CORONA C-STORE
TRAFFIC IMPACT STUDY
CITY OF CORONA, CALIFORNIA

MARCH 18, 2024 (REVISED)
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Prepared for:

Atman Kadakia
Greens Group
9289 Research Dr.
Irvine, CA 92618

Prepared by:

Scott Sato, P.E.
4225 Oceanside Blvd., #354H
Oceanside, CA 92056
(760) 291-1400

TRAMES SOLUTIONS INC.

(0232-0006-04)

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1.0 INTRODUCTION AND SUMMARY

A. Purpose of the TIS and Study Objectives

The purpose of this traffic impact study is to evaluate the traffic impacts of the proposed Corona C-Store development. The project is proposed to be developed with a 14 vehicle fueling position gas station and a 1,900 sf fast food restaurant with a drive-thru. The site is located north of 2nd St. and west of Buena Vista Ave.in the City of Corona.

Study objectives include the following:

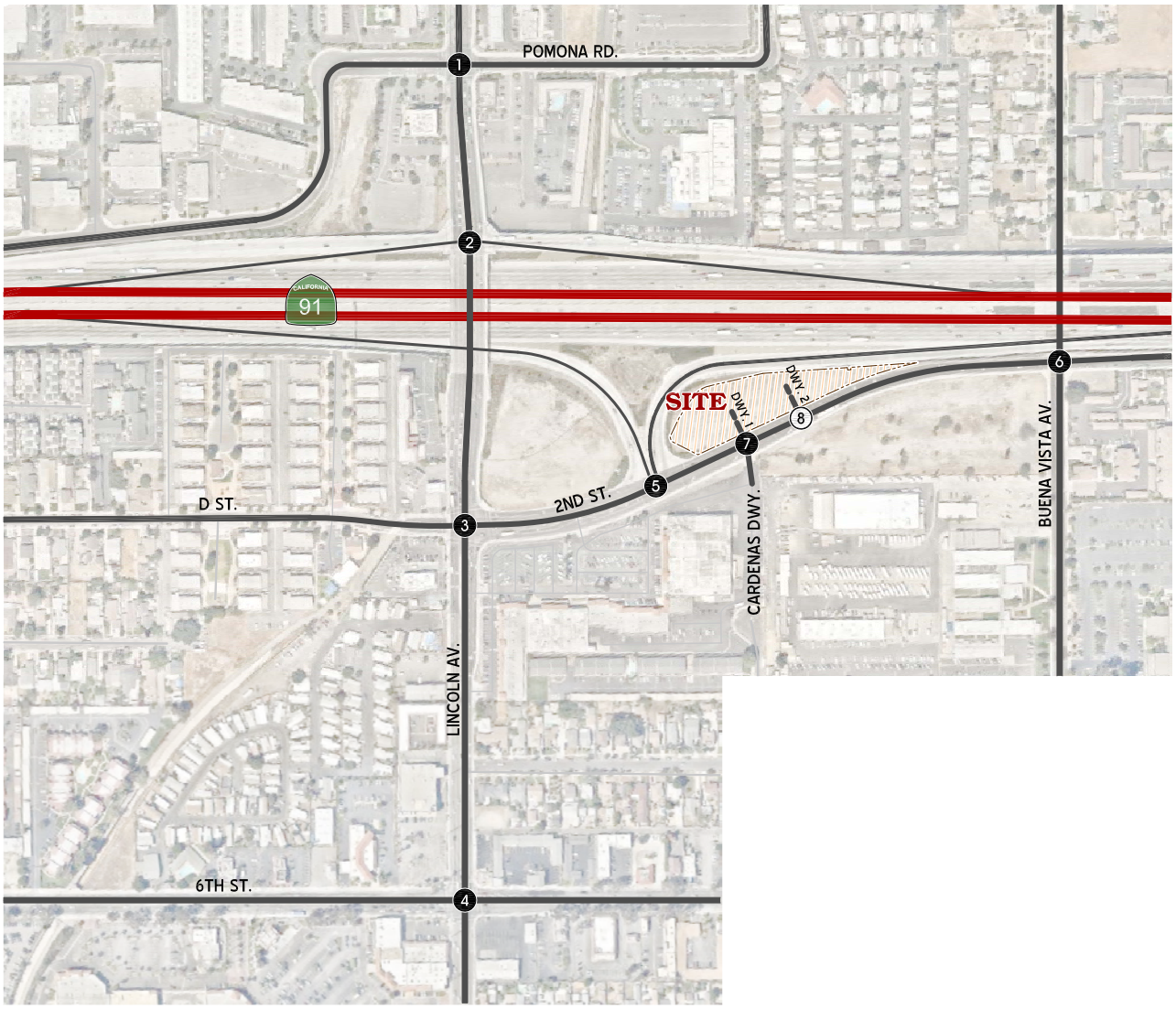
Existing (2023) Traffic. Existing traffic will be counted to determine current conditions. This constitutes the environmental setting for a CEQA analysis at the time that the hearing body reviews the project. Traffic count data shall be new or recent. In some cases, data up to one year old may be acceptable with the approval of the City of Corona Engineering Department. Any exception to this must be requested prior to approval of the scoping agreement

Existing (2023) Plus Project Traffic. Traffic generated by the proposed project will be added to existing traffic counts to identify and analyze impacts on the circulation system.

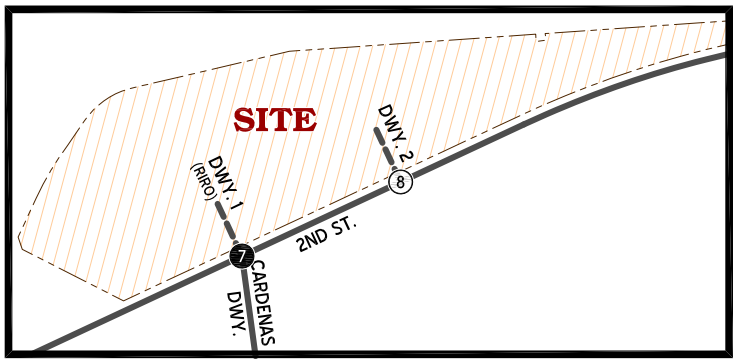
Existing + Ambient + Project (EAP 2025). Traffic conditions prior to the time that the proposed development is completed will be estimated by increasing the existing traffic counts by an appropriate growth rate to be provided by City of Corona Engineering Department staff, projected to the year that the project is estimated to be completed. Traffic generated by the proposed project will then be added, and the impacts on the circulation system will be analyzed. This will be the basis for determining project-specific impacts, mitigation, and conditions of approval.

Existing + Ambient + Project + Cumulative (EAPC). Traffic generated by other approved projects in the study area shall be identified and added to the Project Completion traffic identified in Scenario 3. This may also include projects that are proposed and in the review process, but not yet fully approved. This scenario will be analyzed, and a determination made if improvements funded through an approved funding mechanism (TUMF, DIF, CFD, RBBD etc.) can accommodate the cumulative traffic at the target Level of Service (LOS) identified in the General Plan. If the “funded” improvements can provide the target LOS, payment into the fee program will be

FIGURE 1-A
STUDY AREA



ON-SITE STUDY AREA



LEGEND:

- 7 = EXISTING INTERSECTION ANALYSIS LOCATION
- (1) = FUTURE INTERSECTION ANALYSIS LOCATION
- = FUTURE ROADWAY / PROJECT DRIVEWAY
- (RIRO) = RIGHT-IN/RIGHT-OUT ACCESS ONLY

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considered as cumulative mitigation through the conditions of approval. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-TUMF facilities) should be identified as such.

Horizon Year 2040. Traffic generated by the buildout of other approved projects in the horizon year 2040 has been developed from the Riverside County Traffic Model and evaluated for conditions with and without the proposed project.

B. Site Location and Study Area

The site is located north of 2nd St. and west of Buena Vista Ave.in the City of Corona. Figure 1-A illustrates the site location and the traffic analysis study area.

In general, the study area shall include any intersection of Collector or higher classification street with another Collector roadway or higher classification street, at which the proposed project will add 50 or more peak hour trips. Pursuant to the attached scoping agreement (see Appendix "A"), the study area includes the following intersections:

STUDY AREA INTERSECTIONS	
1.	Lincoln Avenue / Pomona Road
2.	Lincoln Avenue / SR-91 WB Ramps
3.	Lincoln Avenue / D. St - 2nd Street
4.	Lincoln Avenue / 6th Street
5.	SR-91 EB Ramps / 2nd Street
6.	Buena Vista Ave. / 2nd St.
7.	Cardenas Driveway – Project Driveway 1 / 2nd Street
8.	Project Driveway 2 / 2nd Street

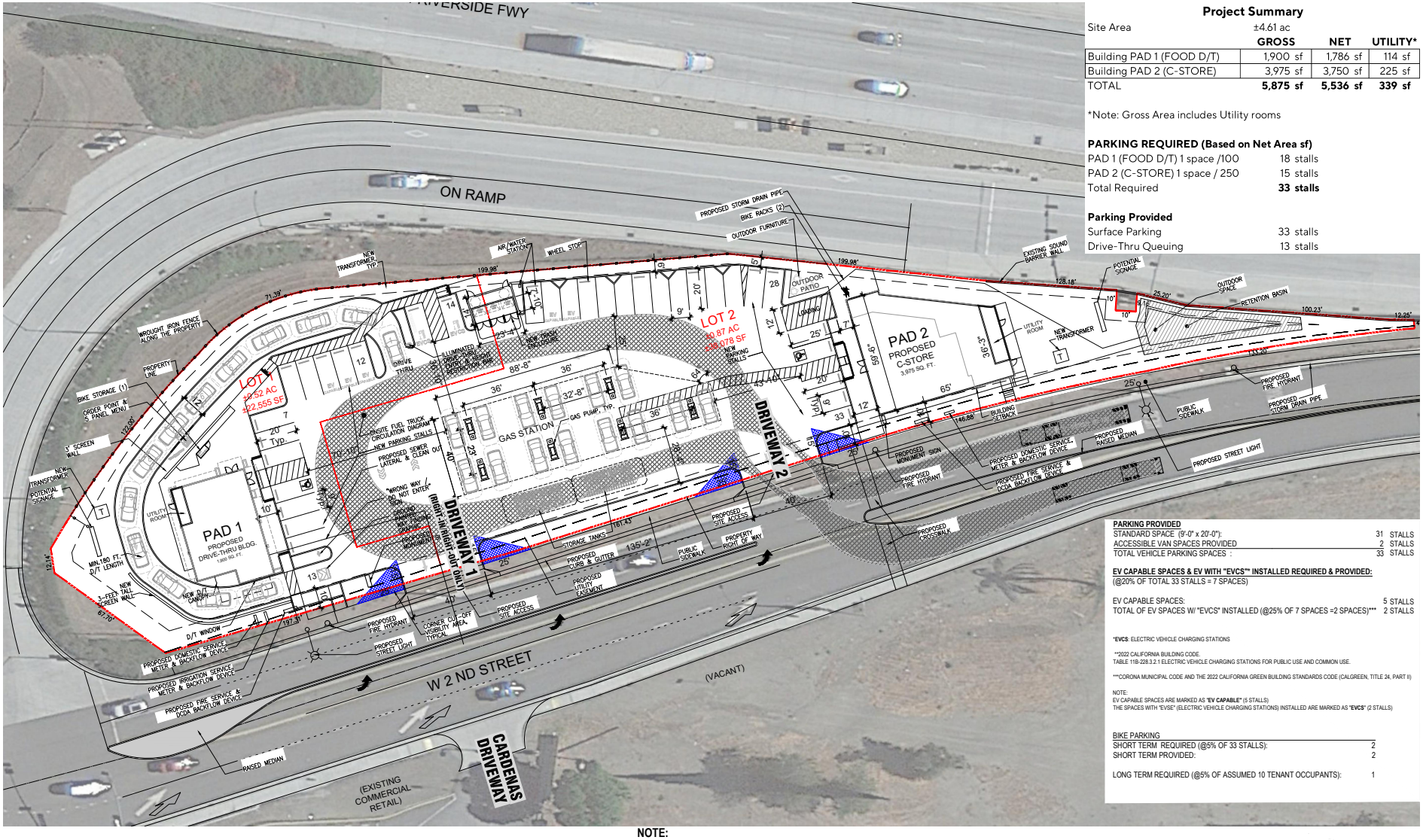
C. Development Project Identification

1. Project Size and Description

The Corona C-Store Site is proposed to be developed in a single development phase. The project will be completed by 2025. The following uses are proposed as indicated below:

- C-Store (14 vehicle fueling positions)
- Fast food restaurant with drive thru (1,900 square feet)

FIGURE 1-B
SITE PLAN



Project Summary

Site Area ±4.61 ac

	GROSS	NET	UTILITY*
Building PAD 1 (FOOD D/T)	1,900 sf	1,786 sf	114 sf
Building PAD 2 (C-STORE)	3,975 sf	3,750 sf	225 sf
TOTAL	**5,875 sf**	**5,536 sf**	**339 sf**

*Note: Gross Area includes Utility rooms

PARKING REQUIRED (Based on Net Area sf)

PAD 1 (FOOD D/T) 1 space /100	18 stalls
PAD 2 (C-STORE) 1 space / 250	15 stalls
Total Required	**33 stalls**

Parking Provided

Surface Parking	33 stalls
Drive-Thru Queuing	13 stalls

PARKING PROVIDED

STANDARD SPACE (9'-0" x 20'-0"):	31 STALLS
ACCESSIBLE VAN SPACES PROVIDED	2 STALLS
TOTAL VEHICLE PARKING SPACES :	33 STALLS

EV CAPABLE SPACES & EV WITH "EVCS"* INSTALLED REQUIRED & PROVIDED:
(@20% OF TOTAL 33 STALLS = 7 SPACES)

EV CAPABLE SPACES:	5 STALLS
TOTAL OF EV SPACES W/ "EVCS" INSTALLED (@25% OF 7 SPACES =2 SPACES)***	2 STALLS

*EVCS: ELECTRIC VEHICLE CHARGING STATIONS

**2022 CALIFORNIA BUILDING CODE
TABLE 11B-228.3.2.1 ELECTRIC VEHICLE CHARGING STATIONS FOR PUBLIC USE AND COMMON USE.

***CORONA MUNICIPAL CODE AND THE 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN, TITLE 24, PART II)

NOTE:
EV CAPABLE SPACES ARE MARKED AS "**EV CAPABLE**" (5 STALLS)
THE SPACES WITH "EVSE" (ELECTRIC VEHICLE CHARGING STATIONS) INSTALLED ARE MARKED AS "**EVCS**" (2 STALLS)

BIKE PARKING

SHORT TERM REQUIRED (@5% OF 33 STALLS):	2
SHORT TERM PROVIDED:	2
LONG TERM REQUIRED (@5% OF ASSUMED 10 TENANT OCCUPANTS):	1

NOTE:
ALL EXISTING & NEW UTILITIES ADJACENT TO AND ON-SITE SHALL BE PLACED UNDERGROUND.

