average intersection delay and level of service (HCM Methodology) are shown for intersections within the jurisdiction of Caltrans. Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds and ICU reported as a volume-to-capacity ratio.

[3] CSS = Cross-Street Stop; TS = Traffic Signal

Table 3-2

Peak Hour Freeway Off-Ramp Queuing Summary for Existing (2019) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Anaheim Bl. & SR-91 Westbound Ramps						
	WBT	900	263	236	Yes	Yes
	WBR	500	386	428	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown in this table, where applicable.

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4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment onto the study area roadway network. The proposed redevelopment Project is to consist of the demolition of the existing tow yard facility (3 buildings totaling approximately 15,000 square feet of building area) for the development of a multi-family residential community (for-rent, apartments) with 269 dwelling units ranging in size from approximately 700 square feet to 1,150 square feet. For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development, and is anticipated to be fully built and operational by Year 2023.

4.1 PROJECT TRIP GENERATION

Trip generation rates used to estimate the proposed Project traffic are shown in Table 4-1. The Project, as currently proposed, has six levels with residential uses on four levels. As such, Multifamily Housing (Mid-Rise) (Land Use Code 221) trip generation rates have been utilized for this analysis. A summary of the Project's trip generation is also shown in Table 4-1. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. Credit will be taken for the existing tow yard as discussed with City staff. As shown on Table 4-1, the proposed Project is anticipated to generate a net total of 1,140 weekday trip-ends per day with 80 AM peak hour trips and 87 PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site for both near-term and long-range traffic conditions. Exhibit 4-1 illustrates the trip distribution patterns for the Project. The Project will have access onto Anaheim Boulevard via Driveway 1.

4.3 MODAL SPLIT

The potential for Project trips (non-truck) to be reduced by the use of public transit, walking, or bicycling have not been included as part of the Project's estimated trip generation. Essentially, the Project's traffic projections are "conservative" in that these alternative travel modes would reduce the forecasted traffic volumes.

Table 4-1

Project Trip Generation Summary

Land Use	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Rates:[1]									
Multifamily Housing (Mid-Rise)	DU	221	0.09	0.27	0.36	0.27	0.17	0.44	5.44

Land Use	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary:									
Multifamily Housing (Mid-Rise)[3]	269	DU	25	72	97	72	46	118	1,464
Existing Tow Yard[4]			11	6	17	13	18	31	324
Net Total:			**14**	**66**	**80**	**59**	**28**	**87**	**1,140**

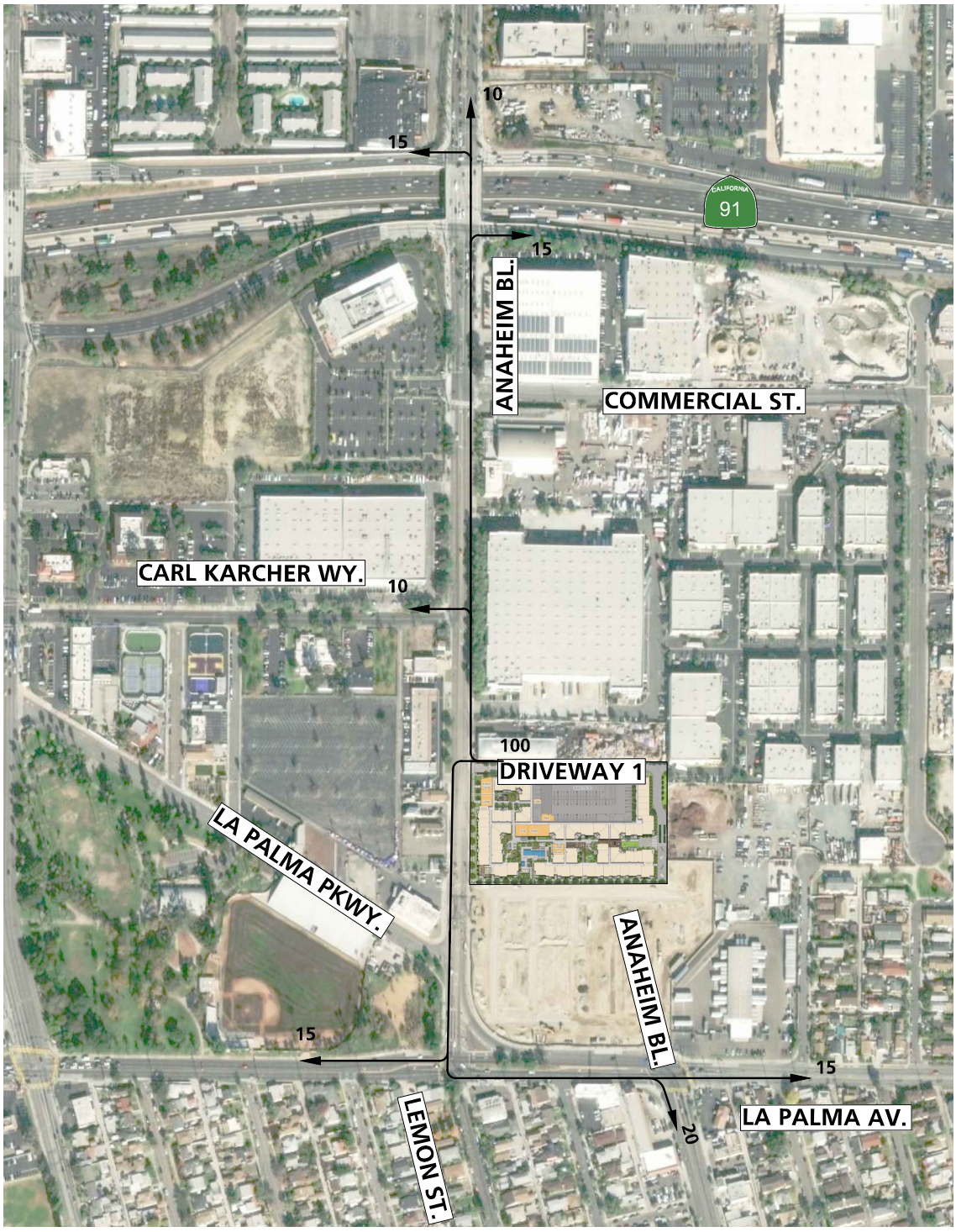
[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

[2] DU = Dwelling Units

[3] No additional trip generation is assumed for the fitness club and business center as the trips are expected to be exclusive to the Project tenants.

[4] Existing driveway counts were taken during typical weekday conditions on Thursday, March 12, 2020.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

N

4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project weekday ADT and weekday AM and PM peak hour intersection turning movement volumes are shown on Exhibit 4-2.

4.5 BACKGROUND TRAFFIC

4.5.1 OPENING YEAR CUMULATIVE CONDITIONS

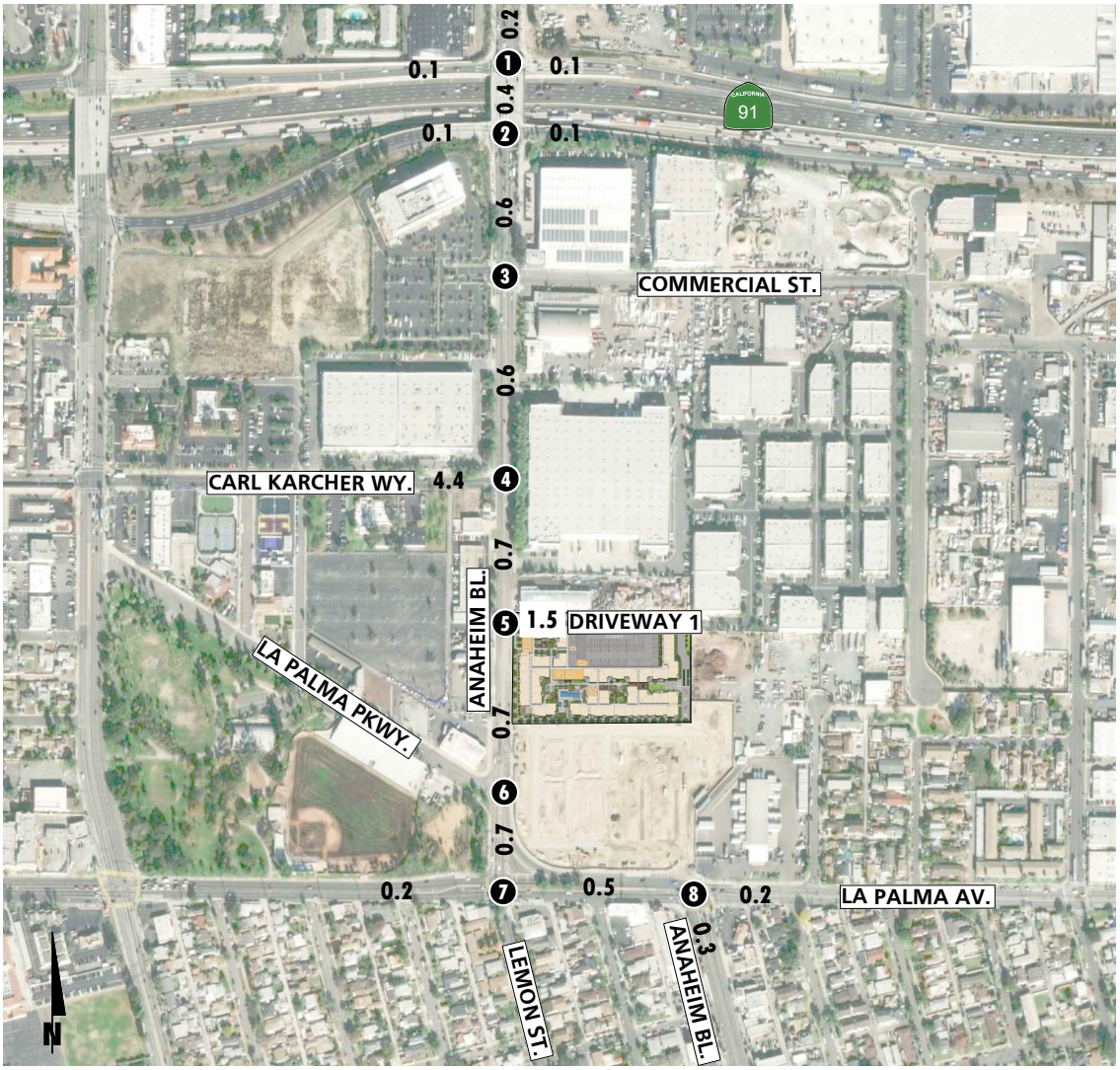
Future year traffic forecasts have been based upon four years of background (ambient) growth at 1.0% per year for 2023 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. The total ambient growth is 4.06% for 2023 traffic conditions (compounded growth of one percent per year over four years or $1.01^{4\ years}$). This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

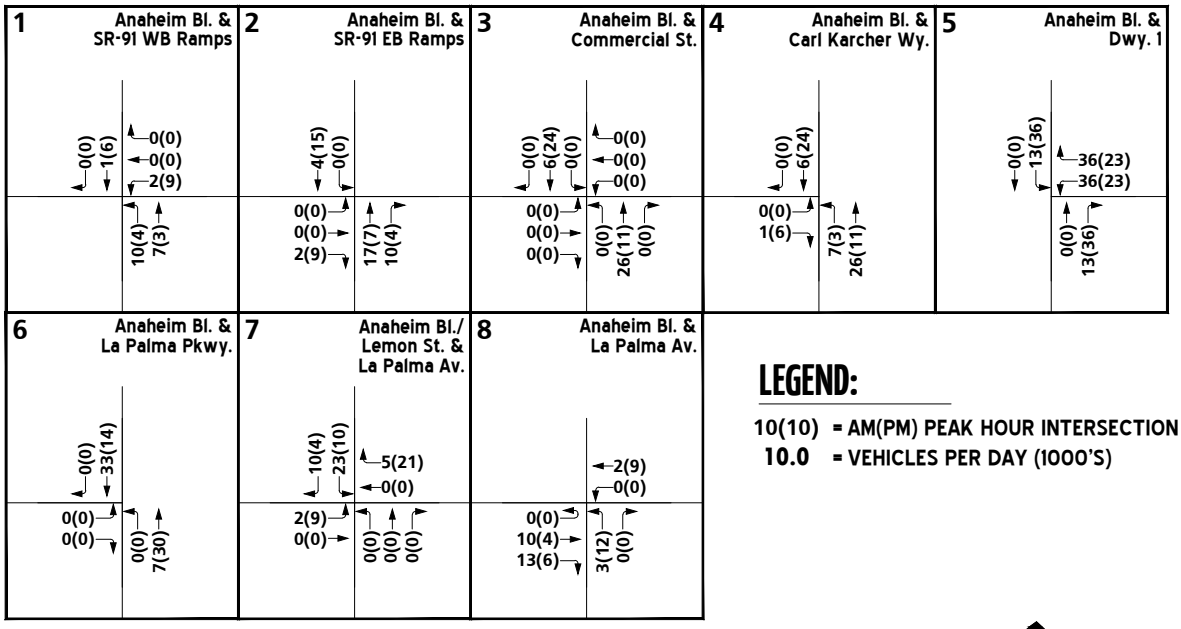
According to information published by OCTA in the 2014 Long Range Transportation Plan, the population of Orange County is projected to increase by 13.0% in the period between 2010 and 2040, a compounded rate of approximately 1.67% annually. During the same period, employment in Orange County is expected to increase by 19.0% or 1.65% annually. (7) Therefore, the annual growth rate of 1.0% in conjunction with cumulative project traffic would appear to be conservative and tend to overstate as opposed to understate traffic impacts.