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2. Existing Land Use

The project site is currently vacant. Adjacent uses include the following:

- North – SR-91 Freeway
- South – Commercial
- East – Commercial
- West – Commercial

3. Proposed Land Use

Proposed Land Use: Commercial

4. Site Plan of Proposed Project

Figure 1-B illustrates the conceptual land use plan. As shown in Figure 1-B, the project is proposed to have two driveways along the 2nd St.

5. Proposed Project Opening Year

The proposed project is anticipated to be completed by 2025. Future traffic analysis has assumed a background (ambient) growth of 2% per year, along with traffic generated by other future developments in the surrounding area.

6. Proposed Project Phasing

The project is expected to be completed in one phase. Therefore, all traffic recommendations included in this report are based on the uses being developed concurrently.

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2.0 TRAFFIC ANALYSIS METHODOLOGIES

Traffic operations are quantified through the determination of "Level of Service" (LOS). Level of Service is a qualitative measure of traffic operating conditions, whereby a letter grade "A" through "F" is assigned to an infrastructure facility (intersection) representing progressively worsening traffic conditions. This section presents the LOS definition, LOS criteria and methodologies for the Intersection Operations.

A. Level of Service Definition

The definitions of Level of Service for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A": Completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.

- LOS "B": Free flow conditions, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS "A", but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.

- LOS "C": The influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant traffic disruption.

- LOS "D": The ability to maneuver is restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.

- LOS "E": Operations at or near capacity, an unstable level. Vehicles are operating with the minimum spacing for maintaining uniform flow.

- LOS "F": Forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points – and on sections immediately downstream – appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly

unstable, with vehicles experiencing brief periods of movement followed by stoppages.

B. City of Corona Level of Service Criteria

The City of Corona has established Level of Service (LOS) "C" as the target along all local intersections in residential/industrial areas. LOS "D" or better shall be maintained on collector and arterial intersections. LOS "E" is permitted at the following intersections:

- Lincoln Ave./SR-91
- Main St./SR-91
- Hidden Valley Pkwy./I-15
- Cajalco Rd./I-15
- Weirick Rd./I-15
- Other locations as approved by the City Engineer.

C. Intersection Operations Analysis Methodology

The City of Corona requires the use of the Transportation Research Board - Highway Capacity Manual (HCM), 6th Edition. The HCM defines level of service as a qualitative measure, which describes operational conditions within a traffic stream, generally in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. The criteria used to evaluate Level of Service (LOS) conditions vary based on the type of roadway and whether the traffic flow is considered interrupted or uninterrupted. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control.

The level of service is typically dependent on the quality of traffic flow at the intersections along a roadway. The HCM methodology expresses the level of service at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. The Levels of Service results in this study are determined using the HCM methodology.

For signalized intersections, average total delay per vehicle for the overall intersection is used to determine level of service.

The study area intersections which are stop sign controlled with stop control on the minor street only have been analyzed using the unsignalized intersection methodology of the HCM. For these intersections, the calculation of level of service is dependent on the occurrence of gaps occurring in the traffic flow of the main street. Using data collected describing the intersection configuration and traffic volumes at the study area locations; the level of service has been calculated. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle for the worst minor street movement(s).

For all way stop (AWS) controlled intersections, the ability of vehicles to enter the intersection is not controlled by the occurrence of gaps in the flow of the main street. The AWS controlled intersections have been evaluated using the HCM methodology for this type of multi-way stop controlled intersection configuration. The level of service criteria for this type of intersection analysis is based on average total delay per vehicle.

The levels of service are defined for the various analysis methodologies as follows:

LEVEL OF SERVICE	AVERAGE TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	80.01 and up	50.01 and up

Levels of service at the study area intersections have been evaluated using the following HCM intersection analysis program: Synchro.

Peak hour factors (PHF), where known from existing traffic counts, have been used to assess intersection operations.

D. Traffic Signal Warrant Analysis

Traffic signal warrant analysis included in this report utilizes the signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD). The Peak Hour Volume-based Warrant 3 is used for all existing unsignalized intersections within the study area. For future unsignalized intersection, the Caltrans planning level average daily traffic (ADT) based signal warrant analysis is utilized.

E. Freeway Mainline Segment Analysis

The freeway mainline segment analysis based on the HCM methodology. The density and level of service for the freeway segments east and west of Lincoln Ave. has been evaluated based on peak hour directional volumes using the HCS7 Freeways Version 7.9 software. The measure used to provide an estimate of level of service is density (reported in passenger car/mile/lane). The freeway segment LOS thresholds for each freeway segment density range utilized in this report is presented as follows:

LEVEL OF SERVICE	DENSITY RANGE (pc/mi/ln)[1]
A	0.0 – 11.0
B	11.1 – 18.0
C	18.1 – 26.0
D	26.1 – 35.0
E	>35.1 – 45.0
F	>45.0

[1] pc/mi/ln = passenger cars per mile per lane.

F. Freeway Ramp Analysis Methodology

For the purpose of this report, merge/diverge operations analysis methods have been used to evaluate freeway on-ramps and off-ramps. The density and level of service at the SR-91/Lincoln Ave.-2nd St. on and off-ramps have been evaluated using the HCS7 Ramps Version 7.9 software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. The merge/diverge area LOS thresholds for each density range utilized in this report is presented as follows:

LEVEL OF SERVICE	DENSITY RANGE (pc/mi/ln)[1]
A	0.0 – 10.0
B	10.1 – 20.0
C	20.1 – 28.0
D	28.1 – 35.0
E	>35.0
F	Demand Exceeds Capacity

[1] pc/mi/ln = passenger cars per mile per lane.

3.0 AREA CONDITIONS

A. Study Area Intersections and Roadway Segments

In general, the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour. The City of Corona Engineering Department may require deviation from these requirements based on area conditions. The study area includes the following intersections (shown previously on Figure 1-A):

STUDY AREA INTERSECTIONS	
1.	Lincoln Avenue / Pomona Road
2.	Lincoln Avenue / SR-91 WB Ramps
3.	Lincoln Avenue / D. St - 2nd Street
4.	Lincoln Avenue / 6th Street
5.	SR-91 EB Ramps / 2nd Street
6.	Buena Vista Ave. / 2nd St.
7.	Cardenas Driveway – Project Driveway 1 / 2nd Street
8.	Project Driveway 2 / 2nd Street

B. Area Roadway System

Figure 3-A identifies the existing roadway conditions for study area roadways. The existing intersection traffic controls and geometrics are identified.

The City of Corona Circulation Element and Roadway Cross-Sections is depicted on Figure 3-B.

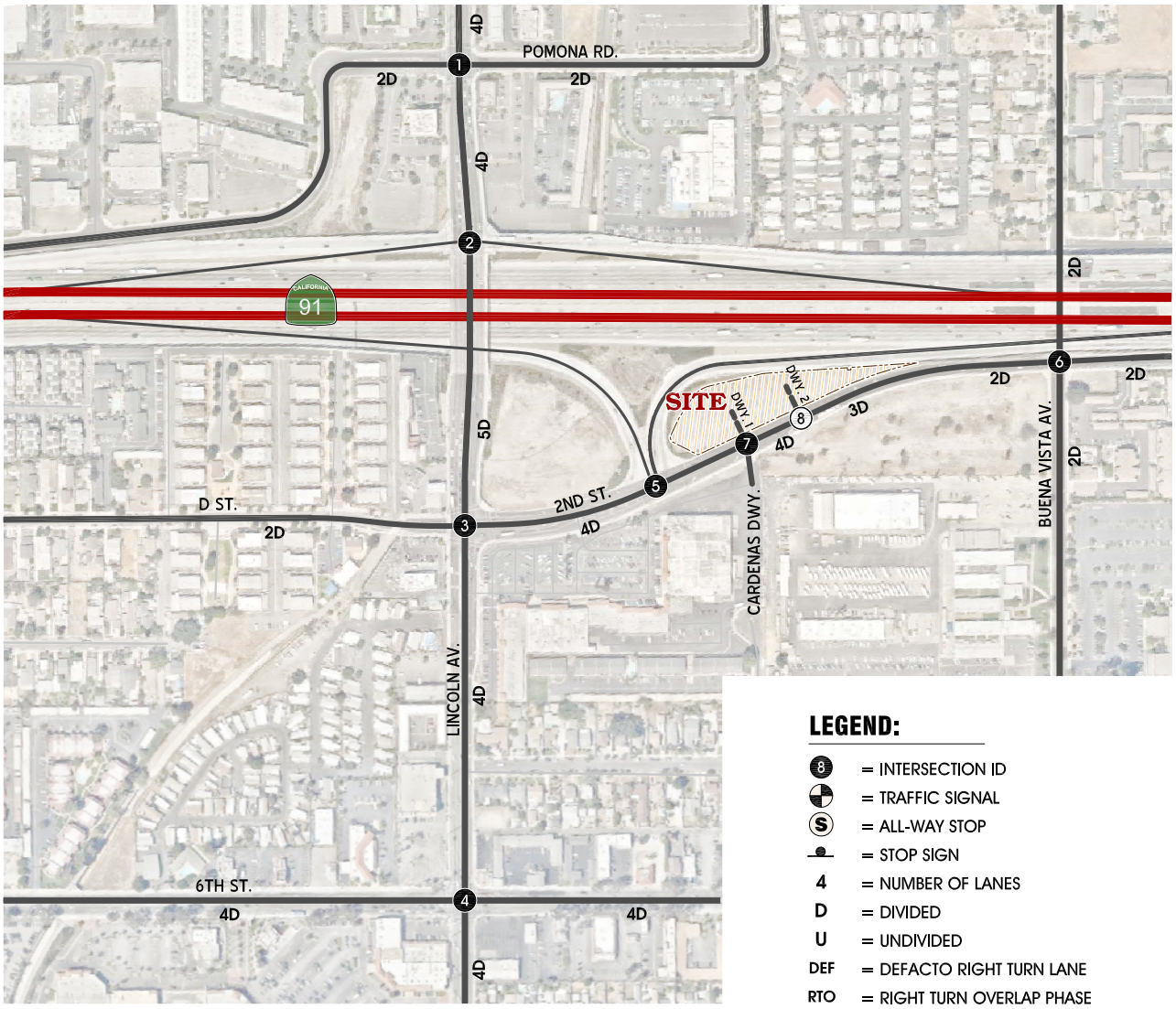
C. Existing (2023) Traffic Volumes

Existing intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts made for Trames Solutions, Inc. in May 2023. Existing (2023) AM and PM peak hour intersection turning movement volumes are shown on Figure 3-C.

Existing average daily traffic (ADT) volumes are also shown on Figure 3-C. The following formula is used to estimate the ADT volumes shown on Figure 3-C (where count data is unavailable):

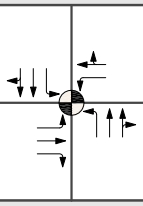
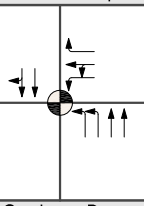
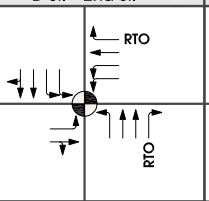
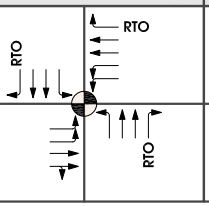
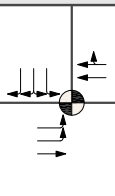
PM Peak Hour Link Volume (Approach + Exit) x 12 = ADT Leg Volume

FIGURE 3-A
EXISTING TRAFFIC CONTROLS AND INTERSECTION GEOMETRICS



LEGEND:

8	= INTERSECTION ID
	= TRAFFIC SIGNAL
S	= ALL-WAY STOP
	= STOP SIGN
4	= NUMBER OF LANES
D	= DIVIDED
U	= UNDIVIDED
DEF	= DEFACTO RIGHT TURN LANE
RTO	= RIGHT TURN OVERLAP PHASE

1. Lincoln Ave. / Pomona Rd.	2. Lincoln Ave. / SR-91 WB Ramps	3. Lincoln Ave. / D St. - 2nd St.	4. Lincoln Ave. / 6th St.	5. SR-91 EB Ramps / 2nd St.
				