The near-term traffic analysis includes the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2023) Without Project
    - Existing 2019 volumes
    - Ambient growth traffic (4.06%)
    - Cumulative Development Traffic
- Opening Year Cumulative (2023) With Project
    - Existing 2019 volumes
    - Ambient growth traffic (4.06%)
    - Cumulative Development traffic
    - Project Traffic

EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Anaheim.

Exhibit 4-3 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-2. If the cumulative development project was within 2 miles of the proposed Project, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-2 are reflected as part of the background traffic.

4.7 LONG-RANGE VOLUME DEVELOPMENT

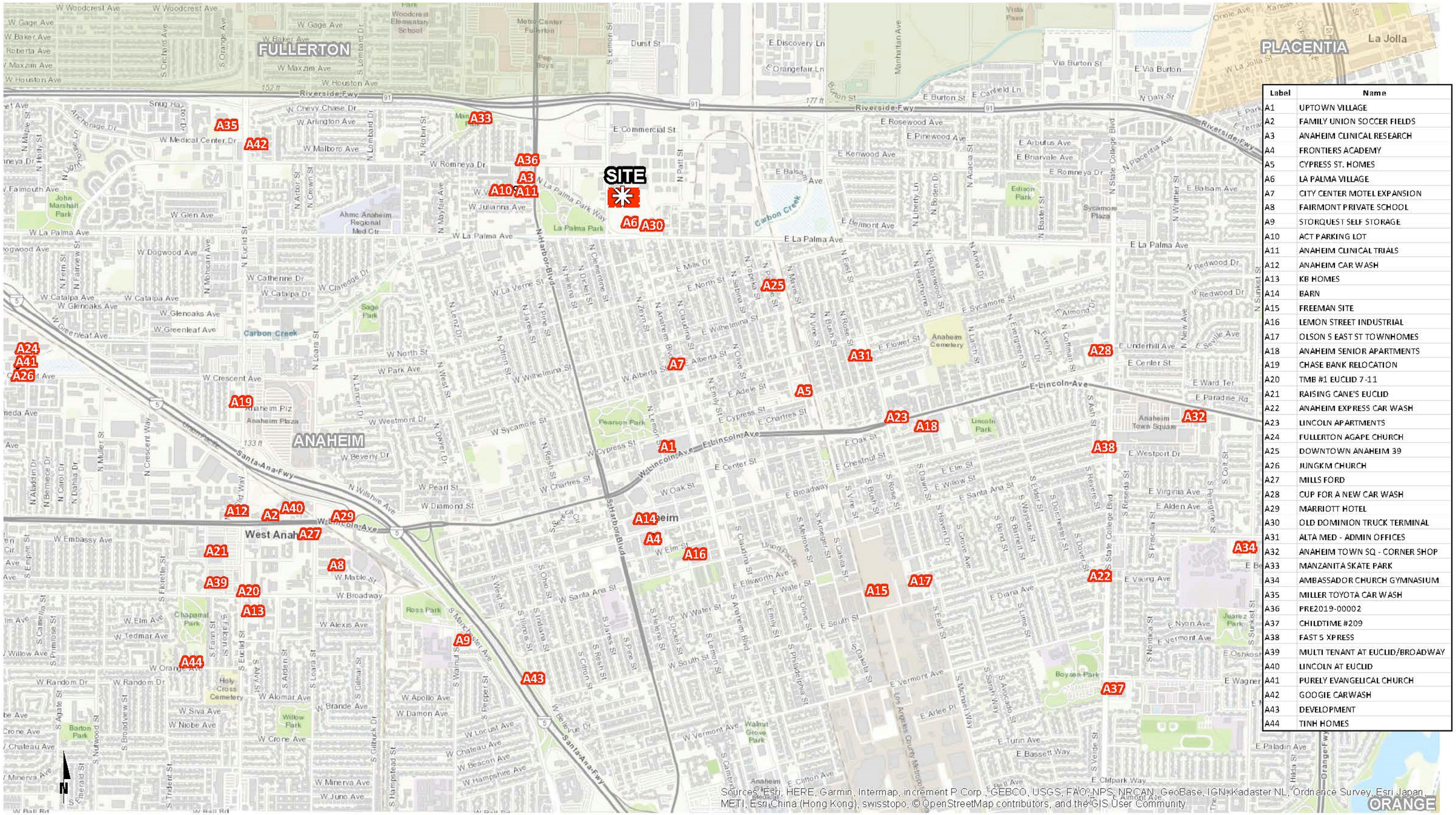
Traffic projections for Long-Range conditions were derived from the Anaheim Transportation Analysis Model (ATAM) maintained by the City of Anaheim using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing (2019) conditions and Long-Range conditions. The volumes have been included in Appendix 4.1.

The buildout approach is used to forecast long-range traffic conditions and reflects City General Plan Buildout, as well as traffic resulting from growth of the area represented in regional plans.

The long-range traffic analysis includes the following traffic conditions, with the various traffic components:

- Long-Range Without Project
    - Refined ATAM traffic forecasts
- Long-Range With Project
    - Refined ATAM traffic forecasts
    - Project Traffic

EXHIBIT 4-3: CUMULATIVE DEVELOPMENT PROJECTS LOCATION MAP



Label	Name
A1	UPTOWN VILLAGE
A2	FAMILY UNION SOCCER FIELDS
A3	ANAHEIM CLINICAL RESEARCH
A4	FRONTIERS ACADEMY
A5	CYPRESS ST. HOMES
A6	LA PALMA VILLAGE
A7	CITY CENTER MOTEL EXPANSION
A8	FAIRMONT PRIVATE SCHOOL
A9	STORQUEST SELF STORAGE
A10	ACT PARKING LOT
A11	ANAHEIM CLINICAL TRIALS
A12	ANAHEIM CAR WASH
A13	KB HOMES
A14	BARN
A15	FREEMAN SITE
A16	LEMON STREET INDUSTRIAL
A17	OLSON S EAST ST TOWNHOMES
A18	ANAHEIM SENIOR APARTMENTS
A19	CHASE BANK RELOCATION
A20	TMB #1 EUCLID 7-11
A21	RAISING CANE'S EUCLID
A22	ANAHEIM EXPRESS CAR WASH
A23	LINCOLN APARTMENTS
A24	FULLERTON AGAPE CHURCH
A25	DOWNTOWN ANAHEIM 39
A26	JUNGKM CHURCH
A27	MILLS FORD
A28	CUP FOR A NEW CAR WASH
A29	MARRIOTT HOTEL
A30	OLD DOMINION TRUCK TERMINAL
A31	ALTA MED - ADMIN OFFICES
A32	ANAHEIM TOWN SQ - CORNER SHOP
A33	MANZANITA SKATE PARK
A34	AMBASSADOR CHURCH GYMNASIUM
A35	MILLER TOYOTA CAR WASH
A36	PRE2019-00002
A37	CHILDTIME #209
A38	FAST 5 XPRESS
A39	MULTI TENANT AT EUCLID/BROADWAY
A40	LINCOLN AT EUCLID
A41	PURELY EVANGELICAL CHURCH
A42	GOOGIE CARWASH
A43	DEVELOPMENT
A44	TINH HOMES

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Table 4-2

Cumulative Development Land Use Summary

#	Case Number	Project Name	Address	Land Use	Quantity	Units[1]
A1	DEV2011-00110	UPTOWN VILLAGE	200 N LEMON ST	Residential	220	DU
				Retail	18.000	TSF
A2	DEV2013-00097	FAMILY UNION SOCCER FIELDS	1659 W LINCOLN AVE	Soccer Facility	2	Fields
A3	DEV2014-00035	ANAHEIM CLINICAL RESEARCH	1085 N HARBOR BLVD	Medical	9.776	TSF
A4	DEV2014-00040	FRONTIERS ACADEMY	310 W BROADWAY	School	100	STU
A5	DEV2014-00046	CYPRESS ST. HOMES	701 E CYPRESS ST	Residential	38	DU
A6	DEV2014-00095	LA PALMA VILLAGE	1110 N ANAHEIM BLVD	Residential	162	DU
A7	DEV2015-00005	CITY CENTER MOTEL EXPANSION	602-610 N ANAHEIM BLVD	Motel	--	
A8	DEV2015-00109	FAIRMONT PRIVATE SCHOOL	1557 W MABLE ST	School	--	
A9	DEV2015-00128	STORQUEST SELF STORAGE	500 S WALNUT ST	Self-storage	--	
A10	DEV2016-00016	ACT PARKING LOT	523 W VICTOR AVE	Medical	--	
A11	DEV2016-00017	ANAHEIM CLINICAL TRIALS	1085 N HARBOR BLVD	Medical	--	
A12	DEV2016-00025	ANAHEIM CAR WASH	203 N EUCLID ST TRAF.SIG COA	Industrial	--	
A13	DEV2016-00042	KB HOMES	312 S EUCLID ST	Residential	39	DU
A14	DEV2016-00062	BARN	350 W CENTER STREET PROMENADE	Residential	57	DU
				Retail/Office	16.500	TSF
A15	DEV2016-00088	FREEMAN SITE	901 E SOUTH ST	Residential	446	DU
A16	DEV2016-00118	LEMON STREET INDUSTRIAL	400 S LEMON ST	Industrial	7.239	TSF
A17	DEV2016-00138	OLSON S EAST ST TOWNHOMES	633-711 S EAST ST	Residential	42	DU
A18	DEV2017-00004	ANAHEIM SENIOR APARTMENTS	1248 E LINCOLN AVE	Residential	54	DU
A19	DEV2017-00049	CHASE BANK RELOCATION	545 N EUCLID ST	Retail	--	
A20	DEV2017-00053	TMB #1 EUCLID 7-11	260 S EUCLID ST	Retail	2.253	TSF
A21	DEV2017-00076	RAISING CANE'S EUCLID	101 S EUCLID ST	Retail	3.233	TSF
A22	DEV2017-00099	ANAHEIM EXPRESS CAR WASH	821 S STATE COLLEGE BLVD	Retail	1	CWT
A23	DEV2017-00101	LINCOLN APARTMENTS	1221 E LINCOLN AVE	Residential	19	DU
A24	DEV2017-00122	FULLERTON AGAPE CHURCH	2101 W CRESCENT AVE	Church	1.625	TSF
A25	DEV2017-00124	DOWNTOWN ANAHEIM 39	--	Residential	39	DU
A26	DEV2017-00126	JUNGKM CHURCH	2111 W CRESCENT AVE F,G	Church	1.876	TSF
A27	DEV2017-00128	MILLS FORD	1600 W LINCOLN AVE	Residential	315	DU
				Retail	11	TSF
A28	DEV2018-00040	CUP FOR A NEW CAR WASH	125 N STATE COLLEGE BLVD	Retail	1	CWT
A29	DEV2018-00087	MARRIOTT HOTEL	T4S R10W SEC 9 POR OF SE1/4 SW1/4	Hotel	246	Rooms
A30	DEV2018-00095	OLD DOMINION TRUCK TERMINAL	201 E LA PALMA AVE	Industrial	--	
A31	DEV2018-00098	ALTA MED - ADMIN OFFICES	401 N EAST ST	Office	16.510	TSF
A32	DEV2018-00108	ANAHEIM TOWN SQ - CORNER SHOP	2310 E LINCOLN AVE	Retail	--	
A33	DEV2018-00118	MANZANITA SKATE PARK	1260 N RIVIERA ST MANZANITA PARK	Skate Park	--	
A34	DEV2018-00133	AMBASSADOR CHURCH GYMNASIUM	701 S SUNKIST ST	Gymnasium	--	
A35	DEV2018-00145	MILLER TOYOTA CAR WASH	1331 N EUCLID ST	Retail	4.010	TSF
A36	DEV2019-00010	PRE2019-00002	1201 N HARBOR BLVD	Retail	--	
A37	DEV2019-00014	CHILDTIME #209	1000 S STATE COLLEGE BLVD	Childcare	2.400	TSF
A38	DEV2019-00017	FAST 5 XPRESS	407 S STATE COLLEGE BLVD	Retail	4.162	TSF
A39	DEV2019-00036	MULTI TENANT AT EUCLID/BROADWA	255 S EUCLID ST	Retail	--	
A40	DEV2019-00037	LINCOLN AT EUCLID	1631-1667 W LINCOLN AVE	Residential	101	DU
A41	DEV2019-00072	PURELY EVANGELICAL CHURCH	2101 W CRESCENT AVE K	Church	1.625	TSF
A42	DEV2019-00097	GOOGIE CARWASH	1250 N EUCLID ST	Retail	1	CWT
A43	DEV2019-00102	--	625 S ILLINOIS ST	Residential	2	DU
A44	DEV2019-00123	TINH HOMES	1767 W ORANGE AVE	Residential	8	DU