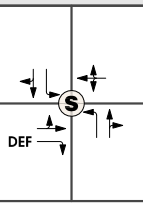
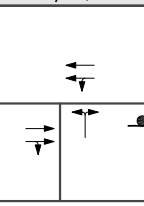
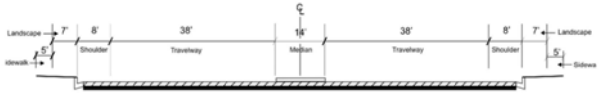
6. Buena Vista Av. / 2nd St.	7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.	8. Project Dwy. 2 / 2nd St.
		FUTURE INTERSECTION

FIGURE 3-B

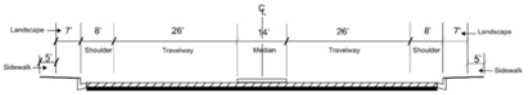
CITY OF CORONA GENERAL PLAN CIRCULATION ELEMENT AND STANDARD ROADWAY CROSS-SECTIONS

LEGEND:

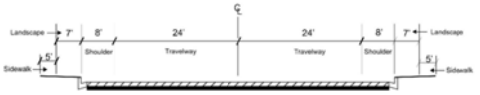
- Freeway
- Major Arterial 6 Lane
- Major Arterial 4 Lane
- Mixed Use Boulevard 4 Lane Divided/Undivided
- Secondary 4 Lane
- Collector
- Special Residential
- City Boundary
- Sphere of Influence Areas



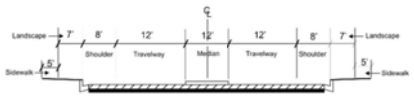
Major Arterial (6 lanes)
R.W. 130
Roadway 106



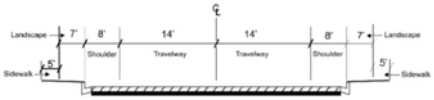
Major Arterial (4 lanes)
R.W. 106
Roadway 82



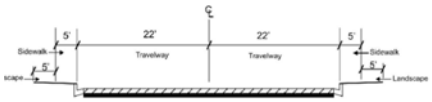
Secondary (4 lanes)
R.W. 88
Roadway 64



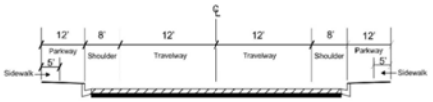
Divided Collector (2 lanes)
R.W. 76
Roadway 52



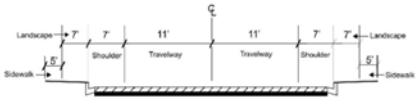
Collector (2 lanes)
R.W. 68
Roadway 44



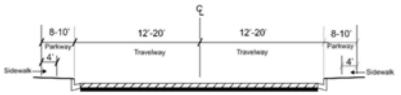
Local Industrial
R.W. 64
Roadway 44



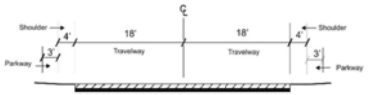
Local Street
R.W. 64
Roadway 40
Note: See local residential street Planning Policy 6.1.10



Cul-De-Sac
R.W. 60
Roadway 36

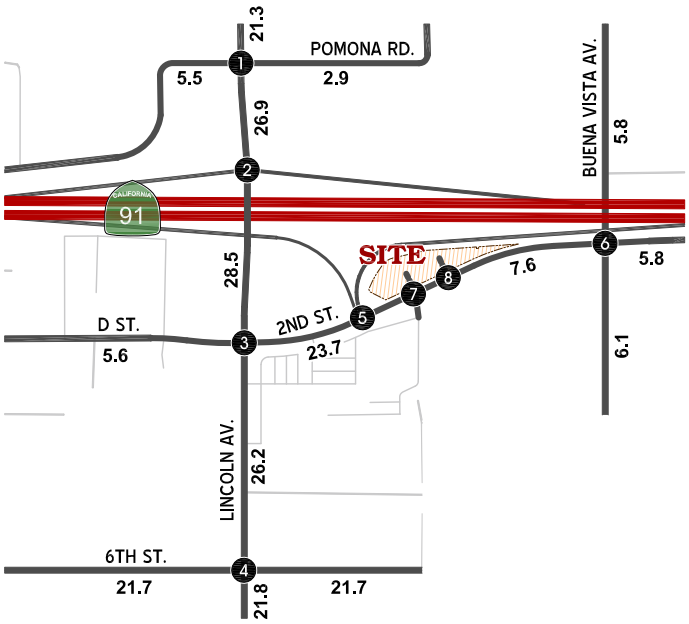


Private Residential Street
R.W. 40-60
Roadway 24-40
Note: See local residential street Planning Policy 6.1.10

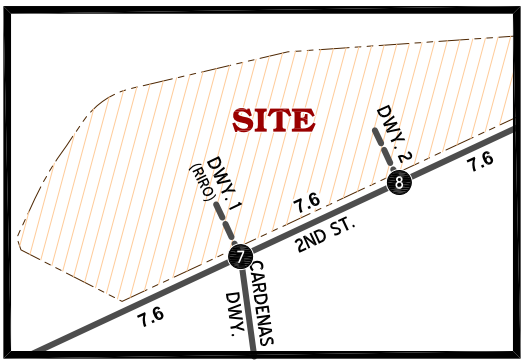


Rural Road (Traffic Volume)
R.W. 50
Roadway 36
Note: See local residential street Planning Policy 6.1.10

FIGURE 3-C
EXISTING (2023) TRAFFIC VOLUMES



ON-SITE STUDY AREA



LEGEND:

(#)	= INTERSECTION ID
10	= PEAK HOUR TURN VOLUME
10.0	= VEHICLES PER DAY (1000'S)

AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
47 ↓ 770 ↑ 34	↳20 ←24 ↰67	462 ↓ 404	↳497 ←130 ↰382	92 ↓ 492 ↑ 177	↳286 ←60 ↰72	235 ↓ 334 ↑ 32	↳82 ←715 ↰87	291 ↓ 157	↳108 ←127
22 → 9 → 35 ↓	316 ↑ 731 ↑ 43 ↰		190 ↑ 593 ↑	42 → 136 → 43 ↓	62 ↑ 455 ↑ 439 ↰	131 → 245 → 17 ↓	79 ↑ 753 ↑ 97 ↰	667 → 78 →	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
40 ↓ 147 ↑ 34	↳26 ←107 ↰68		←209 ↰15	FUTURE INTERSECTION					
58 → 94 → 89 ↓	77 ↑ 145 ↑ 16 ↰	217 → 13 ↓	26 ↑ 22 ↰						

PM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
46 ↓ 923 ↑ 28	↳17 ←18 ↰83	412 ↓ 741	↳213 ←23 ↰586	109 ↓ 877 ↑ 316	↳233 ←65 ↰117	200 ↓ 707 ↑ 91	↳123 ←482 ↰190	305 ↓ 274	↳89 ←110
116 → 31 → 171 ↓	76 ↑ 612 ↑ 65 ↰		197 ↑ 540 ↑	63 → 167 → 19 ↓	44 ↑ 441 ↑ 299 ↰	231 → 779 → 72 ↓	41 ↑ 463 ↑ 146 ↰	657 → 122 →	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
48 ↓ 157 ↑ 55	↳21 ←76 ↰23		←164 ↰22	FUTURE INTERSECTION					
71 → 279 → 101 ↓	62 ↑ 131 ↑ 31 ↰	356 → 30 ↓	35 ↑ 81 ↰						

N

The traffic count worksheets are included in Appendix "B".

For ramp analysis purposes, the SR-91 freeway mainline volume data were obtained from the Caltrans Performance Measurement System (PeMS) website. Freeway mainline peak hour volumes have been obtained between May 2nd to May 4th, 2023 and have been flow conserved with freeway-ramp-to-arterial peak hour count data. The maximum value observed within the three day period is utilized for the AM and PM peak hours. The source data and freeway volume summary are also included in Appendix “B”.

D. Existing (2023) Delay and Level of Service

The City of Corona has established Level of Service (LOS) “D” as the maximum allowable threshold for the intersection operations (with the exception of Lincoln Ave./SR-91 Ramps). Therefore, LOS “E” or “F” is considered unacceptable and requires improvements measures.

The results of the existing conditions intersection analysis are summarized in Table 3-1. The existing condition operations analysis worksheets are provided in Appendix "C". The study area intersections are currently operating at an acceptable level of service (LOS “D” or better) during the peak hours with the existing geometry and traffic controls.

E. Traffic Signal Warrant Analysis

Traffic signal warrant analysis included in this report utilizes the signal warrant criteria presented in the latest edition of the Federal Highway Administration’s (FHWA) Manual on Uniform Traffic Control Devices (MUTCD). The Peak Hour Volume-based Warrant 3 is used for all existing unsignalized intersections within the study area.

Appendix “D” includes the traffic signal warrant worksheets. The intersection of Project Driveway 2 / 2nd Street is anticipated to meet warrants under 2040 with Project conditions. No other unsignalized intersections are anticipated to be warranted.

TABLE 3-1

INTERSECTION ANALYSIS FOR EXISTING (2023) CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service[3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Lincoln Ave. / Pomona Rd.	TS	1	2	0	1	2	0	1	1	1	1	1	0	20.2	21.0	C	C
2	Lincoln Ave. / SR-91 WB Ramps	TS	2	2	0	0	2	0	0	0	0	1.5	0.5	1	21.9	21.5	C	C
3	Lincoln Ave. / D St. - 2nd St.	TS	1	2	1>	2	2	0	1	1	0	2	1	1>	19.6	22.3	B	C
4	Lincoln Ave. / 6th St.	TS	1	2	1>	1	2	1>	2	2	0	2	2	1>	22.4	26.2	C	C
5	SR-91 EB Ramps / 2nd St.	TS	0	0	0	1	1!	1	2	1	0	0	2	0	32.6	32.3	C	C
6	Buena Vista Ave. / 2nd St.	AWS	1	1	0	1	1	0	0.5	0.5	d	0	1!	0	13.6	15.6	B	C
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	CSS	0	1!	0	0	0	0	0	2	0	0	2	0	10.8	12.1	B	B
8	Project Dwy. 2 / 2nd St.	-	Future Intersection												-	-	-	-

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] 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! = Shared Left-Through-Right Lane; d = Defacto right turn lane; > = Right-Turn Overlap Phasing

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

F. Existing (2023) Freeway Ramp Analysis

The Existing (2023) freeway ramp analysis results are summarized in Table 3-2. The ramp analysis calculation worksheets for Existing (2023) conditions are included in Appendix "E". As shown on Table 3-2, the study area ramp locations are operating at an acceptable LOS (LOS "D" or better) during the peak hours.

G. Existing (2023) Freeway Segment Analysis

The Existing (2023) freeway segment analysis results are summarized in Table 3-3. The freeway segment analysis calculation worksheets for Existing (2023) conditions are included in Appendix "F". As shown on Table 3-3, the freeway segments analyzed for this study were found to operate at an acceptable LOS (LOS "D" or better) during the peak hours.

H. Transit Service

The Riverside Transit Agency (RTA) Route 1 currently services the study area.

TABLE 3-2

EXISTING (2023) CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

Freeway	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Ramp Volumes[3]		Density[1]		Level of Service[2]	
					AM	PM	AM	PM	AM	PM
SR-91 Westbound	Lincoln Ave. Off-Ramp	Diverge	6	1	1,009	822	24.9	25.0	C	C
	Lincoln Ave. On-Ramp	Merge	5	1	782	632	27.1	27.8	C	C
SR-91 Eastbound	2nd St. Off-Ramp	Diverge	5	2	448	579	18.0	17.4	B	B
	2nd St. On-Ramp	Merge	6	1	775	746	23.2	22.1	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7 : Ramps and Ramp Junction software, Version 7.9

[3] For analysis purposes, existing ramp volume have been increased by 7% to reflect non-Covid conditions.

The 7% have been developed based on the 2021 count data and estimated PeMS ramp data.

TABLE 3-3

EXISTING (2023) CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

Freeway	Mainline Segment Location	Lanes[1]	Freeway Volumes		Density [2]		LOS [3]	
			AM	PM	AM	PM	AM	PM
SR-91 Westbound	East of Lincoln Ave.	6	7,768	8,126	20.7	21.8	C	C
	Between Ramps	5	6,759	7,304	21.7	23.8	C	C
	West of Lincoln Ave.	5	7,541	7,936	24.8	26.5	C	D
SR-91 Eastbound	West of Lincoln Ave.	5	8,459	8,261	29.0	28.0	D	D
	Between Ramps	5	8,011	7,682	26.9	25.4	D	C
	East of Lincoln Ave.	6	8,786	8,428	23.9	22.7	C	C

[1] Number of lanes are in the specified direction and is based on existing conditions.

[1] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS7: Basic Segments software, Version 7.9

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4.0 PROJECTED FUTURE TRAFFIC

This section of the report quantifies the number of trips generated by the proposed project and other known developments in the area.

A. Project Traffic

1. Ambient Growth Rate

Some traffic volume increases on roadways can be attributed to vehicles originating outside of the study area. These types of trips either end up within the study area or pass-through onto an outside destination. Therefore, to account for these trips (termed "ambient growth"), a growth rate can be applied to existing traffic volumes.

A 2% ambient growth rate that has been used in this study to account for traffic not attributed to the project or other planned developments within the study area. The City of Corona Transportation Department staff has previously reviewed and approved this rate.

2. Project Trip Generation

Trip generation represents the amount of traffic which is attracted and produced by a development. The trip generation for the project is based upon the specific land use which has been planned for this development. For the purpose of this analysis, the following land use assumption is evaluated:

- C-Store (14 vehicle fueling positions)
- Fast food restaurant with drive thru (1,900 square feet)

Trip generation rates for the proposed development are shown in Table 4-1. The trip generation rates are based upon data collected by the Institute of Transportation Engineers (ITE).

The land uses are comprised of primary and "pass-by" traffic. Primary traffic refers to trips that are intending to go to the project as their primary destination. Pass-by trips are not new trips but those that are already on the roadway system but are anticipated to "pass-by" the project on their way to a primary destination.

TABLE 4-1 & 4-2

TABLE 4-1

PROJECT TRIP GENERATION RATES[1]

Land Use	ITE Code	Quantity[2]	Peak Hour Trip Rates						Daily
			AM			PM			
			IN	OUT	Total	IN	OUT	Total	
Fast-Food Restaurant w/ Drive-Through Windo	934	1.9 TSF	22.75	21.86	44.61	17.18	15.85	33.03	467.48
Convenience Store/Gas Station - GFA (2-4k)	945	14 VFP	8.03	8.03	16.06	9.21	9.21	18.42	265.12

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

TABLE 4-2

PROJECT TRIP GENERATION SUMMARY

Land Use	ITE Code	Quantity[1]	Peak Hour						Daily
			AM			PM			
			In	Out	Total	In	Out	Total	
Fast-Food Restaurant w/ Drive-Through Windo	934	1.9 TSF	43	42	85	33	30	63	888
- Pass-By (AM 49%; PM 50%)			*-21*	*-21*	*-42*	*-16*	*-16*	*-32*	*-451*
Convenience Store/Gas Station - GFA (2-4k)	945	14 VFP	112	112	224	129	129	258	3,712
- Pass-By (AM 62%; PM 56%)			*-70*	*-70*	*-140*	*-72*	*-72*	*-144*	*-2,072*
TOTAL TRIPS			64	63	127	74	71	145	2,077

[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions

The daily and peak hour trip generations for the proposed project are shown on Table 4-2. The proposed development is projected to generate a total of approximately 2,077 trip-ends per day with 127 vehicles per hour during the AM peak hour and 145 vehicles per hour during the PM peak hour.

3. Project Trip Distribution and Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. The project's trip distribution patterns are based on the proximity of the residential units to the proposed driveway locations, the surrounding trip attractors (residential communities, commercial opportunities, etc.), and the regional freeway interchanges. The trip distribution pattern for the project is illustrated on Figure 4-A.

4. Other Trip Generation Factors

It is unlikely that the project trips will be further reduced to/from the site by non-motorized modes of travel due to the lack of; 1) convenient transit opportunities, 2) bike lanes, and 3) pedestrian trails.

5. Project Peak Hour Turning Movement Traffic

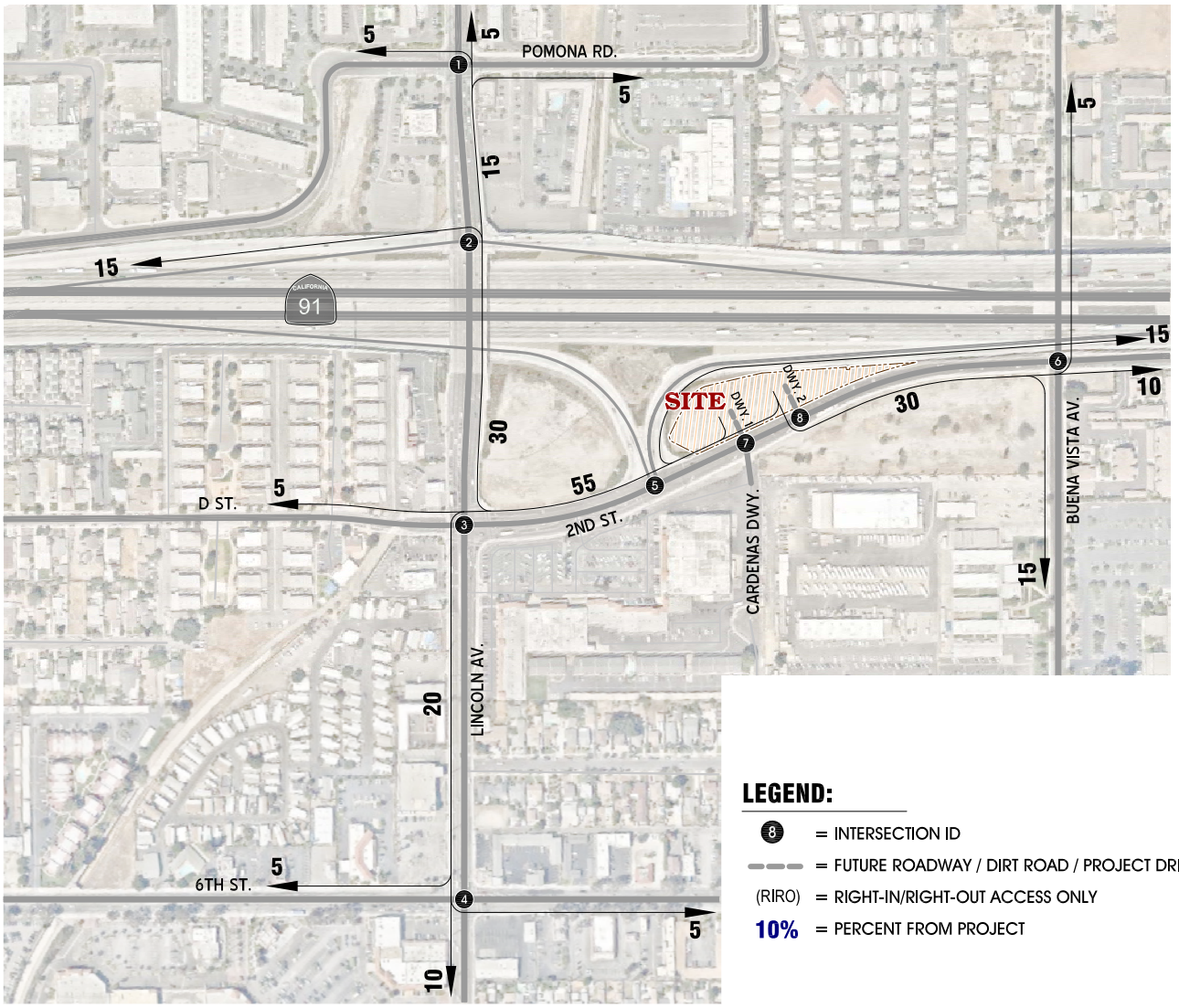
The assignment of traffic from the site to the adjoining roadway system has been based upon the site's trip generation, trip distribution, proposed arterial highway and local street systems, which would be in place by the time of initial occupancy of the site. Based on the identified project traffic generation and distribution, Project traffic volumes are shown on Figure 4-B.

B. Cumulative Traffic (Background)

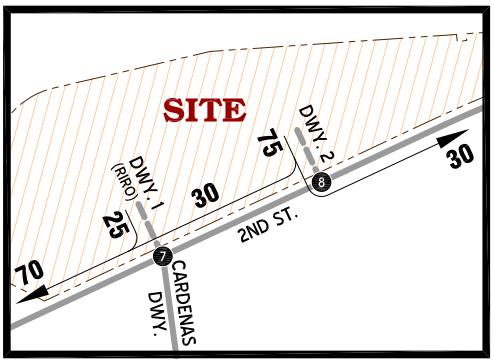
1. Method of Projection

To assess existing plus ambient plus cumulative plus project traffic conditions, project traffic is combined with existing traffic, area-wide growth and other future developments which are approved or being processed concurrently in the study area. Developments which are being processed concurrently in the study area have been provided by the City of Corona staff.

FIGURE 4-A
PROJECT TRIP DISTRIBUTION



ON-SITE TRIP DISTRIBUTION (OUTBOUND)



ON-SITE TRIP DISTRIBUTION (INBOUND)

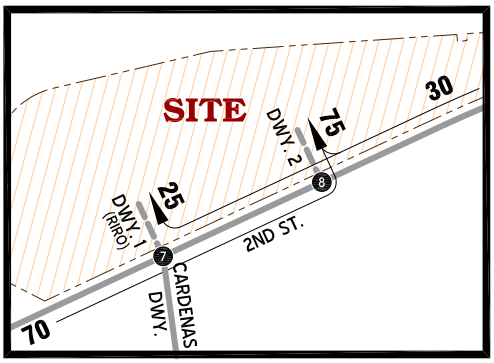
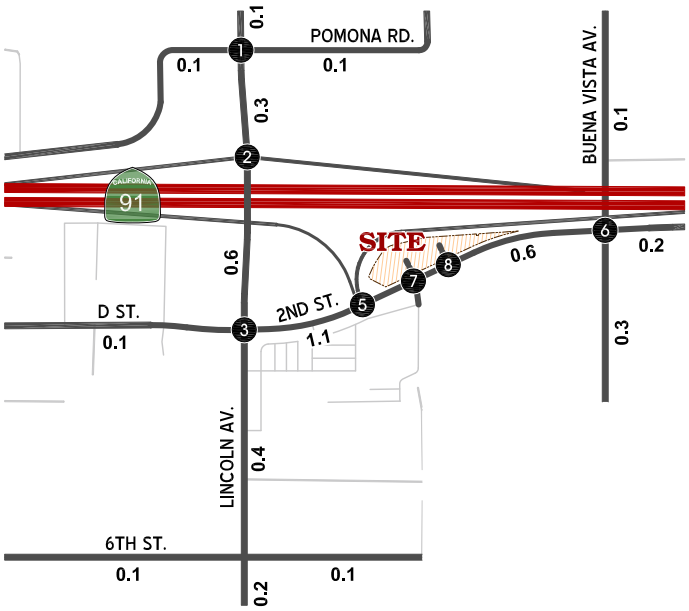
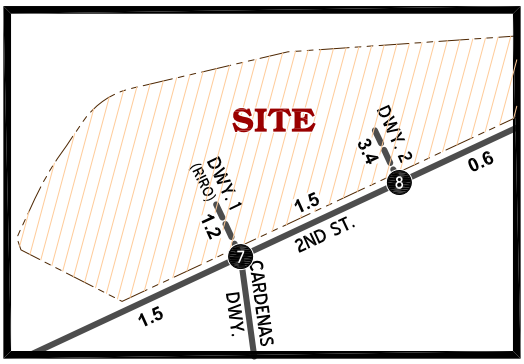


FIGURE 4-B
PROJECT ONLY TRAFFIC VOLUMES



ON-SITE STUDY AREA



LEGEND:

- (#) = INTERSECTION ID
- 10 = PEAK HOUR TURN VOLUME
- **10.0** = PROJECT + PASS-BY VEHICLES PER DAY (1000'S)

PROJECT ONLY AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.	2. Lincoln Ave. / SR-91 WB Ramps	3. Lincoln Ave. / D St. - 2nd St.	4. Lincoln Ave. / 6th St.
0 3 0 → 0 0 3	0 9 → 0 0 10	0 0 19 → 19 3 13	3 7 3 → 3 0 0
0 0 3 → 3 4 3	→ 9 10	0 3 0 → 0 0 13	3 0 0 → 0 7 0
5. SR-91 EB Ramps / 2nd St.	**6. Buena Vista Av. / 2nd St.**	**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**	**8. Project Dwy. 2 / 2nd St.**
0 10 → 9 35	3 0 0 → 0 6 0	39 → 39 5	50 65 → 25 6
0 → 35	3 → 6 → 10 → 10 0 0	45 → 0 → 0	91 → -46 →

PROJECT PASS-BY (AM)

7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.	
12 →	→ 12 -12
0 → 0 →	0 →
8. Project Dwy. 2 / 2nd St.	
11 23 →	→ 11 -11
23 → -23 →	

PROJECT ONLY PM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.	2. Lincoln Ave. / SR-91 WB Ramps	3. Lincoln Ave. / D St. - 2nd St.	4. Lincoln Ave. / 6th St.
0 3 0 → 0 0 4	0 11 → 0 0 11	0 0 22 → 22 4 14	4 6 4 → 4 0 0
0 0 4 → 4 4 4	→ 10 12	0 4 0 → 0 0 15	4 0 0 → 0 7 0
5. SR-91 EB Ramps / 2nd St.	**6. Buena Vista Av. / 2nd St.**	**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**	**8. Project Dwy. 2 / 2nd St.**
0 11 → 11 40	4 0 0 → 0 7 0	41 → 41 10	53 65 → 25 2
0 → 41 →	4 → 7 → 10 → 12 0 0	52 → 0 → 0	96 → -44 →

PROJECT PASS-BY (PM)

7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.	
12 →	→ 12 -12
0 → 0 →	0 →
8. Project Dwy. 2 / 2nd St.	
11 24 →	→ 11 -11
24 → -24 →	

N

2. Other Approved or Proposed Development Projects

The cumulative developments have been included along with the land use associated with each project. The location of the cumulative projects provided by the City are shown on Figure 4-C.

3. Other Approved Projects Trip Generation

Table 4-3 presents the cumulative trip generation rates and resulting trip generation. As presented in Table 4-3 Cumulative developments are projected to generate a total of approximately 7,984 trip-ends per day with 712 vehicles per hour during the AM peak hour and 903 vehicles per hour during the PM peak hour.

5. Total Background Peak Hour Turning Movement Volumes

Based on the identified trip distribution for the cumulative development on arterial highways throughout the study area, cumulative development traffic volumes are shown on Figure 4-D.

Existing plus Project (E+P) traffic volumes are shown on Figure 4-E.

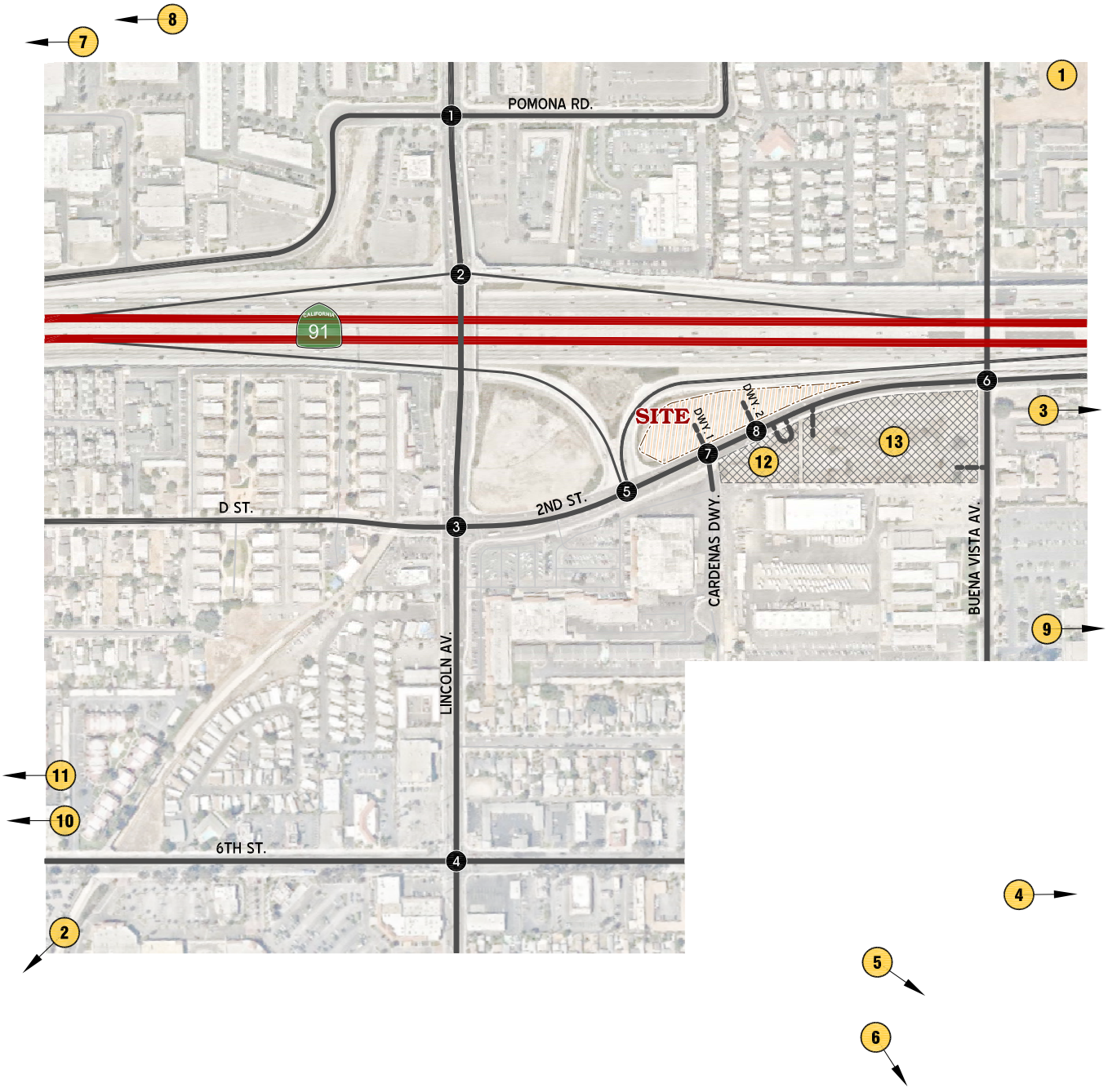
Existing plus Ambient plus Project (E+A+P) traffic volumes are shown on Figure 4-F.