[1] AC = Acres; CWT = Car Wash Tunnel; DU = Dwelling Units; STU = Students; TSF = Thousand Square Feet

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5 EXISTING PLUS PROJECT TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting intersection operations and traffic signal warrant analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveway).

5.2 EXISTING PLUS PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. Exhibit 5-1 shows the E+P weekday ADT and weekday AM and PM peak hour intersection turning movement volumes.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated, for each phase of development, for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA.

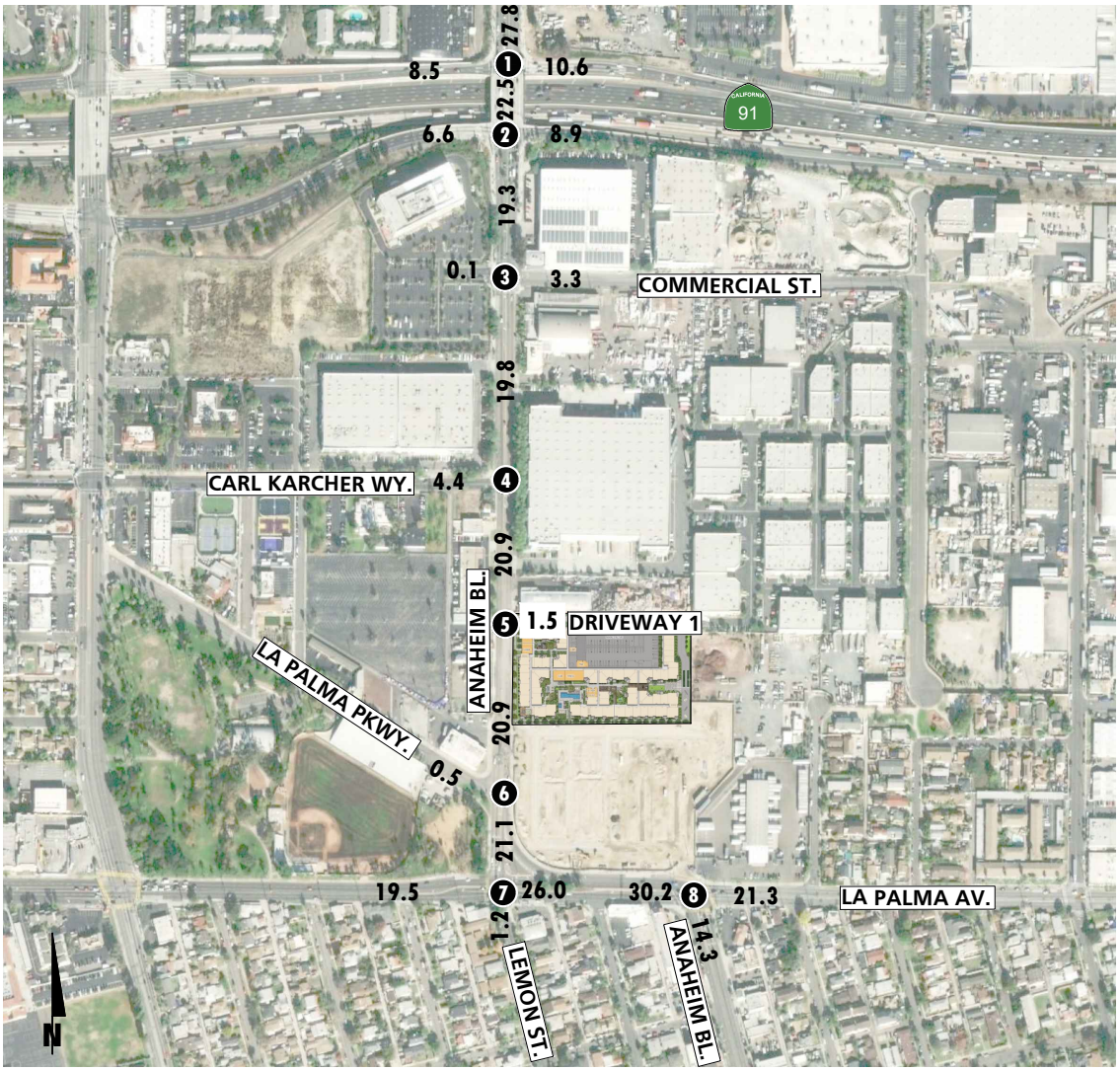
The intersection analysis results are summarized in Table 5-1, which indicates that no additional study area intersections are anticipated to operate at unacceptable LOS, consistent with Existing (2019) traffic conditions. Although the intersection of Anaheim Boulevard and Driveway 1 is deficient, the deficiency exists for the left turn movement out of the site. At the direction of City staff, average delay at this location is acceptable and no additional mitigation is required. The deficiency occurs entirely on-site and will not affect the traffic operations along Anaheim Boulevard. Vehicles exiting the site may use the existing two-way left turn lane on Anaheim Boulevard. The intersection operates at an acceptable LOS when utilizing Synchro (Version 10) and HCM 6th Edition methodology. As such, the deficiency is less-than-significant.

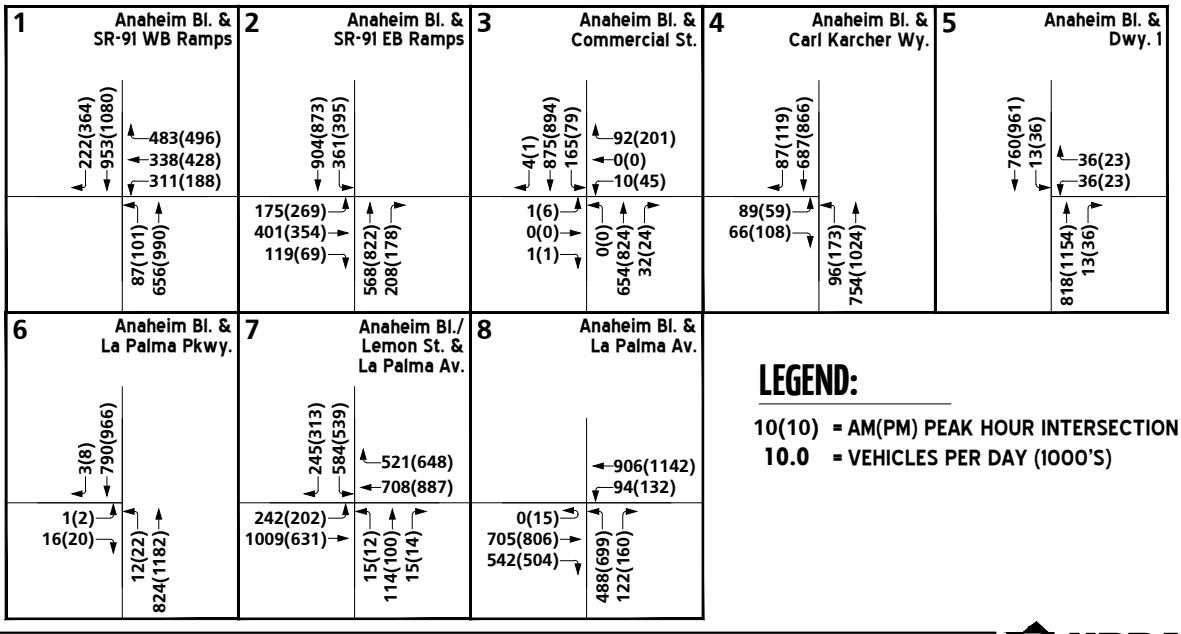
A summary of the peak hour intersection LOS for E+P conditions is shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

For E+P conditions, there are no additional intersections that are anticipated to warrant a traffic signal (see Appendix 5.2).