Existing plus Ambient plus Project plus Cumulative (E+A+P+C) traffic volumes are shown on Figure 4-G.

2040 Without Project traffic volumes are shown on Figure 4-H.

2040 With Project traffic volumes are shown on Figure 4-I.

FIGURE 4-C
CUMULATIVE DEVELOPMENTS LOCATION MAP



LEGEND:

8 = INTERSECTION ID

11 = CUMULATIVE DEVELOPMENT ID
(SEE TABLE 4-3 FOR REFERENCE)

N

TABLE 4-3

CUMULATIVE DEVELOPMENT TRIP GENERATION SUMMARY

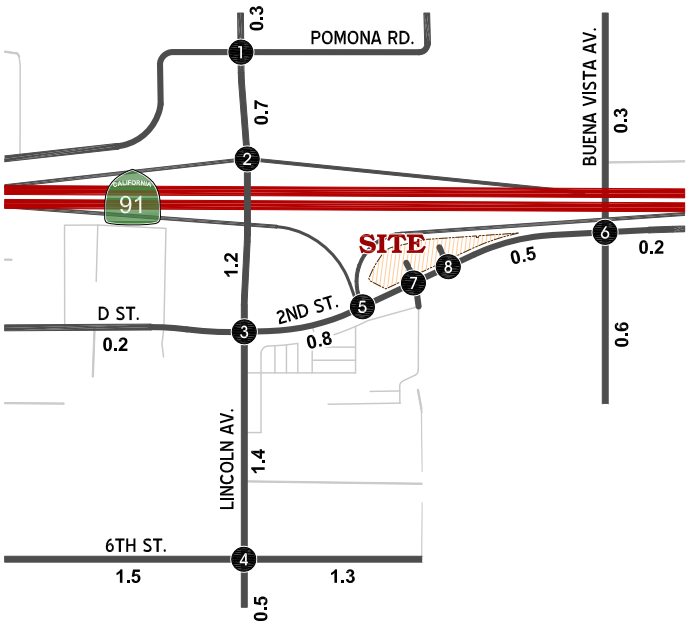
TRIP GENERATION RATES[1]									
			Peak Hour Trip Rates						
			AM			PM			
Land Use	ITE Code	Units[2]	IN	OUT	Total	IN	OUT	Total	Daily
Gen. Lt. Industrial	110	TSF	0.65	0.09	0.74	0.09	0.56	0.65	4.87
Single Family Detached	210	DU	0.18	0.52	0.70	0.59	0.35	0.94	9.43
Multifamily Housing (Low-Rise)	220	DU	0.10	0.30	0.40	0.32	0.19	0.51	6.74
Affordable Housing	223	DU	0.10	0.26	0.36	0.27	0.19	0.46	4.81
Senior Adult Housing - Attached	252	DU	0.07	0.13	0.20	0.14	0.11	0.25	3.24
Health/Fitness Club	492	TSF	0.67	0.64	1.31	1.97	1.48	3.45	34.50
Medical-Dental Office	720	TSF	2.45	0.65	3.10	1.18	2.75	3.93	36.00
Shopping Center (<40k)	822	TSF	1.42	0.94	2.36	3.30	3.29	6.59	54.45

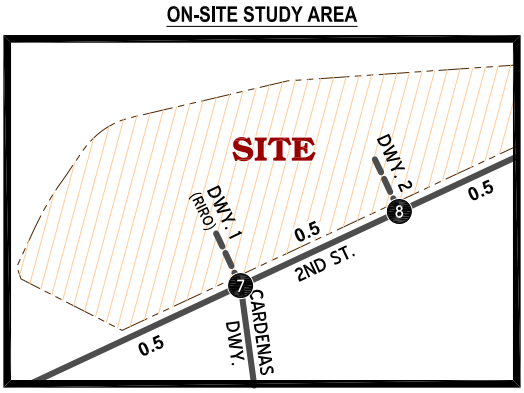
TRIP GENERATION RESULTS										
				PEAK HOUR						
				AM			PM			
ID	PROJECT NAME	LAND USE	QUANTITY [1]	IN	OUT	TOTAL	IN	OUT	TOTAL	DAILY
1	CUP 17-004 Buena Vista Senior Apartments (Buena Vista Av. / SR-91)	Senior Adult Housing - Attached	62 DU	4	8	12	9	7	16	201
2	PP 2020-0001 (8th / Sherman)	Multifamily Housing (Low-Rise 1-2 floors)	15 DU	2	5	7	5	3	8	101
3	DPR 2021-0007 (2nd / Vicentia)	Multifamily Housing (Low-Rise 1-2 floors)	15 DU	2	5	7	5	3	8	101
4	DPR 2018-0017 (6th St., between Belle & Sheridan)	Medical-Dental Office	58.90 TSF	144	38	182	70	162	232	2,120
5	DPR2022-0021 (922 W. Tenth Street and 1100 S. Buena Vista)	Single Family Detached	8 DU	1	4	5	5	3	8	75
6	DPR2020-0015, TTM2021-0001 (NWC of Citron St and Taylor Ave.)	Single Family Detached	20 DU	4	10	14	12	7	19	189
7	DPR2022-0014 (212, 216, and 220 N. Smith Ave.)	Gen. Lt. Industrial	162.48 TSF	106	15	121	15	91	106	791
8	DPR2023-0009 (West of N. Sherman/Lewis Ct.)	Gen. Lt. Industrial	284.66 TSF	185	26	211	26	159	185	1,386
9	DPR2023-00010 (NWC Grand Bl./5th St.)	Medical-Dental Office	3.56 TSF	9	2	11	4	10	14	128
10	PP2018-0005 (North of W. Sixth St., east of Smith Av.)	Health/Fitness Club	37.00 TSF	25	24	49	73	55	128	1,277
		Shopping Center (<40k)	9.30 TSF	13	9	22	31	31	62	506
	Subtotal			38	33	71	104	86	190	1,783
11	DPR2021-0020, PP2022-0001, CUP2022-0002 (1335 & 1341 West Sixth St.)	Charging Ctr/Car Wash/Commercial	8.00 TSF	11	8	19	26	26	52	436
12	DPR2023-0026 (south of 22nd & east of SR-91 EB ramps)	Affordable Housing	25 DU	3	7	10	7	5	12	120
13	DPR2023-0027 (south of 22nd & west of Buena Vista)	Affordable Housing	115 DU	12	30	42	31	22	53	553
Total Cumulative Trips				521	191	712	319	584	903	7,984

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th Edition (2021).

[2] TSF = Thousand Square Feet; DU = Dwelling Units

FIGURE 4-D
CUMULATIVE DEVELOPMENTS TRAFFIC VOLUMES





LEGEND:

#	= INTERSECTION ID
10	= PEAK HOUR TURN VOLUME
10.0	= VEHICLES PER DAY (1000'S)

AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.	2. Lincoln Ave. / SR-91 WB Ramps	3. Lincoln Ave. / D St. - 2nd St.	4. Lincoln Ave. / 6th St.	5. SR-91 EB Ramps / 2nd St.
0 L, 13 T, 0 R; 0 L, 0 T, 0 R	0 L, 20 T; 29 L, 0 T, 14 R	0 L, 25 T, 9 R; 12 L, 2 T, 19 R	14 L, 7 T, 31 R; 10 L, 17 T, 0 R	16 L, 4 T; 7 L, 17 R
0 L, 0 T, 8 R; 58 L, 8 T, 0 R	17 L, 37 T	0 L, 1 T, 8 R; 2 L, 42 T, 11 R	11 L, 44 T, 2 R; 3 L, 34 T, 1 R	13 L, 8 T

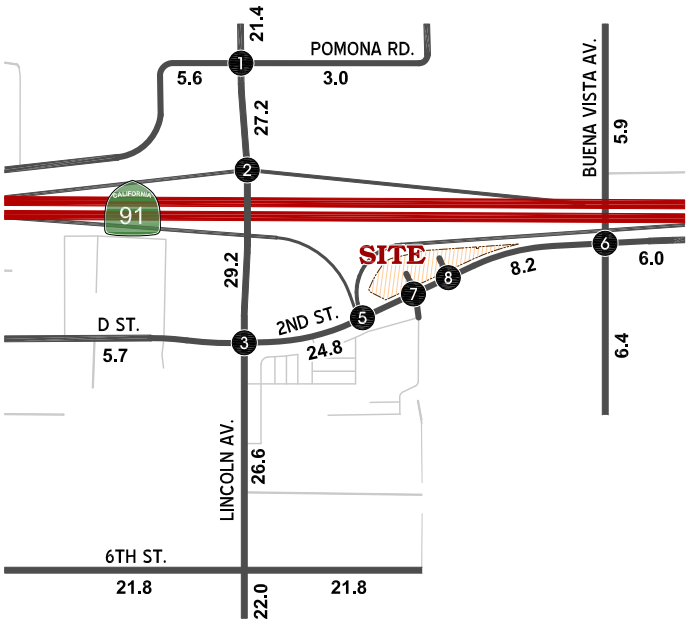
6. Buena Vista Av. / 2nd St.	7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.	8. Project Dwy. 2 / 2nd St.
3 L, 11 T, 1 R; 1 L, 2 T, 2 R	24 L, 0 T	FUTURE INTERSECTION
2 L, 8 T, 10 R; 20 L, 4 T, 2 R	12 L, 0 T; 0 L, 0 T	

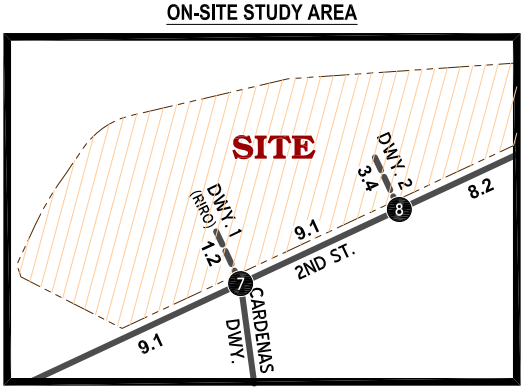
PM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.	2. Lincoln Ave. / SR-91 WB Ramps	3. Lincoln Ave. / D St. - 2nd St.	4. Lincoln Ave. / 6th St.	5. SR-91 EB Ramps / 2nd St.
0 L, 15 T, 0 R; 0 L, 0 T, 0 R	0 L, 65 T; 4 L, 0 T, 36 R	0 L, 63 T, 37 R; 9 L, 2 T, 13 R	34 L, 31 T, 15 R; 38 L, 58 T, 1 R	11 L, 10 T; 5 L, 13 R
0 L, 0 T, 50 R; 8 L, 17 T, 0 R	27 L, 21 T	0 L, 2 T, 4 R; 9 L, 39 T, 26 R	29 L, 33 T, 6 R; 7 L, 9 T, 2 R	48 L, 19 T

6. Buena Vista Av. / 2nd St.	7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.	8. Project Dwy. 2 / 2nd St.
2 L, 6 T, 1 R; 1 L, 1 T, 6 R	18 L, 0 T	FUTURE INTERSECTION
4 L, 7 T, 20 R; 14 L, 12 T, 1 R	29 L, 0 T; 0 L, 0 T	

FIGURE 4-E
EXISTING PLUS PROJECT TRAFFIC VOLUMES





LEGEND:

#	= INTERSECTION ID
10	= PEAK HOUR TURN VOLUME
10.0	= VEHICLES PER DAY (1000'S)

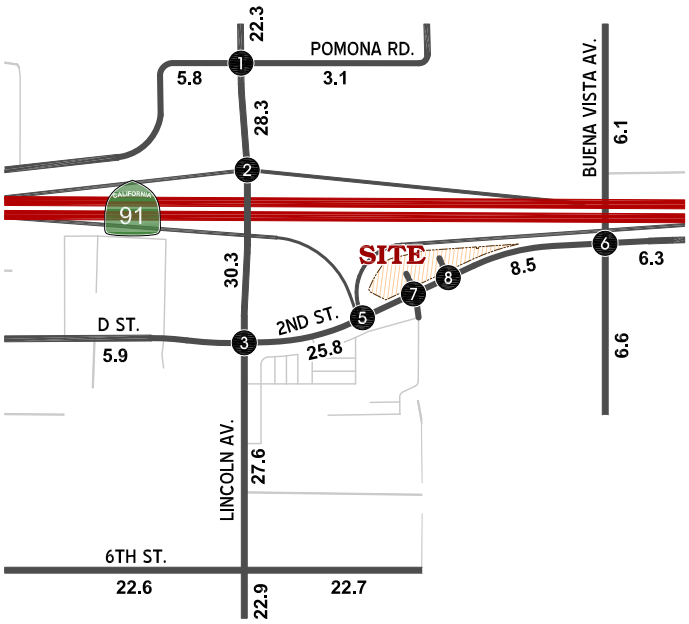
AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
47 ↓ 773 ↓ 34	20 ← 24 ← 70	462 ↓ 413	497 ← 130 ← 392	92 ↓ 492 ↓ 196	279 ← 63 ← 100	238 ↓ 341 ↓ 35	85 ← 715 ← 87	291 ↓ 167	117 ← 151
22 → 9 → 38 →	319 ↑ 735 ↑ 46 ↑		199 ↑ 603 ↑	42 → 139 → 43 →	62 ↑ 481 ↑ 452 ↑	134 → 245 → 17 →	79 ↑ 760 ↑ 97 ↑	667 → 113 →	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
43 ↓ 147 ↓ 34	26 ← 113 ← 68	39	39 ← 229	50 ↓ 65	25 ← 218				
61 → 100 → 99 →	87 ↑ 145 ↑ 16 ↑	262 → 13 →	22	91 → 193 →					