EXHIBIT 5-1: E+P TRAFFIC VOLUMES





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 5-2: E+P SUMMARY OF LOS

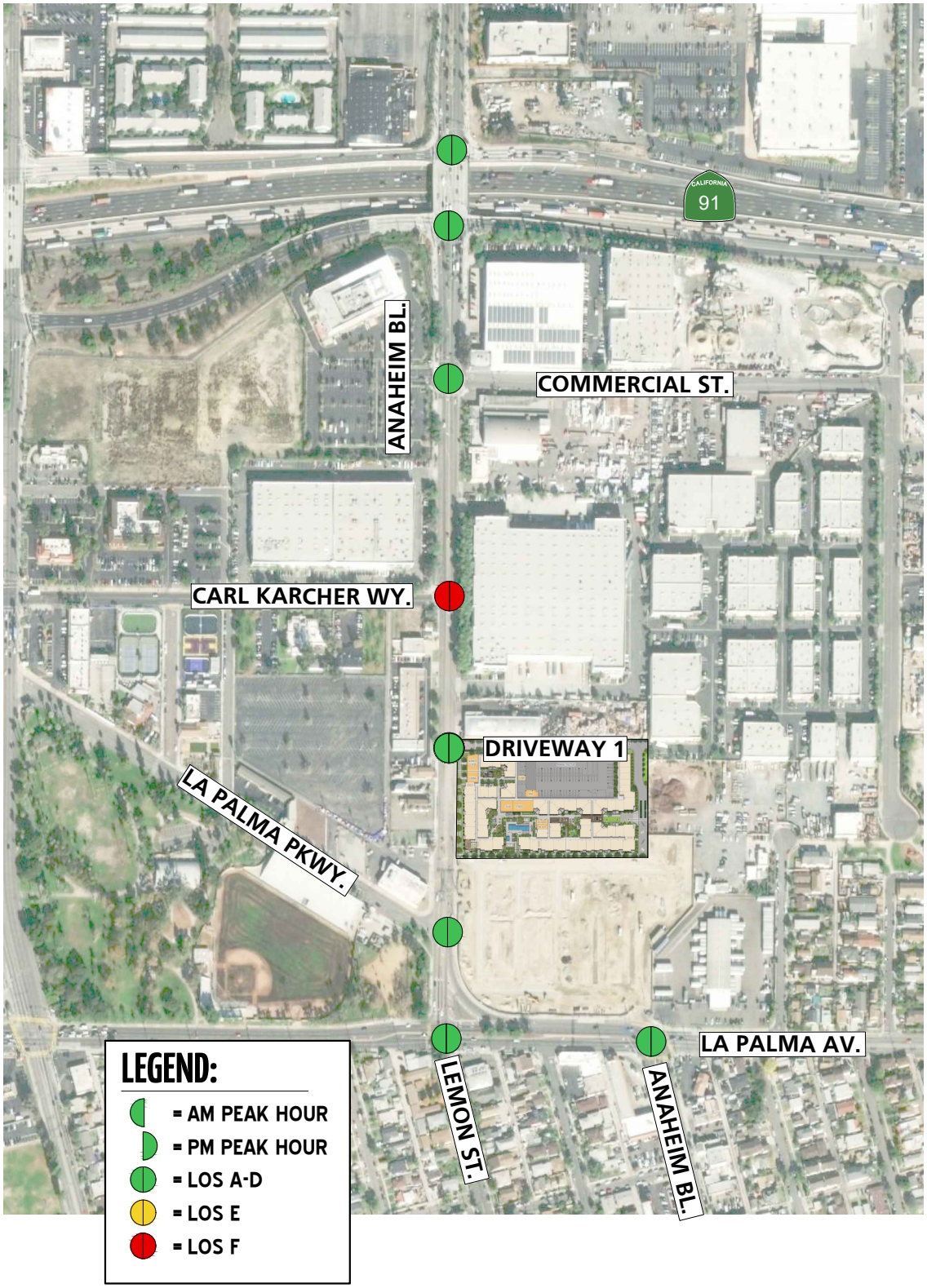


Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay (secs.) ICU (v/c)[1] AM	Existing (2019) Delay (secs.) ICU (v/c)[1] PM	Existing (2019) Level of Service AM	Existing (2019) Level of Service PM	E+P Delay (secs.) ICU (v/c)[1] AM	E+P Delay (secs.) ICU (v/c)[1] PM	E+P Level of Service AM	E+P Level of Service PM	ICU Variance (v/c) AM	ICU Variance (v/c) PM	Significant Impact?[3]
1	Anaheim Bl. & SR-91 Westbound Ramps	TS											
	- ICU Methodology		0.677	0.692	B	B	0.684	0.696	B	B	0.007	0.004	No
	- HCM Methodology		16.4	16.0	B	B	16.8	16.2	B	B	--	--	No
2	Anaheim Bl. & SR-91 Eastbound Ramps	TS											
	- ICU Methodology		0.532	0.554	A	A	0.533	0.557	A	A	0.001	0.003	No
	- HCM Methodology		15.3	17.0	B	B	15.5	17.0	B	B	--	--	No
3	Anaheim Bl. & Commercial St.	TS	0.426	0.482	A	A	0.434	0.485	A	A	0.008	0.003	No
4	Anaheim Bl. & Carl Karcher Wy.	CSS	**60.4**	**>100.0**	**F**	**F**	**68.6**	**>100.0**	**F**	**F**	--	--	Yes
5	Anaheim Bl. & Driveway 1	--/**CSS**	Future Intersection				28.5	**65.3**	D	**F**	--	--	No[4]
6	Anaheim Bl. & La Palma Pkwy.	CSS	12.2	15.7	B	C	12.4	16.0	B	C	--	--	No
7	Anaheim Bl./Lemon St. & La Palma Av.	TS	0.771	0.857	C	D	0.782	0.879	C	D	0.011	0.022	No
8	Anaheim Bl. & La Palma Av.	TS	0.515	0.633	A	B	0.521	0.640	A	B	0.006	0.007	No

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Overall average intersection delay and level of service (HCM Methodology) are shown for intersections within the jurisdiction of Caltrans. Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds and ICU reported as a volume-to-capacity ratio.

[2] CSS = Cross-Street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] A transportation impact on an intersection shall be deemed "significant" in accordance with the following:

LOS	Final V/C Ratio	Project-Related Increase In V/C
C	>0.700-0.800	equal to or greater than 0.050
D	>0.800-0.900	equal to or greater than 0.030
E	>0.900	equal to or greater than 0.010

[4] Although the intersection is deficient, the deficiency exists for the left turn movement out of the site. The deficiency occurs entirely on-site and will not affect the traffic operations along Anaheim Boulevard. The intersection operates at an acceptable LOS when utilizing Synchro (Version 10) and HCM 6th Edition methodology. As such, the deficiency is less-than-significant.

5.5 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramp at the SR-91 Freeway at Anaheim Boulevard interchange to assess vehicle queues for the off ramp that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-91 Freeway mainline. Queuing analysis findings are presented in Table 5-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 5-2, there are no queuing issues anticipated for E+P traffic conditions. Worksheets for E+P traffic conditions off-ramp queuing analysis are provided in Appendix 5.3.

5.6 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. Based on the significance criteria discussed in Section 2.5 *Thresholds of Significance*, the following intersection was found to be impacted by Project for E+P traffic conditions:

- Anaheim Bl. & Carl Karcher Wy. (#4)

The effectiveness of the recommended improvements is shown on Table 5-3. The intersection operations analysis worksheets for E+P, with improvements, traffic conditions are included in Appendix 5.4 of this TIA.

Table 5-2

Peak Hour Freeway Off-Ramp Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)				E+P			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Anaheim Bl. & SR-91 Westbound Ramps										
	WBT	900	263	236	Yes	Yes	264	241	Yes	Yes
	WBR	500	386	428	Yes	Yes	388	428	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown in this table, where applicable.

Table 5-3

Intersection Analysis for E+P Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
4	Anaheim Bl. & Carl Karcher Wy.																	
	- Without Improvements	CSS	1	2	0	0	2	0	0	1	0	0	0	0	**70.1**	**>100.0**	**F**	**F**
	- With Improvements	**TS**	1	2	0	0	2	0	0	1	0	0	0	0	0.435	0.575	A	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop; TS = Traffic Signal; **TS** = Improvement

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6 OPENING YEAR CUMULATIVE (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2023) Without and With Project traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2023) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Cumulative Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages, and improvements to the intersection of Anaheim Boulevard and La Palma Avenue).

6.2 OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2023) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC VOLUME FORECASTS

The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2023) With Project traffic conditions are shown on Exhibit 6-2.

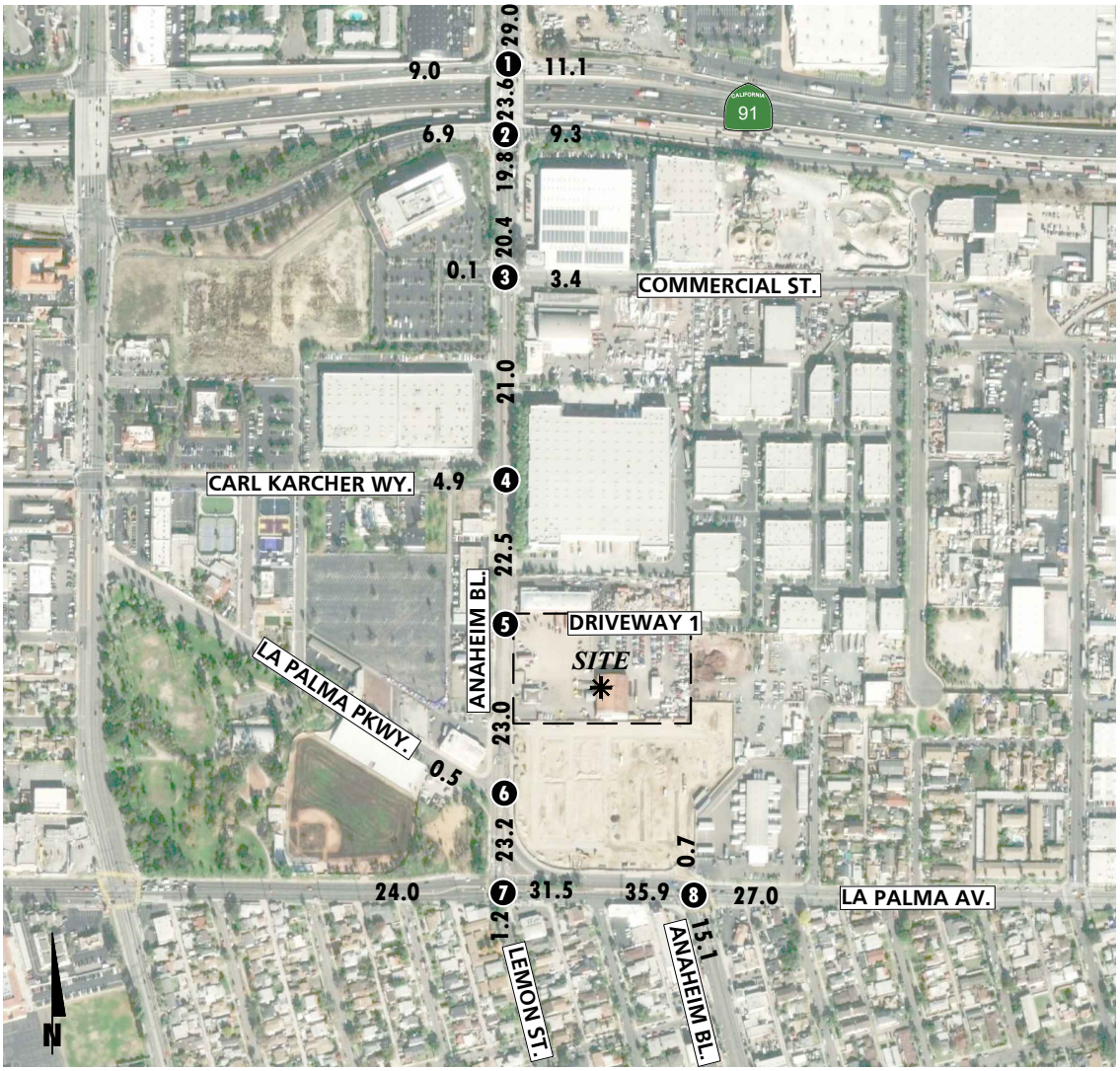
6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2023) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, no additional study area intersections are anticipated to operate at unacceptable LOS, consistent with Existing (2019) traffic conditions.