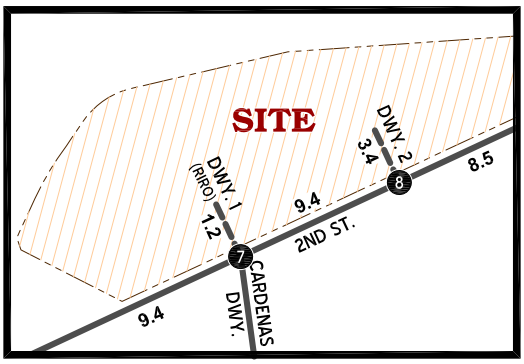
PM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
46 ↓ 926 ↓ 28	17 ← 18 ← 87	412 ↓ 752	213 ← 23 ← 597	109 ↓ 877 ↓ 338	220 ← 69 ← 153	204 ↓ 713 ↓ 95	127 ← 482 ← 190	305 ↓ 285	100 ← 137
116 → 31 → 175 →	80 ↑ 616 ↑ 69 ↑		207 ↑ 552 ↑	63 → 171 → 19 →	44 ↑ 476 ↑ 314 ↑	235 → 779 → 72 →	41 ↑ 470 ↑ 146 ↑	657 → 163 →	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
52 ↓ 157 ↓ 55	21 ← 83 ← 23	41	41 ← 196	53 ↓ 65	25 ← 184				
75 → 286 → 111 →	74 ↑ 131 ↑ 31 ↑	408 → 30 →	81	96 → 393 →					

FIGURE 4-F
EAP (2025) TRAFFIC VOLUMES



ON-SITE STUDY AREA



LEGEND:

#	= INTERSECTION ID
10	= PEAK HOUR TURN VOLUME
10.0	= VEHICLES PER DAY (1000'S)

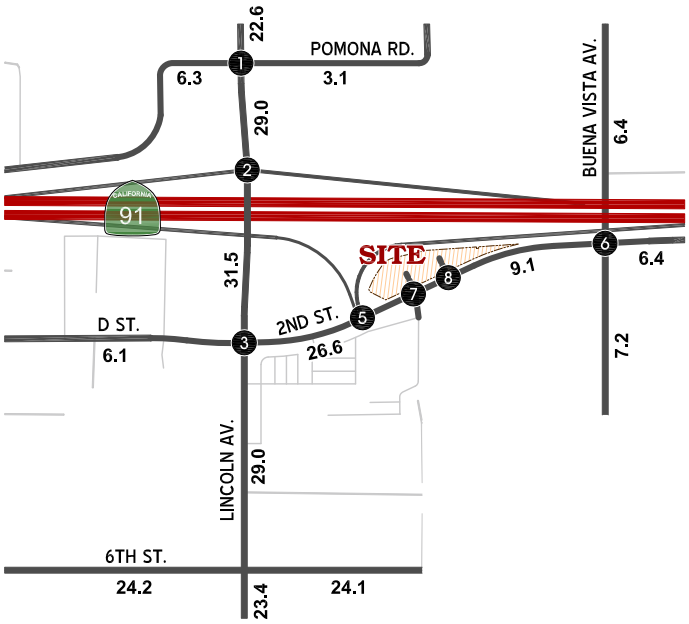
AM PEAK HOUR INTERSECTION VOLUMES:

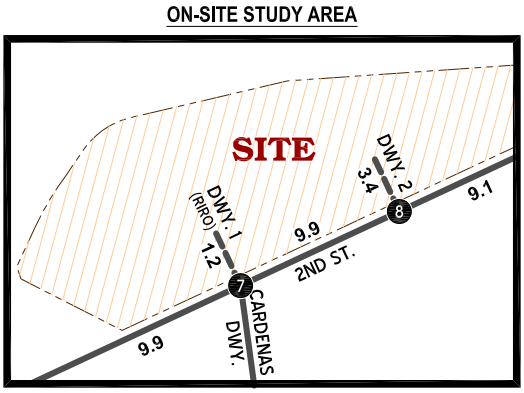
1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
49 → 804 → 35	21 ← 25 ← 73	481 → 429	517 ← 135 ← 407	96 → 512 → 203	290 ← 65 ← 104	247 → 354 → 36	88 ← 744 ← 91	303 → 173	121 ← 156
23 → 9 → 39	332 → 765 → 48		207 → 627	44 → 144 → 45	65 → 500 → 470	139 → 255 → 18	82 → 790 → 101	694 → 116	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
45 → 153 → 35	27 ← 117 ← 71	39 →	39 ← 238	50 → 65	25 ← 227				
63 → 104 → 103	90 → 151 → 17	271 → 14 →	23 →	91 → 203 →					

PM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
48 → 963 → 29	18 ← 19 ← 90	429 → 782	222 ← 24 ← 621	113 → 912 → 351	228 ← 72 ← 159	212 → 742 → 99	132 ← 501 ← 198	317 → 296	104 ← 141
121 → 32 → 182	83 → 641 → 72		215 → 574	66 → 178 → 20	46 → 495 → 326	244 → 810 → 75	43 → 489 → 152	684 → 168	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
54 → 163 → 57	22 ← 86 ← 24	41 →	41 ← 204	53 → 65	25 ← 192				
78 → 297 → 115	77 → 136 → 32	422 → 31 →	84 →	96 → 411 →					

FIGURE 4-G
EAPC (2025) TRAFFIC VOLUMES





LEGEND:

#	= INTERSECTION ID
10	= PEAK HOUR TURN VOLUME
10.0	= VEHICLES PER DAY (1000'S)

AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
49 ↓ 817 ↓ 35	21 ← 25 ← 73	481 ↓ 449	546 ← 135 ← 421	96 ↓ 537 ↓ 212	302 ← 67 ← 123	261 ↓ 361 ↓ 67	98 ← 761 ← 91	319 ↓ 177	128 ← 173
23 → 9 → 47 →	390 → 773 → 48 →		224 → 664 →	44 → 145 → 53 →	67 → 542 → 481 →	150 → 299 → 20 →	85 → 824 → 102 →	707 → 124 →	

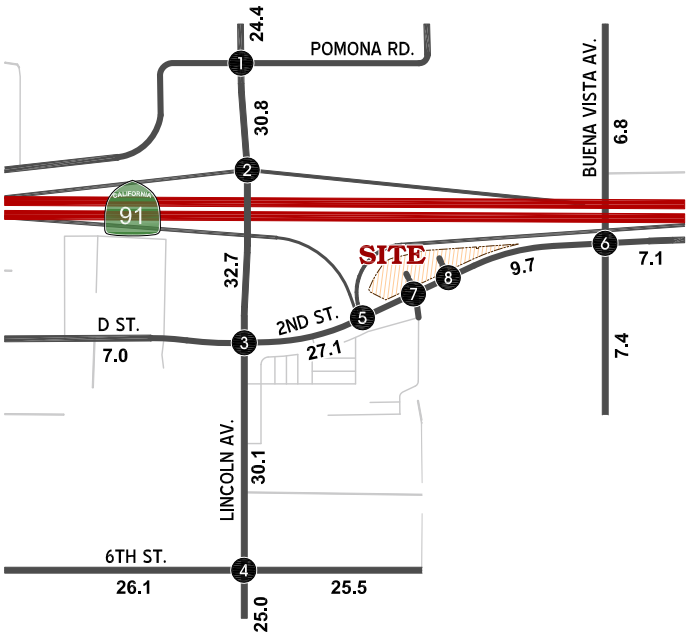
6. Buena Vista Av. / 2nd St.		7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.		8. Project Dwy. 2 / 2nd St.	
48 ↓ 164 ↓ 36	28 ← 119 ← 73	39 ↓	39 ← 262	50 ↓ 65	25 ← 251
65 → 112 → 113 →	110 → 155 → 19 →	283 → 14 →	23 →	91 → 215 →	

PM PEAK HOUR INTERSECTION VOLUMES:

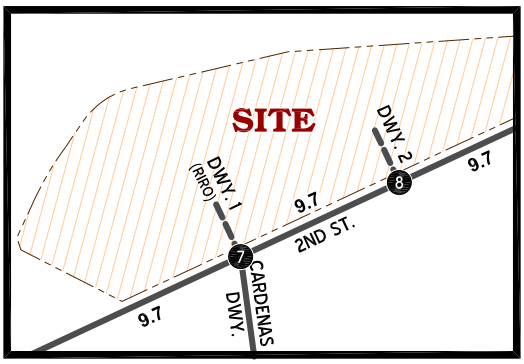
1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
48 ↓ 978 ↓ 29	18 ← 19 ← 90	429 ↓ 847	226 ← 24 ← 657	113 ↓ 975 ↓ 388	237 ← 74 ← 172	246 ↓ 773 ↓ 114	170 ← 559 ← 199	328 ↓ 306	109 ← 154
121 → 32 → 232 →	91 → 658 → 72 →		242 → 595 →	66 → 180 → 24 →	55 → 534 → 352 →	273 → 843 → 81 →	50 → 498 → 154 →	732 → 187 →	

6. Buena Vista Av. / 2nd St.		7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.		8. Project Dwy. 2 / 2nd St.	
56 ↓ 169 ↓ 58	23 ← 87 ← 30	41 ↓	41 ← 222	53 ↓ 65	25 ← 210
82 → 304 → 135 →	91 → 148 → 33 →	451 → 31 →	84 →	96 → 440 →	

FIGURE 4-H
2040 WITHOUT PROJECT DEVELOPMENTS TRAFFIC VOLUMES



ON-SITE STUDY AREA



LEGEND:

(#) = INTERSECTION ID

10 = PEAK HOUR TURN VOLUME

10.0 = VEHICLES PER DAY (1000'S)

AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
51 ↓ 853 ← 37	22 → 26 ↑ 93	505 ↓ 461	735 → 142 ↑ 580	117 ↓ 690 ← 198	333 → 70 ↑ 102	434 ↓ 371 ← 67	95 → 884 ↑ 96	335 ↓ 265	176 → 170
24 → 10 ← 46	454 ↓ 898 → 67		235 ↓ 684	46 → 155 ← 68	86 ↓ 540 → 482	195 → 410 ← 21	89 ↓ 857 → 107	737 → 179	

6. Buena Vista Av. / 2nd St.		7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.		8. Project Dwy. 2 / 2nd St.
51 ↓ 172 ← 38	31 → 119 ↑ 75		310 ← 16	FUTURE INTERSECTION
108 → 104 ← 105	105 ↓ 194 → 20	421 → 23	36 ↓ 24	

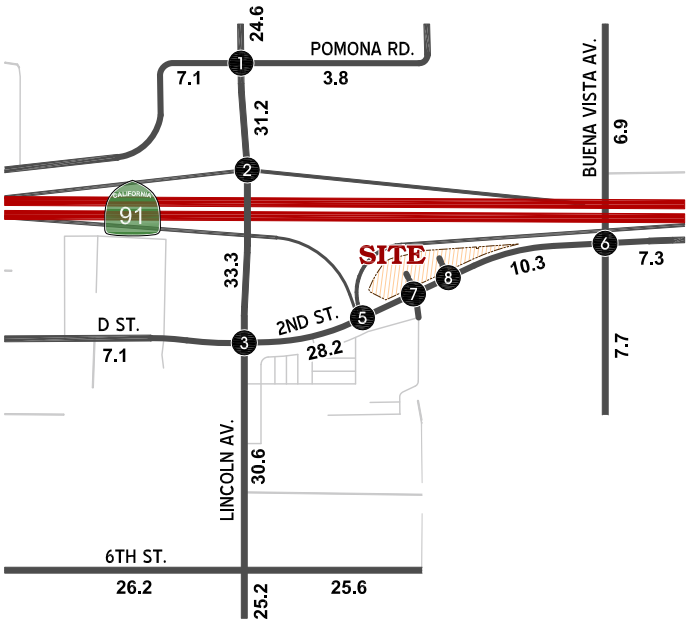
PM PEAK HOUR INTERSECTION VOLUMES:

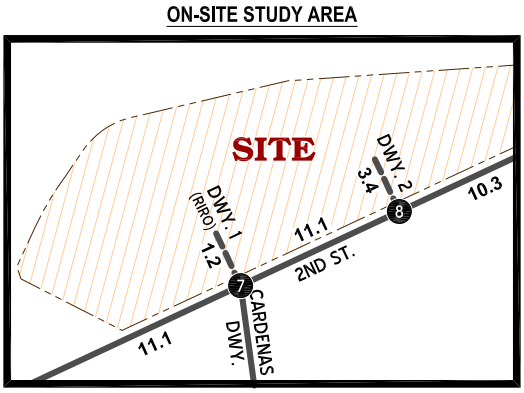
1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
50 ↓ 1020 ← 30	19 → 20 ↑ 100	450 ↓ 874	337 → 25 ↑ 852	141 ↓ 1092 ← 373	269 → 93 ↑ 158	293 ↓ 856 ← 116	170 → 583 ↑ 209	341 ↓ 490	168 → 179
127 → 34 ← 239	109 ↓ 729 → 109		251 ↓ 610	69 → 190 ← 27	67 ↓ 523 → 353	281 → 883 ← 85	53 ↓ 515 → 160	769 → 178	

6. Buena Vista Av. / 2nd St.		7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.		8. Project Dwy. 2 / 2nd St.
55 ↓ 177 ← 61	24 → 84 ↑ 31		289 ← 23	FUTURE INTERSECTION
94 → 354 ← 138	82 ↓ 155 → 34	623 → 45	58 ↓ 85	

N

FIGURE 4-I
2040 WITH PROJECT TRAFFIC VOLUMES





LEGEND:

#	= INTERSECTION ID
10	= PEAK HOUR TURN VOLUME
10.0	= VEHICLES PER DAY (1000'S)

AM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
51 ↓ 856 ↓ 37	↳22 ←26 ↰96	505 ↓ 470	↳735 ←142 ↰590	117 ↓ 690 ↓ 217	↳316 ←73 ↰131	437 ↓ 378 ↓ 70	↳98 ←884 ↰96	335 ↓ 275	↳185 ←185
24 → 10 → 49 ↓	457 ↑ 902 ↑ 70 →		244 ↑ 694 →	46 → 158 → 68 ↓	86 ↑ 576 ↑ 495 →	198 → 410 → 21 ↓	89 ↑ 864 ↑ 107 →	737 → 214 →	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
54 ↓ 172 ↓ 38	↳31 ←125 ↰75	39 ↓	↳39 ←331	50 ↓ 65	↳25 ←320				
111 → 110 → 115 ↓	115 ↑ 194 ↑ 20 →	466 → 23 ↓	24 →	91 → 399 →					

PM PEAK HOUR INTERSECTION VOLUMES:

1. Lincoln Ave. / Pomona Rd.		2. Lincoln Ave. / SR-91 WB Ramps		3. Lincoln Ave. / D St. - 2nd St.		4. Lincoln Ave. / 6th St.		5. SR-91 EB Ramps / 2nd St.	
50 ↓ 1023 ↓ 30	↳19 ←20 ↰104	450 ↓ 885	↳337 ←25 ↰863	141 ↓ 1092 ↓ 395	↳233 ←97 ↰195	297 ↓ 862 ↓ 120	↳174 ←583 ↰209	341 ↓ 501	↳179 ←184
127 → 34 → 243 ↓	113 ↑ 733 ↑ 113 →		261 ↑ 622 →	69 → 194 → 27 ↓	67 ↑ 581 ↑ 368 →	285 → 883 → 85 ↓	53 ↑ 522 ↑ 160 →	769 → 219 →	
6. Buena Vista Av. / 2nd St.		**7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.**		**8. Project Dwy. 2 / 2nd St.**					
59 ↓ 177 ↓ 61	↳24 ←91 ↰31	41 ↓	↳41 ←322	53 ↓ 65	↳25 ←310				
98 → 361 → 148 ↓	94 ↑ 155 ↑ 34 →	675 → 45 ↓	85 →	96 → 664 →					

5.0 TRAFFIC ANALYSIS

Peak hour intersection analysis has been performed at the study area intersections for each of the project scenarios and for projected future conditions. Improvements are recommended to satisfy the level of service requirements of the City of Corona and if the following impacts are identified:

1) When existing traffic conditions (Analysis Scenario 1) exceed the General Plan target LOS.