A summary of the peak hour intersection LOS for Opening Year Cumulative (2023) Without Project conditions are shown on Exhibit 6-3. The intersection operations analysis worksheets for Opening Year Cumulative (2023) Without Project traffic conditions are included in Appendix 6.1 of this TIA.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT TRAFFIC VOLUMES



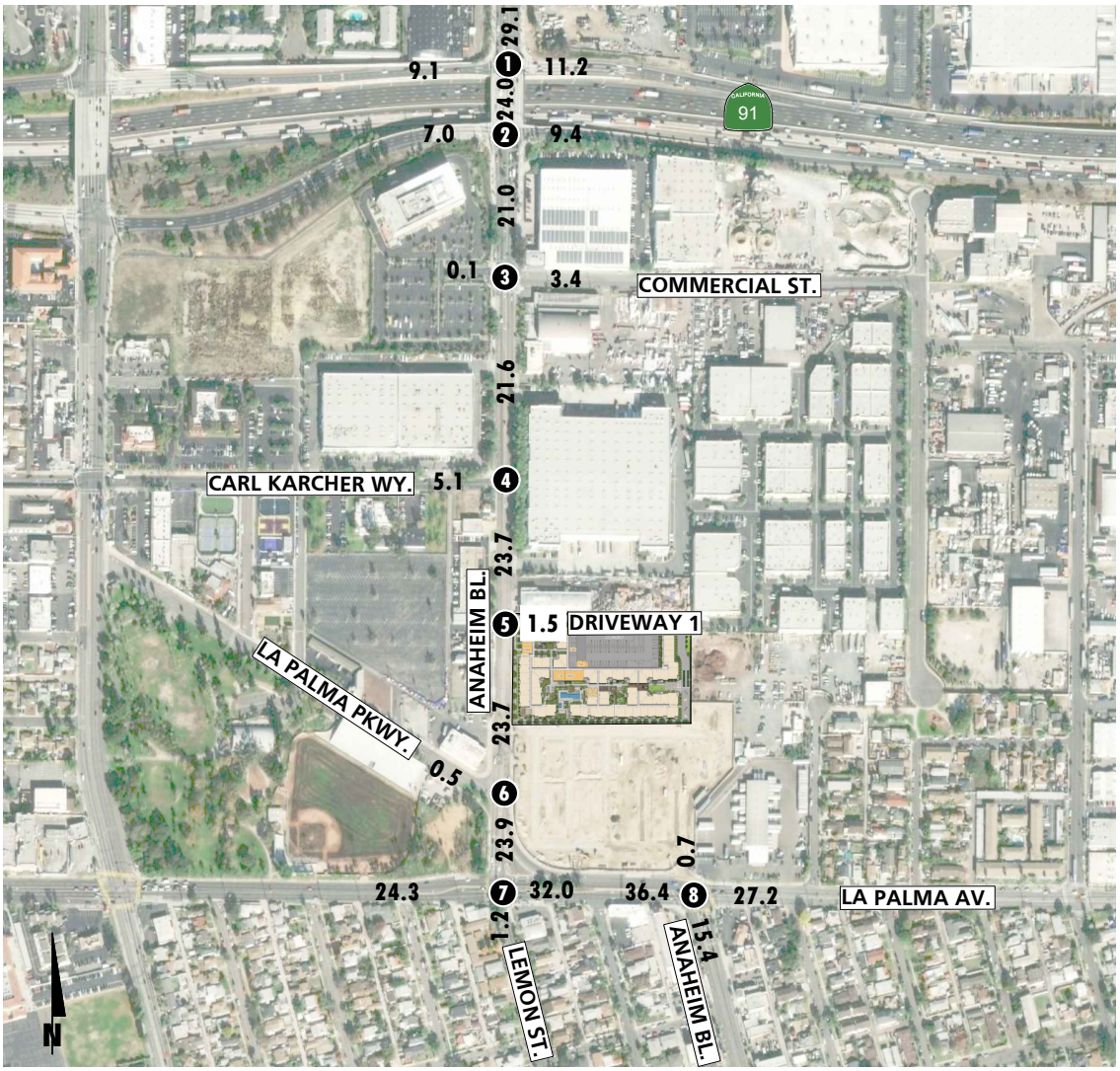
1 Anaheim Bl. & SR-91 WB Ramps	2 Anaheim Bl. & SR-91 EB Ramps	3 Anaheim Bl. & Commercial St.	4 Anaheim Bl. & Carl Karcher Wy.	5 Anaheim Bl. & Dwy. 1
231(379) 991(1119) ← 503(516) ← 352(445) ← 323(189)	938(897) 376(411)	4(1) 906(912) 172(82) ← 96(209) ← 0(0) ← 10(47)	91(124) 711(883)	Future Intersection
86(104) 677(1029)	182(280) → 417(368) → 123(65) → 581(853) 212(184)	1(6) → 0(0) → 1(1) → 0(0) 667(854) 33(25)	93(61) → 68(106) → 111(187) 772(1062)	

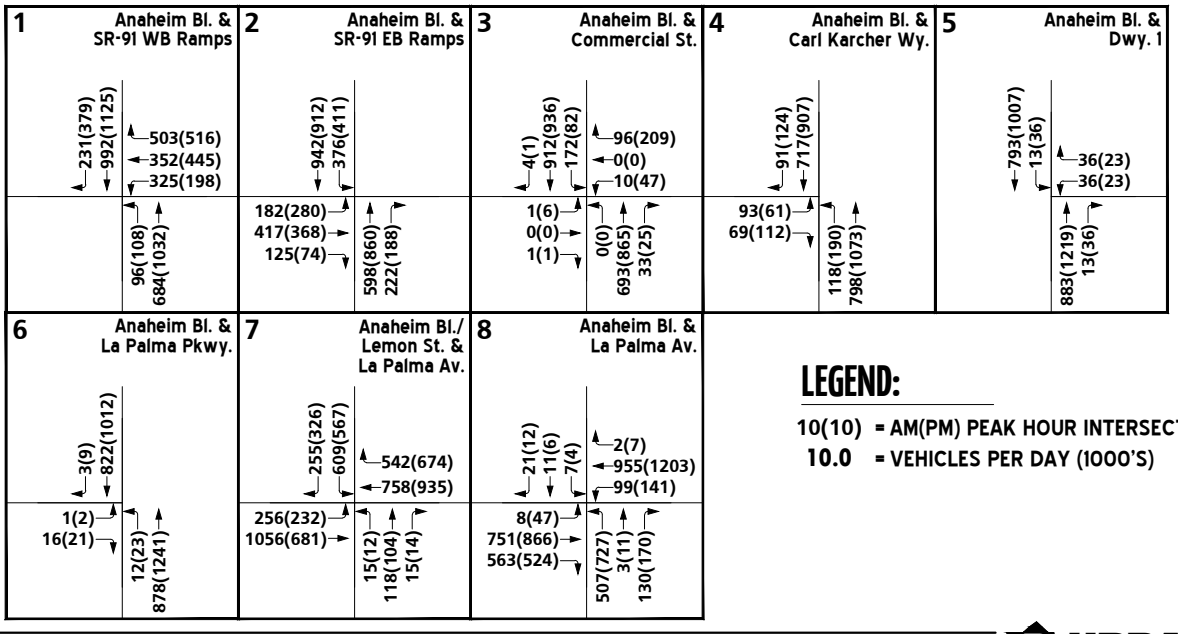
6 Anaheim Bl. & La Palma Pkwy.	7 Anaheim Bl./ Lemon St. & La Palma Av.	8 Anaheim Bl. & La Palma Av.
3(9) 789(998)	245(322) 586(557) ← 537(653) ← 758(935)	21(12) 11(6) 7(4) ← 2(7) ← 953(1194) ← 99(141)
1(2) → 16(21) → 12(23) 871(1211)	254(223) → 1056(681) → 15(12) 118(104) 15(14)	8(47) → 741(862) → 550(518) → 504(715) 3(11) 130(170)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC VOLUMES





LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2023) WITHOUT PROJECT SUMMARY OF LOS

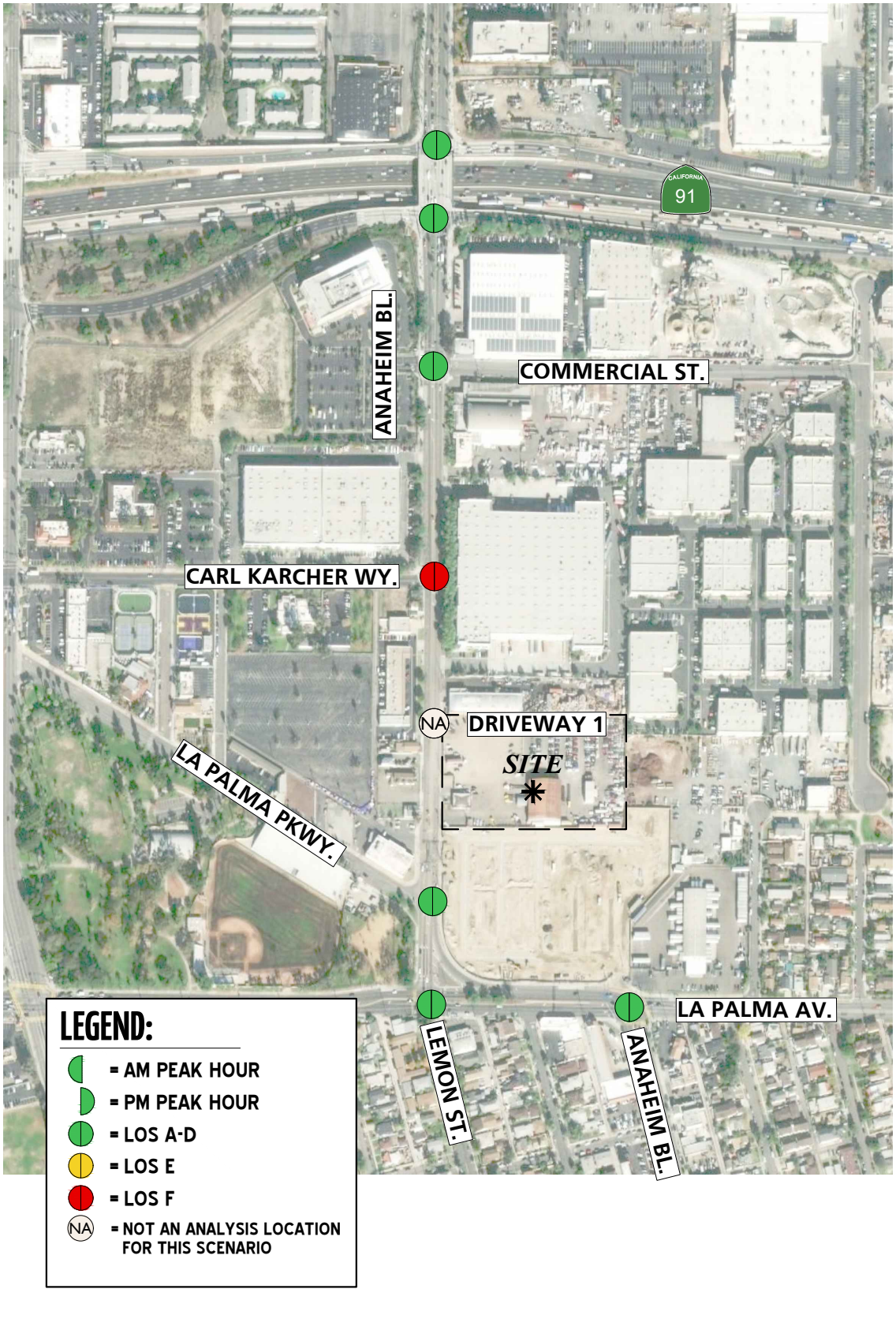


Table 6-1

Intersection Analysis for Opening Year Cumulative (2023) Conditions

#	Intersection	Traffic Control[2]	2023 Without Project				2023 With Project				ICU Variance (v/c)		Significant Impact?[3]
			Delay (secs.) ICU (v/c)[1]		Level of Service		Delay (secs.) ICU (v/c)[1]		Level of Service				
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1	Anaheim Bl. & SR-91 Westbound Ramps	TS											
	- ICU Methodology		0.707	0.721	C	C	0.714	0.724	C	C	0.007	0.003	No
	- HCM Methodology		17.6	17.0	B	B	18.0	17.3	B	B	--	--	No
2	Anaheim Bl. & SR-91 Eastbound Ramps	TS											
	- ICU Methodology		0.552	0.576	A	A	0.553	0.579	A	A	0.001	0.003	No
	- HCM Methodology		16.0	17.9	B	B	16.2	18.0	B	B	--	--	No
3	Anaheim Bl. & Commercial St.	TS	0.445	0.501	A	A	0.454	0.505	A	A	0.009	0.004	No
4	Anaheim Bl. & Carl Karcher Wy.	CSS	**99.3**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**	--	--	Yes
5	Anaheim Bl. & Driveway 1	--/**CSS**	Future Intersection				33.1	**81.8**	D	**F**	--	--	No[5]
6	Anaheim Bl. & La Palma Pkwy.	CSS	12.5	16.4	B	C	12.7	16.7	B	C	--	--	No
7	Anaheim Bl./Lemon St. & La Palma Av.	TS[4]	0.706	0.784	C	C	0.714	0.793	C	C	0.008	0.009	No
8	Anaheim Bl. & La Palma Av.	TS	0.538	0.660	A	B	0.543	0.666	A	B	0.005	0.006	No

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Overall average intersection delay and level of service (HCM Methodology) are shown for intersections within the jurisdiction of Caltrans. Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds and ICU reported as a volume-to-capacity ratio.

[2] CSS = Cross-Street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] A transportation impact on an intersection shall be deemed "significant" in accordance with the following:

LOS	Final V/C Ratio	Project-Related Increase In V/C
C	>0.700-0.800	equal to or greater than 0.050
D	>0.800-0.900	equal to or greater than 0.030
E	>0.900	equal to or greater than 0.010

[4] The intersection analysis includes the construction of the 2nd westbound right turn lane improvement from the La Palma Village project.

[5] Although the intersection is deficient, the deficiency exists for the left turn movement out of the site. The deficiency occurs entirely on-site and will not affect the traffic operations along Anaheim Boulevard. The intersection operates at an acceptable LOS when utilizing Synchro (Version 10) and HCM 6th Edition methodology. As such, the deficiency is less-than-significant.

6.4.2 OPENING YEAR CUMULATIVE (2023) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 6-1 and illustrated on Exhibit 6-4, there were no additional study area intersections that are anticipated to experience unacceptable LOS with the addition of Project traffic during one or more peak hours. Although the intersection of Anaheim Boulevard and Driveway 1 is deficient, the deficiency exists for the left turn movement out of the site. At the direction of City staff, average delay at this location is acceptable and no additional mitigation is required. The deficiency occurs entirely on-site and will not affect the traffic operations along Anaheim Boulevard. Vehicles exiting the site may use the existing two-way left turn lane on Anaheim Boulevard. The intersection operates at an acceptable LOS when utilizing Synchro (Version 10) and HCM 6th Edition methodology. As such, the deficiency is less-than-significant.

The intersection operations analysis worksheets for Opening Year Cumulative With Project traffic conditions are included in Appendix 6.2 of this TIA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For Opening Year Cumulative (2023) Without and With Project conditions, there are no additional intersections that are anticipated to warrant a traffic signal (see Appendices 6.3 and 6.4).

6.6 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramp at the SR-91 Freeway at Anaheim Boulevard interchange to assess vehicle queues for the off ramp that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-91 Freeway mainline. Queuing analysis findings are presented in Table 6-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 6-2, there are no queuing issues anticipated for Opening Year Cumulative (2023) Without and With Project traffic conditions. Worksheets for Opening Year Cumulative (2023) Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 6.5 and 6.6, respectively.

6.7 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. Based on the significance criteria discussed in Section 2.5 *Thresholds of Significance*, the following intersection was found to be impacted by Project for Opening Year Cumulative With Project traffic conditions:

- Anaheim Bl. & Carl Karcher Wy. (#4)

The effectiveness of the recommended improvements is shown on Table 6-3. The intersection operations analysis worksheets for Opening Year Cumulative With Project, with improvements, traffic conditions are included in Appendix 6.7 of this TIA.

EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2023) WITH PROJECT SUMMARY OF LOS

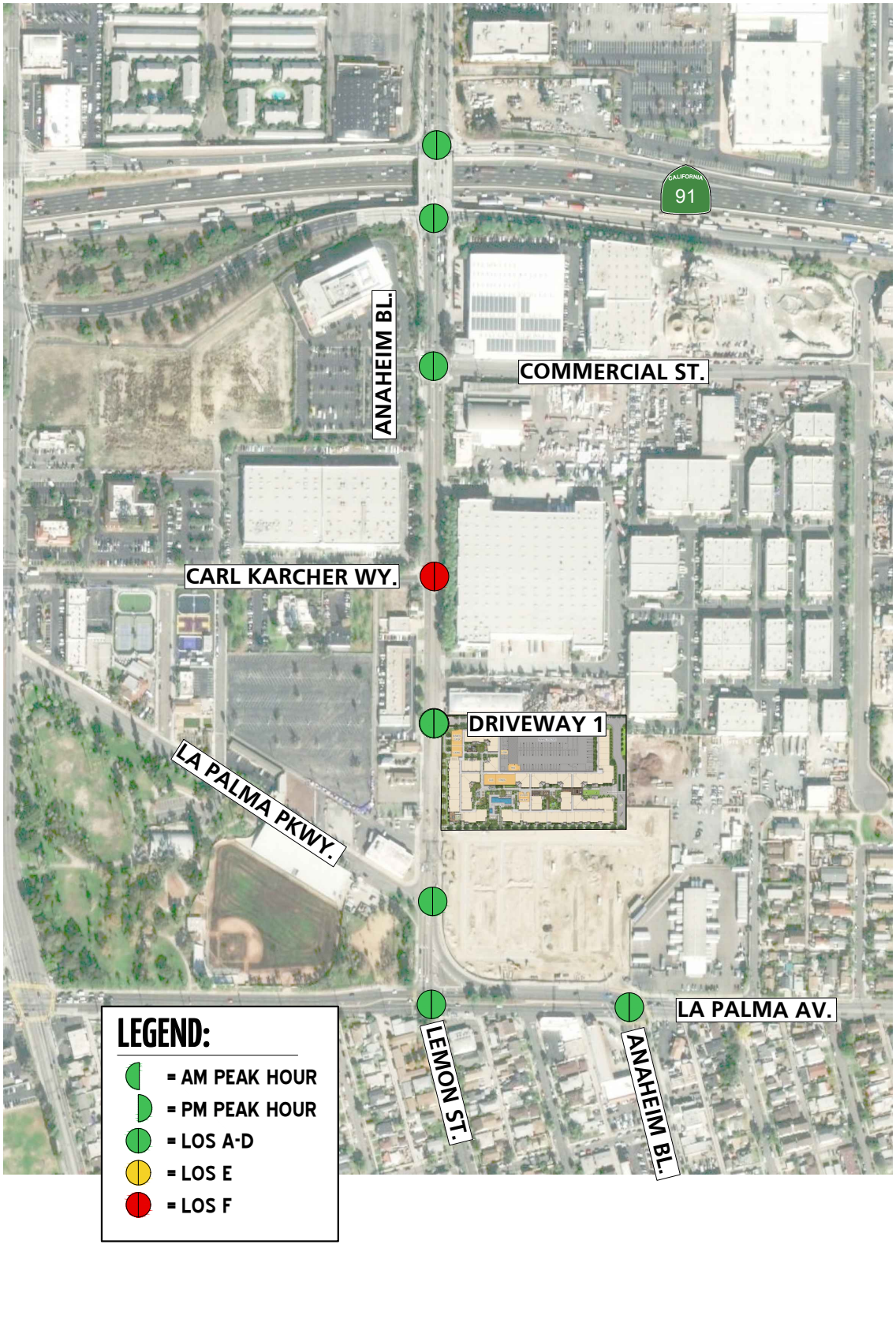


Table 6-2

Peak Hour Freeway Off-Ramp Queuing Summary for Opening Year Cumulative (2023) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2023 Without Project				2023 With Project			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Anaheim Bl. & SR-91 Westbound Ramps										
	WBT	900	277	248	Yes	Yes	278	253	Yes	Yes
	WBR	500	425	464	Yes	Yes	428	465	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown in this table, where applicable.

Table 6-3

Intersection Analysis for Opening Year Cumulative (2023) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
4	Anaheim Bl. & Carl Karcher Wy.																	
	- Without Improvements	CSS	1	2	0	0	2	0	0	1	0	0	0	0	**>100.0**	**>100.0**	**F**	**F**
	- With Improvements	**TS**	1	2	0	0	2	0	0	1	0	0	0	0	0.463	0.604	A	B

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop; TS = Traffic Signal; **TS** = Improvement

JSØ1

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7 LONG-RANGE TRAFFIC CONDITIONS

This section discusses the methods used to develop Long-Range Without and With Project traffic forecasts, and the resulting intersection operations and traffic signal warrant analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Long-Range conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Cumulative Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages, and improvements to the intersection of Anaheim Boulevard and La Palma Avenue).
- 3rd eastbound through lane at the intersection of Anaheim Boulevard and La Palma Avenue, consistent with the General Plan Buildout planned (ultimate) roadway width.

7.2 LONG-RANGE WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from ATAM. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Long-Range Without Project traffic conditions are shown on Exhibit 7-1.

7.3 LONG-RANGE WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from ATAM plus the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Long-Range With Project traffic conditions are shown on Exhibit 7-2.

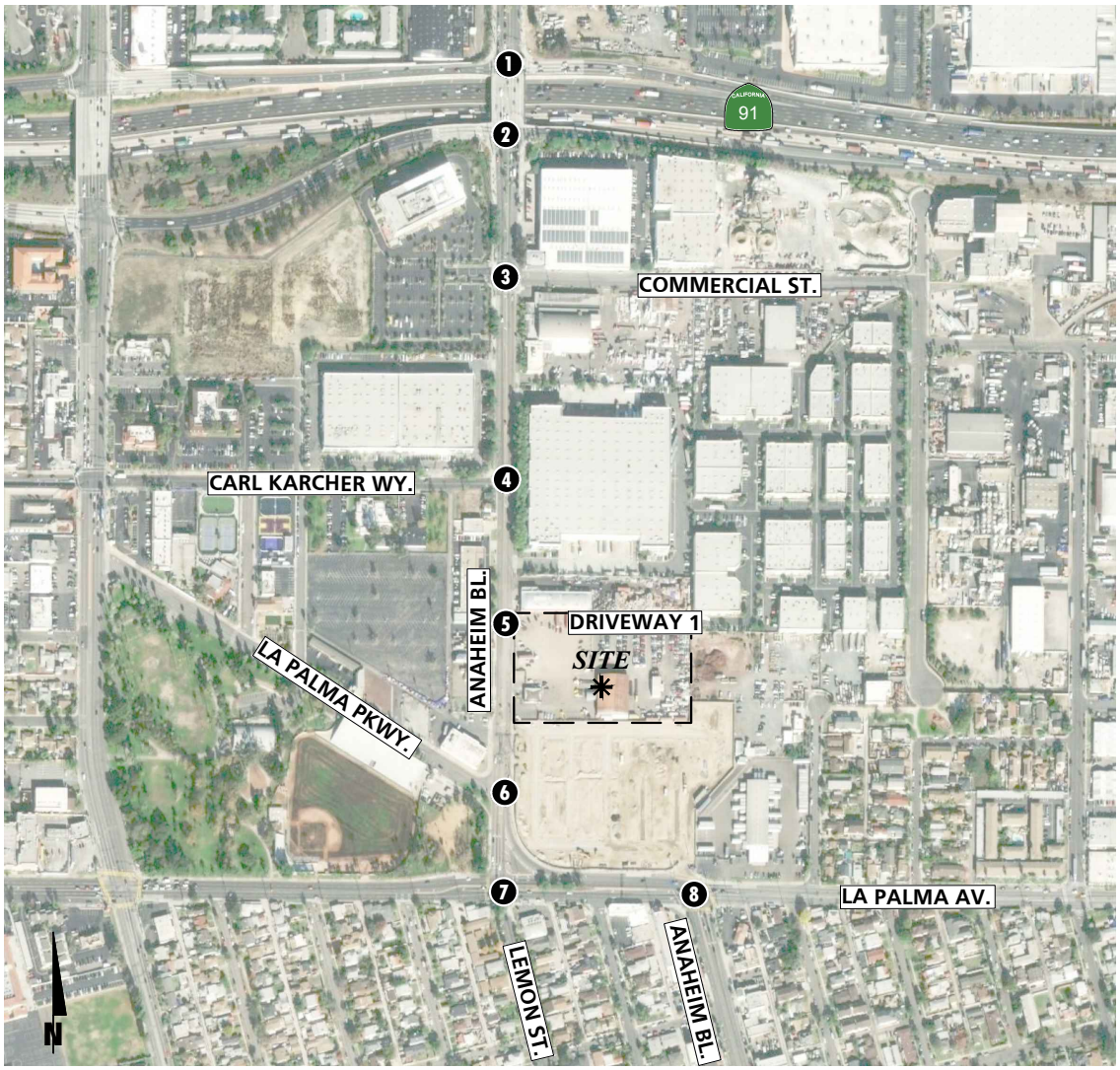
7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 LONG-RANGE WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Long-Range Without Project conditions. As shown in Table 7-1, no additional study area intersections are anticipated to operate at an unacceptable LOS, consistent with Existing (2019) traffic conditions.