2) When project traffic, when added to existing traffic (Analysis Scenario 2), will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.

3) When cumulative traffic (Analysis Scenario 3) exceeds the target LOS, and impacts cannot be mitigated through existing infrastructure funding mechanisms.

A. Existing plus Project (E+P) Conditions

The results of the E+P conditions intersection analysis are summarized in Table 5-1. The E+P condition operations analysis worksheets are provided in Appendix "G". The study area intersections are projected to operate at an acceptable level of service (LOS “D” or better) during the peak hours with the existing geometry and traffic controls.

The freeway ramp analysis results for E+P conditions are summarized in Table 5-2. The ramp analysis calculation worksheets for E+P conditions are included in Appendix “H”. As shown on Table 5-2, the study area ramp locations are operating at an acceptable LOS (LOS “D” or better) during the peak hours.

The freeway segment analysis results for E+P conditions are summarized in Table 5-3. The freeway segment analysis calculation worksheets for E+P conditions are included in Appendix “I”. As shown on Table 5-3, the freeway segment locations within the study are projected to operate at an acceptable LOS (LOS “D” or better) during the peak hours.

B. Existing plus Ambient plus Project (E+A+P) Conditions

The results of the E+A+P conditions intersection analysis are summarized in Table 5-4. The E+A+P condition operations analysis worksheets are provided in Appendix "J". The study area intersections are projected to operate at an acceptable level of service (LOS “D” or better) during the peak hours with the existing geometry and traffic controls.

TABLE 5-1

INTERSECTION ANALYSIS
FOR EXISTING PLUS PROJECT CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Lincoln Ave. / Pomona Rd.	TS	1	2	0	1	2	0	1	1	1	1	1	0	20.5	21.2	C	C
2	Lincoln Ave. / SR-91 WB Ramps	TS	2	2	0	0	2	0	0	0	0	1.5	0.5	1	22.2	21.9	C	C
3	Lincoln Ave. / D St. - 2nd St.	TS	1	2	1>	2	2	0	1	1	0	2	1	1>	19.8	28.2	B	C
4	Lincoln Ave. / 6th St.	TS	1	2	1>	1	2	1>	2	2	0	2	2	1>	22.5	26.3	C	C
5	SR-91 EB Ramps / 2nd St.	TS	0	0	0	1	1!	1	2	1	0	0	2	0	33.7	33.1	C	C
6	Buena Vista Ave. / 2nd St.	AWS	1	1	0	1	1	0	0.5	0.5	d	0	1!	0	14.1	16.7	B	C
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	CSS	0	0	1	0	0	1	0	2	0	0	2	0	9.4	10.5	A	B
8	Project Dwy. 2 / 2nd St.	CSS	0	0	0	0	1	0	1	2	0	0	2	0	14.4	17.3	B	C

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] 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! = Shared Left-Through-Right Lane; d = Defacto right turn lane; > = Right-Turn Overlap Phasing; 1 = Improvement;

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

TABLE 5-2

EXISTING PLUS PROJECT CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

Freeway	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Ramp Volumes		Density[1]		Level of Service[2]	
					AM	PM	AM	PM	AM	PM
SR-91 Westbound	Lincoln Ave. Off-Ramp	Diverge	6	1	1,019	833	24.9	25.1	C	C
	Lincoln Ave. On-Ramp	Merge	5	1	791	642	27.2	27.8	C	C
SR-91 Eastbound	2nd St. Off-Ramp	Diverge	5	2	458	590	18.0	17.4	B	B
	2nd St. On-Ramp	Merge	6	1	784	757	23.3	22.2	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7 : Ramps and Ramp Junction software, Version 7.9

TABLE 5-3

EXISTING PLUS PROJECT CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

Freeway	Mainline Segment Location	Lanes[1]	Freeway Volumes		Density [2]		LOS [3]	
			AM	PM	AM	PM	AM	PM
SR-91 Westbound	East of Lincoln Ave.	6	7,778	8,137	20.8	21.8	C	C
	Between Ramps	5	6,759	7,304	21.7	23.8	C	C
	West of Lincoln Ave.	5	7,550	7,946	24.9	26.6	C	D
SR-91 Eastbound	West of Lincoln Ave.	5	8,469	8,272	29.0	28.1	D	D
	Between Ramps	5	8,011	7,682	26.9	25.4	D	C
	East of Lincoln Ave.	6	8,795	8,439	23.9	22.8	C	C

[1] Number of lanes are in the specified direction and is based on existing conditions.

[1] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS7: Basic Segments software, Version 7.9

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TABLE 5-4

INTERSECTION ANALYSIS
FOR EXISTING PLUS AMBIENT PLUS PROJECT (2025) CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Lincoln Ave. / Pomona Rd.	TS	1	2	0	1	2	0	1	1	1	1	1	0	20.9	22.0	C	C
2	Lincoln Ave. / SR-91 WB Ramps	TS	2	2	0	0	2	0	0	0	0	1.5	0.5	1	26.3	23.3	C	C
3	Lincoln Ave. / D St. - 2nd St.	TS	1	2	1>	2	2	0	1	1	0	2	1	1>	20.4	30.3	C	C
4	Lincoln Ave. / 6th St.	TS	1	2	1>	1	2	1>	2	2	0	2	2	1>	23.5	27.7	C	C
5	SR-91 EB Ramps / 2nd St.	TS	0	0	0	1	1!	1	2	1	0	0	2	0	33.3	32.8	C	C
6	Buena Vista Ave. / 2nd St.	AWS	1	1	0	1	1	0	0.5	0.5	d	0	1!	0	14.8	18.1	B	C
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	CSS	0	0	1	0	0	1	0	2	0	0	2	0	9.4	10.6	A	B
8	Project Dwy. 2 / 2nd St.	CSS	0	0	0	0	1	0	1	2	0	0	2	0	14.7	18.0	-	-

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] 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! = Shared Left-Through-Right Lane; d = Defacto right turn lane; > = Right-Turn Overlap Phasing; 1 = Improvement;

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

The freeway ramp analysis results for E+A+P conditions are summarized in Table 5-5. The ramp analysis calculation worksheets for E+A+P conditions are included in Appendix “K”. As shown on Table 5-5, the study area ramp locations are operating at an acceptable LOS (LOS “D” or better) during the peak hours.

The freeway segment analysis results for E+A+P conditions are summarized in Table 5-6. The freeway segment analysis calculation worksheets for E+A+P conditions are included in Appendix “L”. As shown on Table 5-6, the study are projected to operate at an acceptable LOS (LOS “D” or better) during the peak hours.

C. Existing plus Ambient plus Project plus Cumulative (E+A+P+C) Conditions

The results of the E+A+P+C conditions intersection analysis are summarized in Table 5-7. The E+A+P+C condition operations analysis worksheets are provided in Appendix "M". The study area intersections are projected to operate at an acceptable level of service (LOS “D” or better) during the peak hours with the existing geometry and traffic controls.

The freeway ramp analysis results for E+A+P+C conditions are summarized in Table 5-8. The ramp analysis calculation worksheets for E+A+P+C conditions are included in Appendix “N”. As shown on Table 5-8, the study area ramp locations are operating at an acceptable LOS (LOS “D” or better) during the peak hours.

The freeway segment analysis results for E+A+P+C conditions are summarized in Table 5-9. The freeway segment analysis calculation worksheets for E+A+P+C conditions are included in Appendix “O”. As shown on Table 5-9, the freeway segment locations within the study are projected to operate at an acceptable LOS (LOS “D” or better) during the peak hours.

D. 2040 No Project Traffic Conditions

The results of the 2040 No Project conditions intersection analysis are summarized in Table 5-10. The 2040 No Project condition operations analysis worksheets are provided in Appendix "P". As shown on Table 5-16, the study area intersections are projected to operate at an acceptable level of service (LOS “D” or better) during the peak hours with the existing geometry and traffic controls.

The freeway ramp analysis results for 2040 Without Project conditions are summarized in Table 5-11. The ramp analysis calculation worksheets for 2040 Without Project conditions are included in Appendix “Q”. As shown on Table 5-11, the study area ramp locations are operating at an acceptable LOS (LOS “D” or better) during the peak hours.

TABLE 5-5

EXISTING PLUS AMBIENT PLUS PROJECT (2025) CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

Freeway	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Ramp Volumes		Density[1]		Level of Service[2]	
					AM	PM	AM	PM	AM	PM
SR-91 Westbound	Lincoln Ave. Off-Ramp	Diverge	6	1	1,060	866	26.2	26.3	C	C
	Lincoln Ave. On-Ramp	Merge	5	1	823	668	27.8	28.8	C	D
SR-91 Eastbound	2nd St. Off-Ramp	Diverge	5	2	476	613	19.1	18.4	B	B
	2nd St. On-Ramp	Merge	6	1	815	787	24.4	23.3	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7 : Ramps and Ramp Junction software, Version 7.9

TABLE 5-6

EXISTING PLUS AMBIENT PLUS PROJECT (2025) CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

Freeway	Mainline Segment Location	Lanes[1]	Freeway Volumes		Density [2]		LOS [3]	
			AM	PM	AM	PM	AM	PM
SR-91 Westbound	East of Lincoln Ave.	6	8,092	8,465	21.7	22.8	C	C
	Between Ramps	5	7,032	7,599	22.8	25.1	C	C
	West of Lincoln Ave.	5	7,855	8,267	26.2	28.1	D	D
SR-91 Eastbound	West of Lincoln Ave.	5	8,811	8,595	30.8	29.7	D	D
	Between Ramps	5	8,335	7,982	28.4	26.8	D	D
	East of Lincoln Ave.	6	9,150	8,769	25.2	23.9	C	C

[1] Number of lanes are in the specified direction and is based on existing conditions.

[1] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS7: Basic Segments software, Version 7.9

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TABLE 5-7

INTERSECTION ANALYSIS
FOR EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2025) CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service[3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Lincoln Ave. / Pomona Rd.	TS	1	2	0	1	2	0	1	1	1	1	1	0	22.6	24.3	C	C
2	Lincoln Ave. / SR-91 WB Ramps	TS	2	2	0	0	2	0	0	0	0	1.5	0.5	1	31.2	24.3	C	C
3	Lincoln Ave. / D St. - 2nd St.	TS	1	2	1>	2	2	0	1	1	0	2	1	1>	21.0	37.3	C	D
4	Lincoln Ave. / 6th St.	TS	1	2	1>	1	2	1>	2	2	0	2	2	1>	25.2	29.4	C	C
5	SR-91 EB Ramps / 2nd St.	TS	0	0	0	1	1!	1	2	1	0	0	2	0	33.5	33.1	C	C
6	Buena Vista Ave. / 2nd St.	AWS	1	1	0	1	1	0	0.5	0.5	d	0	1!	0	16.0	19.9	C	C
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	CSS	0	0	1	0	0	1	0	2	0	0	2	0	9.5	10.7	A	B
8	Project Dwy. 2 / 2nd St.	CSS	0	0	0	0	1	0	1	2	0	0	2	0	15.4	19.1	C	C

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] 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! = Shared Left-Through-Right Lane; d = Defacto right turn lane; > = Right-Turn Overlap Phasing; 1 = Improvement;

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

TABLE 5-8

EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2025) CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

Freeway	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Ramp Volumes		Density[1]		Level of Service[2]	
					AM	PM	AM	PM	AM	PM
SR-91 Westbound	Lincoln Ave. Off-Ramp	Diverge	6	1	1,103	906	26.6	26.7	C	C
	Lincoln Ave. On-Ramp	Merge	5	1	840	695	27.9	29.0	C	D
SR-91 Eastbound	2nd St. Off-Ramp	Diverge	5	2	496	634	19.1	18.5	B	B
	2nd St. On-Ramp	Merge	6	1	835	840	24.6	23.7	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7 : Ramps and Ramp Junction software, Version 7.9

TABLE 5-9

EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2025) CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

Freeway	Mainline Segment Location	Lanes[1]	Freeway Volumes		Density [2]		LOS [3]	
			AM	PM	AM	PM	AM	PM
SR-91 Westbound	East of Lincoln Ave.	6	8,135	8,505	21.8	23.0	C	C
	Between Ramps	5	7,032	7,599	22.8	25.1	C	C
	West of Lincoln Ave.	5	7,872	8,294	26.3	28.2	D	D
SR-91 Eastbound	West of Lincoln Ave.	5	8,831	8,616	30.9	29.8	D	D
	Between Ramps	5	8,335	7,982	28.4	26.8	D	D
	East of Lincoln Ave.	6	9,170	8,822	25.2	24.1	C	C

[1] Number of lanes are in the specified direction and is based on existing conditions.