A summary of the peak hour intersection LOS for Long-Range Without Project conditions are shown on Exhibit 7-3. The intersection operations analysis worksheets for Long-Range Without Project traffic conditions are included in Appendix 7.1 of this TIA.

EXHIBIT 7-1: LONG RANGE WITHOUT PROJECT TRAFFIC VOLUMES



1 Anaheim Bl. & SR-91 WB Ramps

305(273) 1498(1379) 504(553) 254(326) 320(208)

58(133) 619(1324)

2 Anaheim Bl. & SR-91 EB Ramps

1004(924) 655(767)

200(217) 465(415) 86(35)

645(1237) 309(341)

3 Anaheim Bl. & Commercial St.

34(6) 899(778) 152(73) 107(198) 1(0) 15(52)

2(34) 0(1) 3(15)

20(3) 756(1413) 62(33)

4 Anaheim Bl. & Carl Karcher Wy.

27(89) 848(865)

62(44) 61(71)

77(125) 787(1403)

5 Anaheim Bl. & Dwy. 1

Future Intersection

6 Anaheim Bl. & La Palma Pkwy.

3(8) 909(1002)

1(2) 17(22)

12(23) 1076(1460)

7 Anaheim Bl./ Lemon St. & La Palma Av.

185(281) 421(396) 509(1045) 877(1248)

373(288) 1428(1121)

9(14) 81(94) 9(24)

8 Anaheim Bl. & La Palma Av.

21(12) 11(6) 7(4) 2(7) 621(1012) 166(314)

8(32) 808(744) 1053(780)

762(1170) 3(11) 278(242)

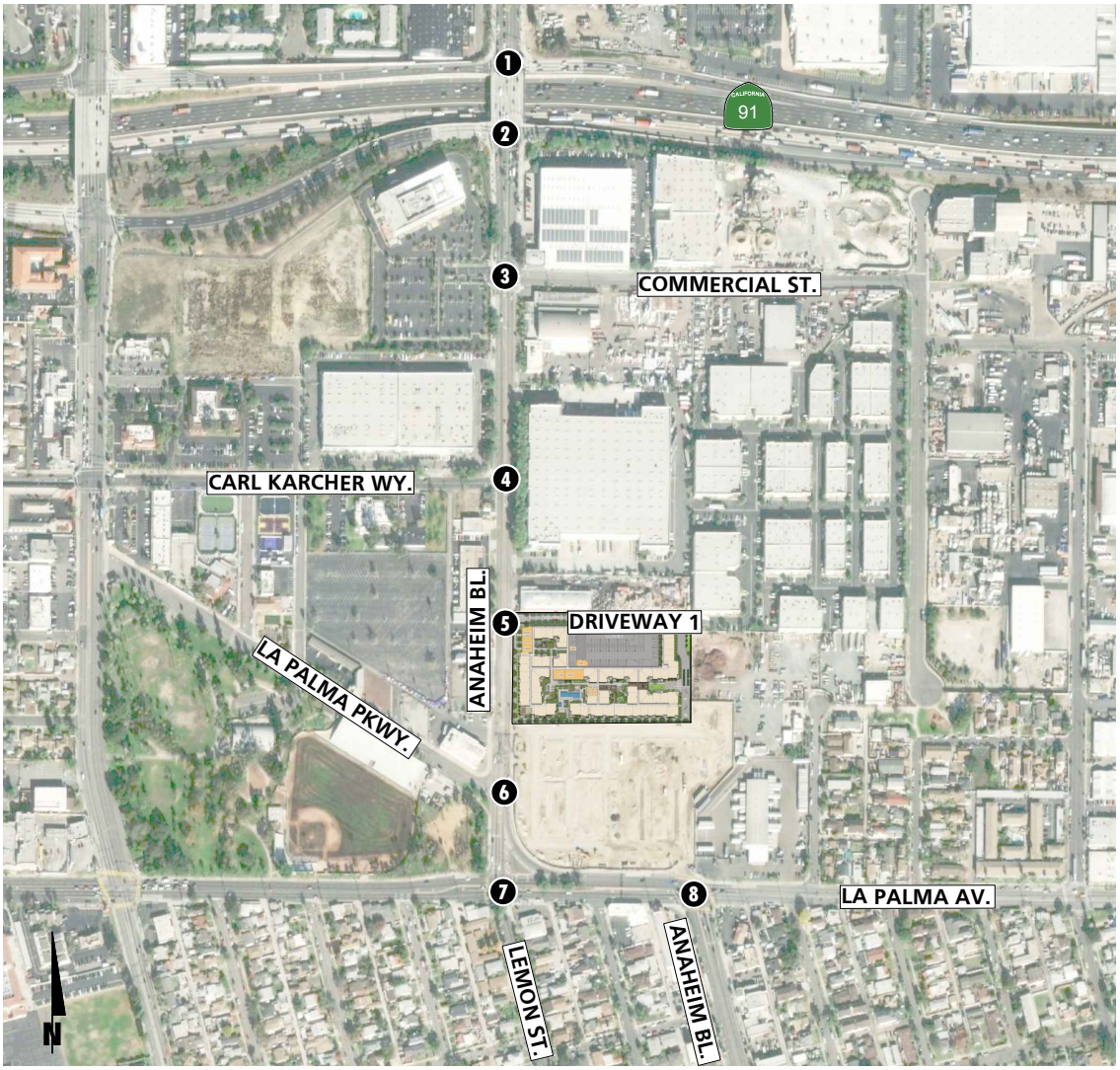
LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

12830 - vols.dwg

URBAN CROSSROADS

EXHIBIT 7-2: LONG RANGE WITH PROJECT TRAFFIC VOLUMES



1 Anaheim Bl. & SR-91 WB Ramps

305(273) 1499(1385) 504(553) 254(326) 322(217)

68(137) 626(1327)

2 Anaheim Bl. & SR-91 EB Ramps

1008(939) 655(767)

200(217) 465(415) 88(44)

662(1244) 319(345)

3 Anaheim Bl. & Commercial St.

34(6) 905(802) 152(73) 107(198) 1(0) 15(52)

2(34) 0(1) 3(15) 20(3) 782(1424) 62(33)

4 Anaheim Bl. & Carl Karcher Wy.

27(89) 854(889)

62(44) 62(77) 84(128) 813(1414)

5 Anaheim Bl. & Dwy. 1

912(1010) 13(36) 36(23) 36(23)

1077(1462) 13(36)

6 Anaheim Bl. & La Palma Pkwy.

3(8) 942(1016)

1(2) 17(22) 12(23) 1083(1490)

7 Anaheim Bl./ Lemon St. & La Palma Av.

195(285) 444(406) 514(1066) 877(1248)

375(297) 1428(1121) 9(14) 81(94) 9(24)

8 Anaheim Bl. & La Palma Av.

21(12) 11(6) 7(4) 2(7) 623(1021) 166(314)

8(32) 818(748) 1066(786) 765(1182) 3(11) 278(242)

LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

EXHIBIT 7-3: LONG-RANGE WITHOUT PROJECT SUMMARY OF LOS

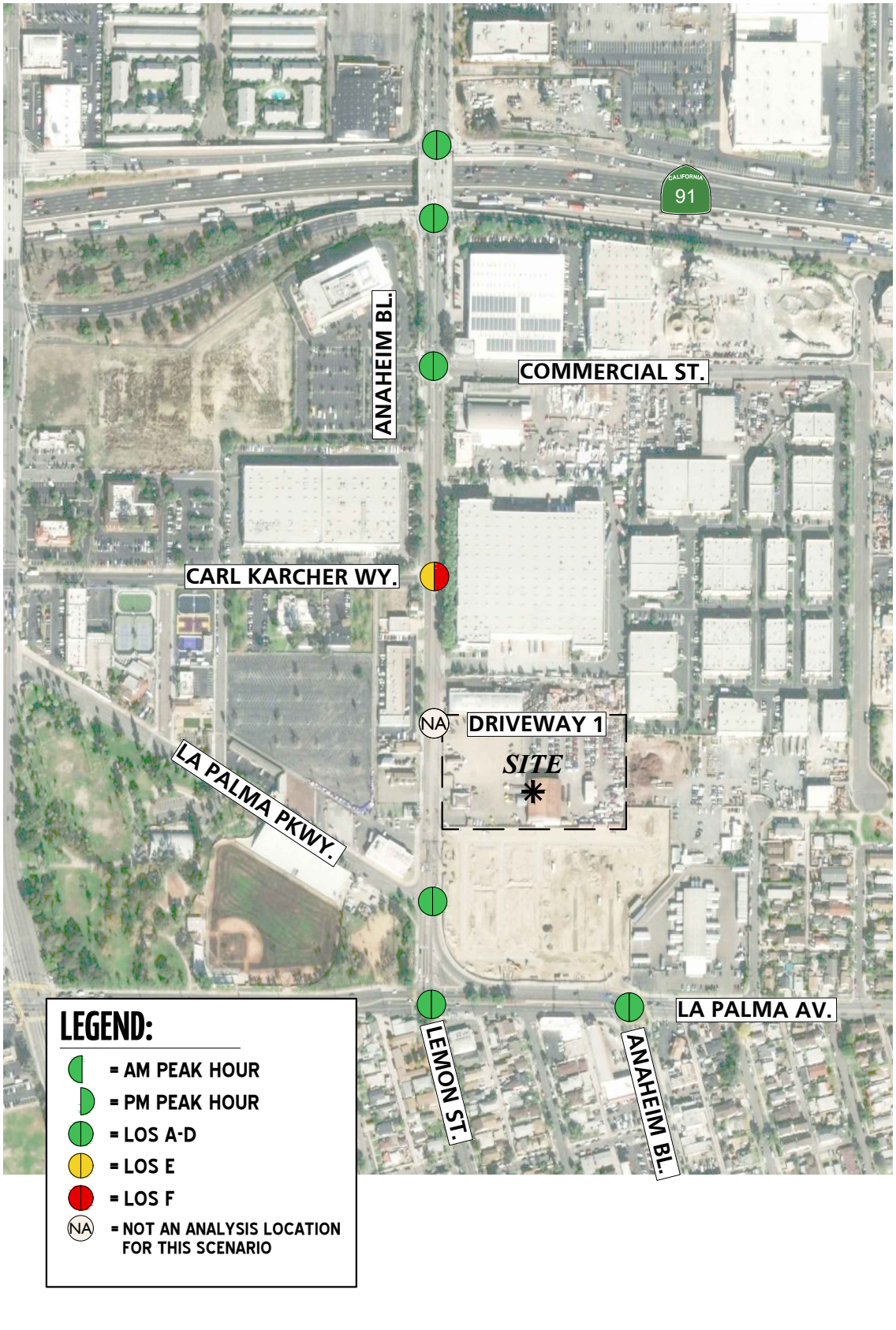


Table 7-1

Intersection Analysis for Long-Range Conditions

#	Intersection	Traffic Control[2]	Without Project				With Project				ICU Variance (v/c)		Significant Impact?[3]
			Delay (secs.) ICU (v/c)[1]		Level of Service		Delay (secs.) ICU (v/c)[1]		Level of Service				
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	
1	Anaheim Bl. & SR-91 Westbound Ramps	TS											
	- ICU Methodology		0.734	0.777	C	C	0.740	0.781	C	C	0.006	0.004	No
	- HCM Methodology		20.2	19.0	C	B	20.8	19.3	C	B	--	--	No
2	Anaheim Bl. & SR-91 Eastbound Ramps	TS											
	- ICU Methodology		0.625	0.771	B	C	0.631	0.773	B	C	0.006	0.002	No
	- HCM Methodology		23.3	32.3	C	C	23.8	32.4	C	C	--	--	No
3	Anaheim Bl. & Commercial St.	TS	0.445	0.655	A	B	0.452	0.658	A	B	0.007	0.003	No
4	Anaheim Bl. & Carl Karcher Wy.	CSS	**48.1**	**>100.0**	**E**	**F**	**52.9**	**>100.0**	**F**	**F**	--	--	Yes
5	Anaheim Bl. & Driveway 1	--/**CSS**	Future Intersection				**41.1**	**95.7**	**E**	**F**	--	--	No[5]
6	Anaheim Bl. & La Palma Pkwy.	CSS	13.1	16.3	B	C	13.4	16.6	B	C	--	--	No
7	Anaheim Bl./Lemon St. & La Palma Av.	TS[4]	0.709	0.829	C	D	0.717	0.837	C	D	0.008	0.008	No
8	Anaheim Bl. & La Palma Av.	TS	0.740	0.825	C	D	0.745	0.830	C	D	0.005	0.005	No

* **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Overall average intersection delay and level of service (HCM Methodology) are shown for intersections within the jurisdiction of Caltrans. Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds and ICU reported as a volume-to-capacity ratio.

[2] CSS = Cross-Street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] A transportation impact on an intersection shall be deemed "significant" in accordance with the following:

LOS	Final V/C Ratio	Project-Related Increase In V/C
C	>0.700-0.800	equal to or greater than 0.050
D	>0.800-0.900	equal to or greater than 0.030
E	>0.900	equal to or greater than 0.010

[4] The intersection analysis includes the construction of the 2nd westbound right turn lane improvement from the La Palma Village project.

[5] Although the intersection is deficient, the deficiency exists for the left turn movement out of the site. The deficiency occurs entirely on-site and will not affect the traffic operations along Anaheim Boulevard. The intersection operates at an acceptable LOS when utilizing Synchro (Version 10) and HCM 6th Edition methodology. As such, the deficiency is less-than-significant.

7.4.2 LONG-RANGE WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 7-1 and illustrated on Exhibit 7-4, there are no additional study area intersections anticipated to experience unacceptable LOS under Long-Range With Project traffic conditions. The intersection analysis results are summarized in Table 5-1, which indicates that no additional study area intersections are anticipated to operate at unacceptable LOS, consistent with Existing (2019) traffic conditions. Although the intersection of Anaheim Boulevard and Driveway 1 is deficient, the deficiency exists for the left turn movement out of the site. At the direction of City staff, average delay at this location is acceptable and no additional mitigation is required. The deficiency occurs entirely on-site and will not affect the traffic operations along Anaheim Boulevard. Vehicles exiting the site may use the existing two-way left turn lane on Anaheim Boulevard. The intersection operates at an acceptable LOS when utilizing Synchro (Version 10) and HCM 6th Edition methodology. As such, the deficiency is less-than-significant.

The intersection operations analysis worksheets for Long-Range With Project traffic conditions are included in Appendix 7.2 of this TIA.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

No study area intersections are anticipated to warrant traffic signals for Long-Range traffic conditions (see Appendices 7.3 and 7.4).

7.6 OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramp at the SR-91 Freeway at Anaheim Boulevard interchange to assess vehicle queues for the off ramp that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the SR-91 Freeway mainline. Queuing analysis findings are presented in Table 7-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 7-2, there are no queuing issues anticipated for Long-Range Without and With Project traffic conditions. Worksheets for Long-Range Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 7.5 and 7.6, respectively.

7.7 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project impacts and recommended improvements. Based on the significance criteria discussed in Section 2.5 *Thresholds of Significance*, the following intersection was found to be impacted by Project for Long-Range With Project traffic conditions:

- Anaheim Bl. & Carl Karcher Wy. (#4)

The effectiveness of the recommended improvements is shown on Table 7-3. The intersection operations analysis worksheets for Long-Range With Project, with improvements, traffic conditions are included in Appendix 7.7 of this TIA.

EXHIBIT 7-4: LONG-RANGE WITH PROJECT SUMMARY OF LOS

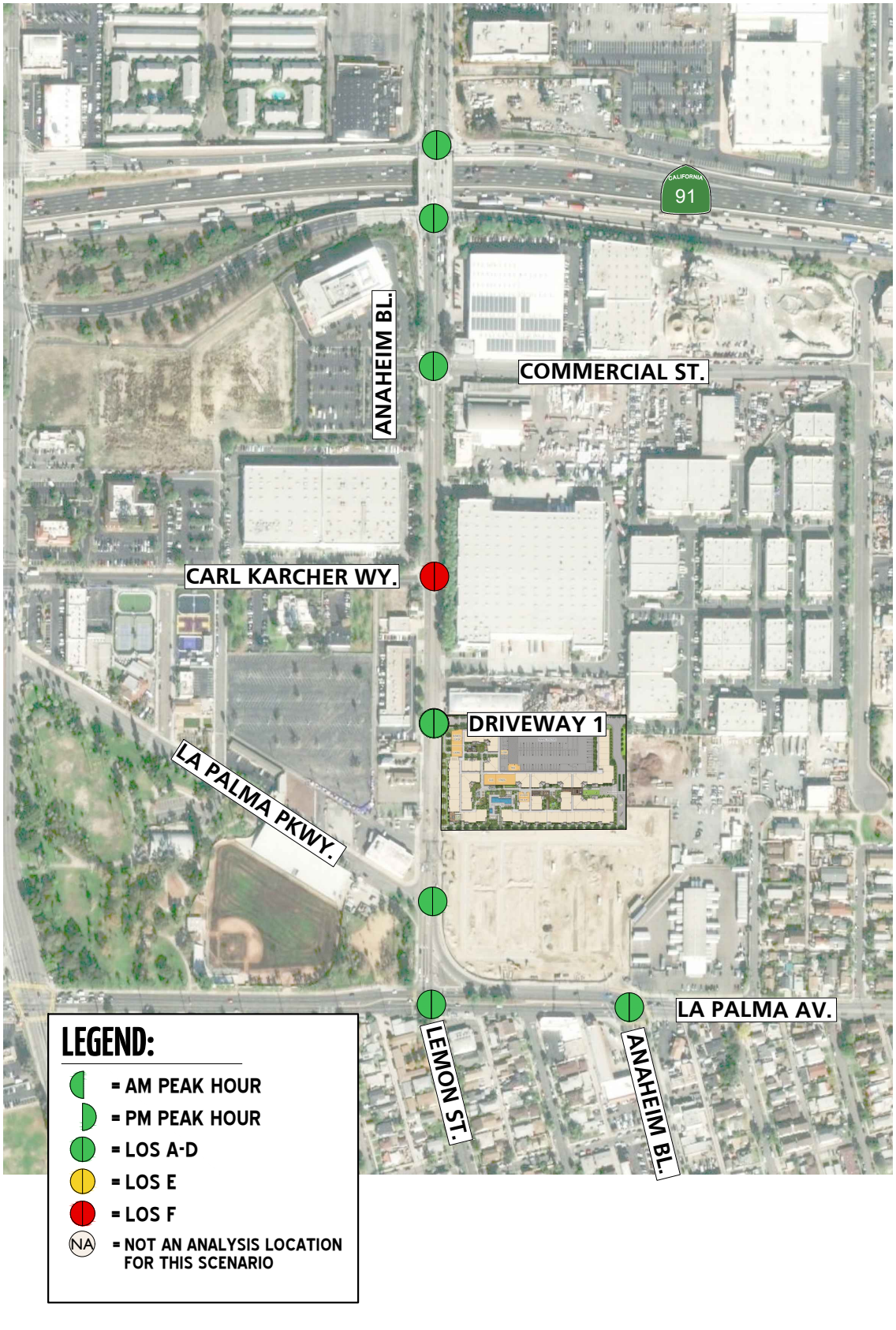


Table 7-2

Peak Hour Freeway Off-Ramp Queuing Summary for Long-Range Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Without Project				With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
Anaheim Bl. & SR-91 Westbound Ramps										
	WBT	900	230	206	Yes	Yes	231	210	Yes	Yes
	WBR	500	403	567 [2]	Yes	Yes[3]	406	567 [2]	Yes	Yes[3]

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown in this table, where applicable.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] Although the 95th percentile queue is anticipated to exceed the available storage for the turn lane, the adjacent through lane has sufficient storage to accommodate any spillover without spilling back and affecting the SR-91 Freeway mainline.

Table 7-3

Intersection Analysis for Long-Range Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
4	Anaheim Bl. & Carl Karcher Wy.																	
	- Without Improvements	CSS	1	2	0	0	2	0	0	1	0	0	0	0	**52.9**	**>100.0**	**F**	**F**
	- With Improvements	**TS**	1	2	0	0	2	0	0	1	0	0	0	0	0.431	0.537	A	A

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per City of Anaheim Criteria for Preparation of Traffic Impact Studies, all signalized intersections will be evaluated utilizing Intersection Capacity Utilization (ICU) methodology. For intersections with all way or cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-Street Stop; TS = Traffic Signal; **TS** = Improvement

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Anaheim are funded through a combination of direct project mitigation, payment of requisite fees, or fair share contributions. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

8.1 FAIR SHARE FEES

The Project Applicant's mitigation responsibilities may also be fulfilled through payment of fair-share fees. Fair share fees would be paid in instances where required traffic facilities are not otherwise funded by the programs noted previously. Fair share calculations are provided on Table 8-1 for each of the study area intersections where the Project is anticipated to contribute cumulatively to a peak hour issue. Prior to issuance of building permits, the property owner/developer shall pay the project's equitable fair share as shown in Table 8-1 for the traffic signal improvement at the intersection of Anaheim Boulevard and Carl Karcher Way. The property owner/developer shall determine and develop cost estimates of the right-of-way and construction costs of improvements needed at Project Opening Year, and submit to the City for review and approval.

Table 8-1

Project Fair Share Calculations

#	Intersection	Existing	Project	2023 WP Volume	Total New Traffic	Project % of New
4	Anaheim Bl. & Carl Karcher Wy.					
	AM:	1,739	40	1,886	147	**27.2%**
	PM:	2,305	44	2,467	162	27.2%

BOLD = Highest fair share percentage for the deficient peak hours is highlighted.

9 REFERENCES

1. **City of Anaheim.** *Criteria for Preparation of Traffic Impact Studies.* s.l. : City of Anaheim, 2015.

2. **Fehr & Peers.** *Anaheim Boulevard & La Palma Avenue Transportation Impact Analysis.* City of Anaheim : s.n., August 2015.

3. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2017.

4. **Husch, David and Albeck, John.** *Intersection Capacity Utilization: Evaluation Procedures for Intersections and Interchanges.* Albany, California : Trafficware, 2003 Edition. 09742903-0-0.

5. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2014.

6. **City of Anaheim.** *General Plan.* City of Anaheim : s.n., June 2018.

7. **Orange County Transportation Authority.** *Outlook 2035: Because Mobility Matters.* September 12, 2014.

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