[1] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS7: Basic Segments software, Version 7.9

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TABLE 5-10

INTERSECTION ANALYSIS
FOR 2040 WITHOUT PROJECT CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Lincoln Ave. / Pomona Rd.	TS	1	2	0	1	2	0	1	1	1	1	1	0	22.4	24.3	C	C
2	Lincoln Ave. / SR-91 WB Ramps	TS	2	2	0	0	2	0	0	0	0	1.5	0.5	1	47.3	33.0	D	C
3	Lincoln Ave. / D St. - 2nd St.	TS	1	2	1>	2	2	0	1	1	0	2	1	1>	22.3	38.1	C	D
4	Lincoln Ave. / 6th St.	TS	1	2	1>	1	2	1>	2	2	0	2	2	1>	29.8	32.2	C	C
5	SR-91 EB Ramps / 2nd St.	TS	0	0	0	1	1!	1	2	1	0	0	2	0	37.2	37.1	D	D
6	Buena Vista Ave. / 2nd St.	AWS	1	1	0	1	1	0	0.5	0.5	d	0	1!	0	15.6	31.2	C	D
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	CSS	0	1!	0	0	0	0	0	2	0	0	2	0	14.0	19.9	B	C
8	Project Dwy. 2 / 2nd St.	-	Future Intersection												-	-	-	-

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] 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! = Shared Left-Through-Right Lane; d = Defacto right turn lane; > = Right-Turn Overlap Phasing

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

TABLE 5-11

2040 WITHOUT PROJECT CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

Freeway	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Ramp Volumes		Density[1]		Level of Service[2]	
					AM	PM	AM	PM	AM	PM
SR-91 Westbound	Lincoln Ave. Off-Ramp	Diverge	6	1	1,457	1,214	31.1	30.2	D	D
	Lincoln Ave. On-Ramp	Merge	5	1	882	726	29.5	30.1	D	D
SR-91 Eastbound	2nd St. Off-Ramp	Diverge	5	2	600	831	20.2	21.9	C	C
	2nd St. On-Ramp	Merge	6	1	913	937	25.8	26.9	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7 : Ramps and Ramp Junction software, Version 7.9

The freeway segment analysis results for 2040 Without Project conditions are summarized in Table 5-12. The freeway segment analysis calculation worksheets for 2040 Without Project conditions are included in Appendix “R”. As shown on Table 5-12, the freeway segment locations within the study are projected to operate at an acceptable LOS (LOS “D” or better) during the peak hours.

E. 2040 With Project Traffic Conditions

The results of the 2040 With Project conditions intersection analysis are summarized in Table 5-13. The 2040 With Project condition operations analysis worksheets are provided in Appendix "S". As shown on Table 5-13, the study area intersections are projected to operate at an acceptable level of service (LOS “D” or better) during the peak hours with the existing geometry and traffic controls.

The freeway ramp analysis results for 2040 With Project conditions are summarized in Table 5-14. The ramp analysis calculation worksheets for 2040 With Project conditions are included in Appendix “T”. As shown on Table 5-14, the study area ramp locations are operating at an acceptable LOS (LOS “D” or better) during the peak hours.

The freeway segment analysis results for 2040 With Project conditions are summarized in Table 5-15. The freeway segment analysis calculation worksheets for 2040 Without Project conditions are included in Appendix “U”. As shown on Table 5-15, the freeway segment locations within the study are projected to operate at an acceptable LOS (LOS “D” or better) during the peak hours.

TABLE 5-12

2040 WITHOUT PROJECT CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

Freeway	Mainline Segment Location	Lanes[1]	Freeway Volumes		Density [2]		LOS [3]	
			AM	PM	AM	PM	AM	PM
SR-91 Westbound	East of Lincoln Ave.	6	8,979	9,110	24.6	25.0	C	C
	Between Ramps	5	7,522	7,896	24.7	26.3	C	D
	West of Lincoln Ave.	5	8,404	8,622	28.7	29.8	D	D
SR-91 Eastbound	West of Lincoln Ave.	5	9,170	9,726	32.9	34.3	D	D
	Between Ramps	5	8,570	8,895	29.6	31.3	D	D
	East of Lincoln Ave.	6	9,483	9,832	26.4	27.7	D	D

[1] Number of lanes are in the specified direction and is based on existing conditions.

[1] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS7: Basic Segments software, Version 7.9

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TABLE 5-13

INTERSECTION ANALYSIS
FOR 2040 WITH PROJECT CONDITIONS

ID	Intersection	Traffic Control [1]	Intersection Approach Lanes [2]												Delay [3] (secs.)		Level of Service [3]	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Lincoln Ave. / Pomona Rd.	TS	1	2	0	1	2	0	1	1	1	1	1	0	22.8	24.4	C	C
2	Lincoln Ave. / SR-91 WB Ramps	TS	2	2	0	0	2	0	0	0	0	1.5	0.5	1	48.0	35.0	D	C
3	Lincoln Ave. / D St. - 2nd St.	TS	1	2	1>	2	2	0	1	1	0	2	1	1>	22.3	38.6	C	D
4	Lincoln Ave. / 6th St.	TS	1	2	1>	1	2	1>	2	2	0	2	2	1>	30.0	33.7	C	C
5	SR-91 EB Ramps / 2nd St.	TS	0	0	0	1	1!	1	2	1	0	0	2	0	37.4	37.2	D	D
6	Buena Vista Ave. / 2nd St.	AWS	1	1	0	1	1	0	0.5	0.5	d	0	1!	0	16.3	33.7	C	D
7	Cardenas Dwy. - Project Dwy. 1 / 2nd St.	CSS	0	0	1	0	0	1	0	2	0	0	2	0	10.2	12.2	B	B
8	Project Dwy. 2 / 2nd St.	CSS	0	0	0	0	1	0	1	2	0	0	2	0	21.6	28.4	C	D

[1] TS = Traffic Signal; AWS = All-Way Stop; CSS = Cross-Street Stop

[2] 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! = Shared Left-Through-Right Lane; d = Defacto right turn lane; > = Right-Turn Overlap Phasing; 1 = Improvement;

[3] Delay and level of service calculated using the following analysis software: Synchro 10 HCM6

TABLE 5-14

2040 WITH PROJECT CONDITIONS
FREEWAY RAMP JUNCTION MERGE/DIVERGE ANALYSIS

Freeway	Ramp Location	Junction Type	Lanes on Freeway	Lanes on Ramp	Ramp Volumes		Density[1]		Level of Service[2]	
					AM	PM	AM	PM	AM	PM
SR-91 Westbound	Lincoln Ave. Off-Ramp	Diverge	6	1	1,467	1,225	31.2	30.3	D	D
	Lincoln Ave. On-Ramp	Merge	5	1	891	736	29.5	30.1	D	D
SR-91 Eastbound	2nd St. Off-Ramp	Diverge	5	2	610	842	20.2	21.9	C	C
	2nd St. On-Ramp	Merge	6	1	922	948	25.9	26.9	C	C

[1] Density calculated based on the Highway Capacity Manual (HCM) analysis; (pc/mi/ln) = passenger car per mile per lane

[2] Level of service determined using HCS7 : Ramps and Ramp Junction software, Version 7.9

TABLE 5-15

2040 WITH PROJECT CONDITIONS
BASIC FREEWAY SEGMENT ANALYSIS

Freeway	Mainline Segment Location	Lanes[1]	Freeway Volumes		Density [2]		LOS [3]	
			AM	PM	AM	PM	AM	PM
SR-91 Westbound	East of Lincoln Ave.	6	8,989	9,121	24.6	25.1	C	C
	Between Ramps	5	7,522	7,896	24.7	26.3	C	D
	West of Lincoln Ave.	5	8,413	8,632	28.8	29.9	D	D
SR-91 Eastbound	West of Lincoln Ave.	5	9,180	9,737	32.9	34.4	D	D
	Between Ramps	5	8,570	8,895	29.6	31.3	D	D
	East of Lincoln Ave.	6	9,492	9,843	26.4	27.7	D	D

[1] Number of lanes are in the specified direction and is based on existing conditions.

[1] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] Level of service determined using HCS7: Basic Segments software, Version 7.9

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6.0 FINDINGS AND RECOMMENDATIONS

A. Traffic Impacts, Level of Service Intersections Analysis, and Traffic Signal Warrants

For Existing (2023), E+P, E+A+P, E+A+P+C, 2040 Without and With Project traffic conditions, the study area intersections are operating at an acceptable level of service during the peak hours with existing geometry.

For 2040 With project conditions, the intersection of Project Driveway 2 / 2nd Street is projected to meet traffic signal warrants. However, due to intersection spacing considerations, it is recommended that this intersection be stop signed controlled since it is anticipated to operate at acceptable level of service (LOS "D" or better) as a cross-street stop controlled intersection.

B. Circulation Recommendations

1. On-Site

Figure 6-A illustrates the on-site recommended roadway and intersection lane improvements. Construction of on-site improvements shall occur in conjunction with adjacent project development activity or as needed for project access purposes.

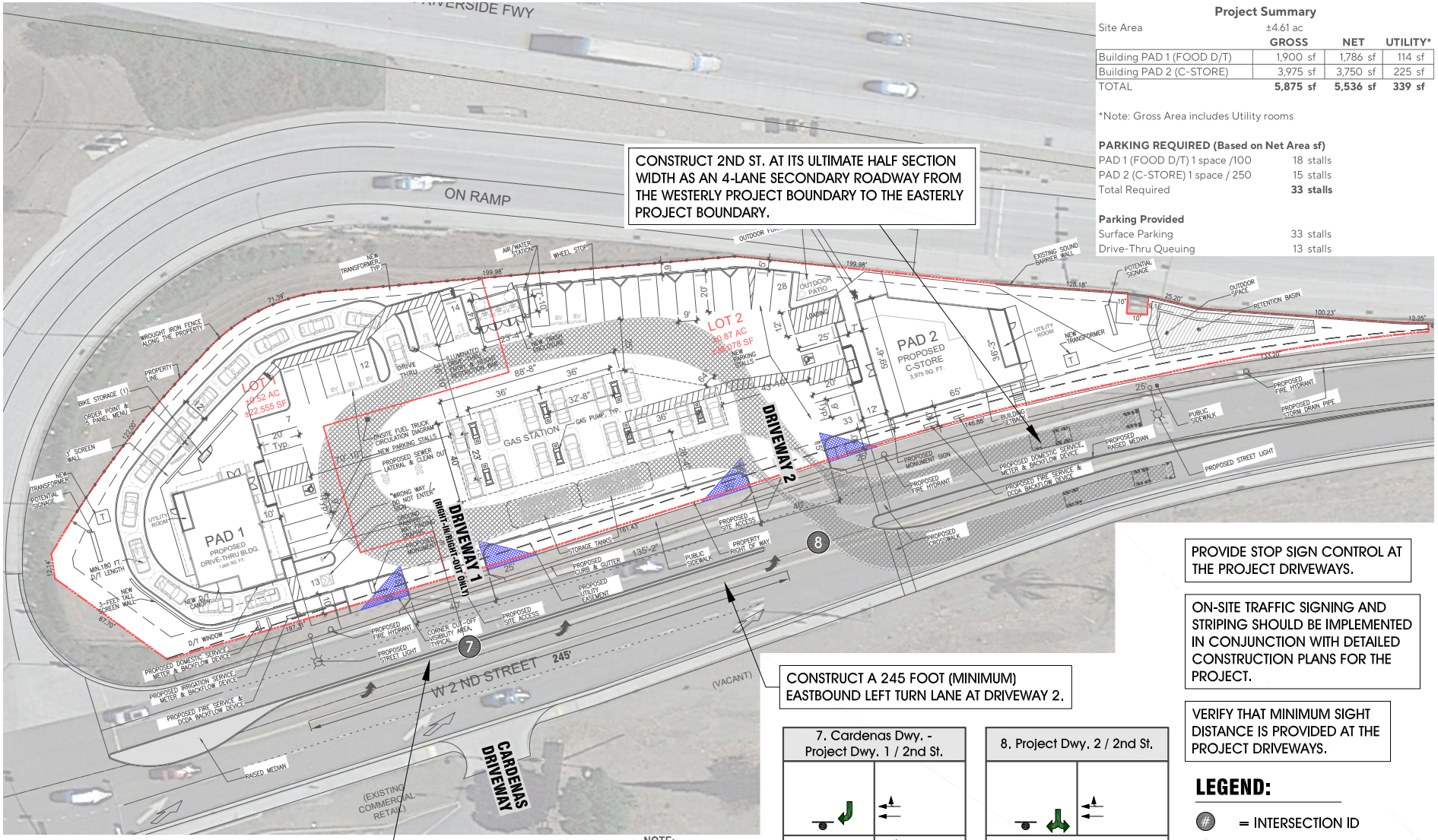
The recommended on-site roadway improvements are described below.

- Construct 2nd St. at its ultimate half section width as a secondary 4-lane roadway from the westerly project boundary to the easterly project boundary.
- Construct a raised median along 2nd St. from the SR-91 on/off ramp to Driveway 2.
- Provide stop sign control at the project driveways.
- On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.
- Verify that minimum sight distance is provided at the project driveways.

The queueing report provided in the Synchro worksheets indicates the 95th percentile stacking requirements at the project driveway. Based on the results, the following recommendations are provided.

- Construct a 245 foot (minimum) eastbound left turn lane at driveway 2.

FIGURE 6-A
ON-SITE CIRCULATION RECOMMENDATIONS



Project Summary

Site Area ±4.61 ac

	GROSS	NET	UTILITY*
Building PAD 1 (FOOD D/T)	1,900 sf	1,786 sf	114 sf
Building PAD 2 (C-STORE)	3,975 sf	3,750 sf	225 sf
TOTAL	**5,875 sf**	**5,536 sf**	**339 sf**

*Note: Gross Area includes Utility rooms

PARKING REQUIRED (Based on Net Area sf)

PAD 1 (FOOD D/T) 1 space /100	18 stalls
PAD 2 (C-STORE) 1 space / 250	15 stalls
Total Required	**33 stalls**

Parking Provided

Surface Parking	33 stalls
Drive-Thru Queuing	13 stalls

PROVIDE STOP SIGN CONTROL AT THE PROJECT DRIVEWAYS.

ON-SITE TRAFFIC SIGNING AND STRIPING SHOULD BE IMPLEMENTED IN CONJUNCTION WITH DETAILED CONSTRUCTION PLANS FOR THE PROJECT.

VERIFY THAT MINIMUM SIGHT DISTANCE IS PROVIDED AT THE PROJECT DRIVEWAYS.

7. Cardenas Dwy. - Project Dwy. 1 / 2nd St.

8. Project Dwy. 2 / 2nd St.

LEGEND:

- (#) = INTERSECTION ID
- = STOP SIGN
- = EXISTING LANE
- = LANE IMPROVEMENT

N