Birtcher Logistics Center Rialto (MC2020-0031)

TRAFFIC ANALYSIS

CITY OF RIALTO

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
APN	Assessor's Parcel Number
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
EAP	Existing Ambient Growth plus Project
EAPC	Existing Ambient Growth plus Project Plus Cumulative
GHG	Greenhouse Gas
HCM	Highway Capacity Manual
HY	Horizon Year
ITE	Institute of Transportation Engineers
LOS	Level of Service
NP	Without Project
OPR	Office of Planning and Research
PCE	Passenger Car Equivalents
PHF	Peak Hour Factor
Project	Birtcher Logistics Center Rialto
RTP	Regional Transportation Plan
SBCTA	San Bernardino County Transportation Authority
SCS	Sustainable Communities Strategy
sf	Square Feet
TA	Traffic Analysis
v/c	Volume to Capacity
VMT	Vehicle Miles Traveled
vphgpl	Vehicles per Hour Green per Lane
WP	With Project

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1 SUMMARY OF FINDINGS

This report presents the results of the traffic analysis (TA) for the proposed Birtcher Logistics Center Rialto ("Project"), which is located at the northwest corner of Valley Boulevard and Willow Avenue in the City of Rialto. The Project's location in relation to the surrounding area is shown on Exhibit 1-1.

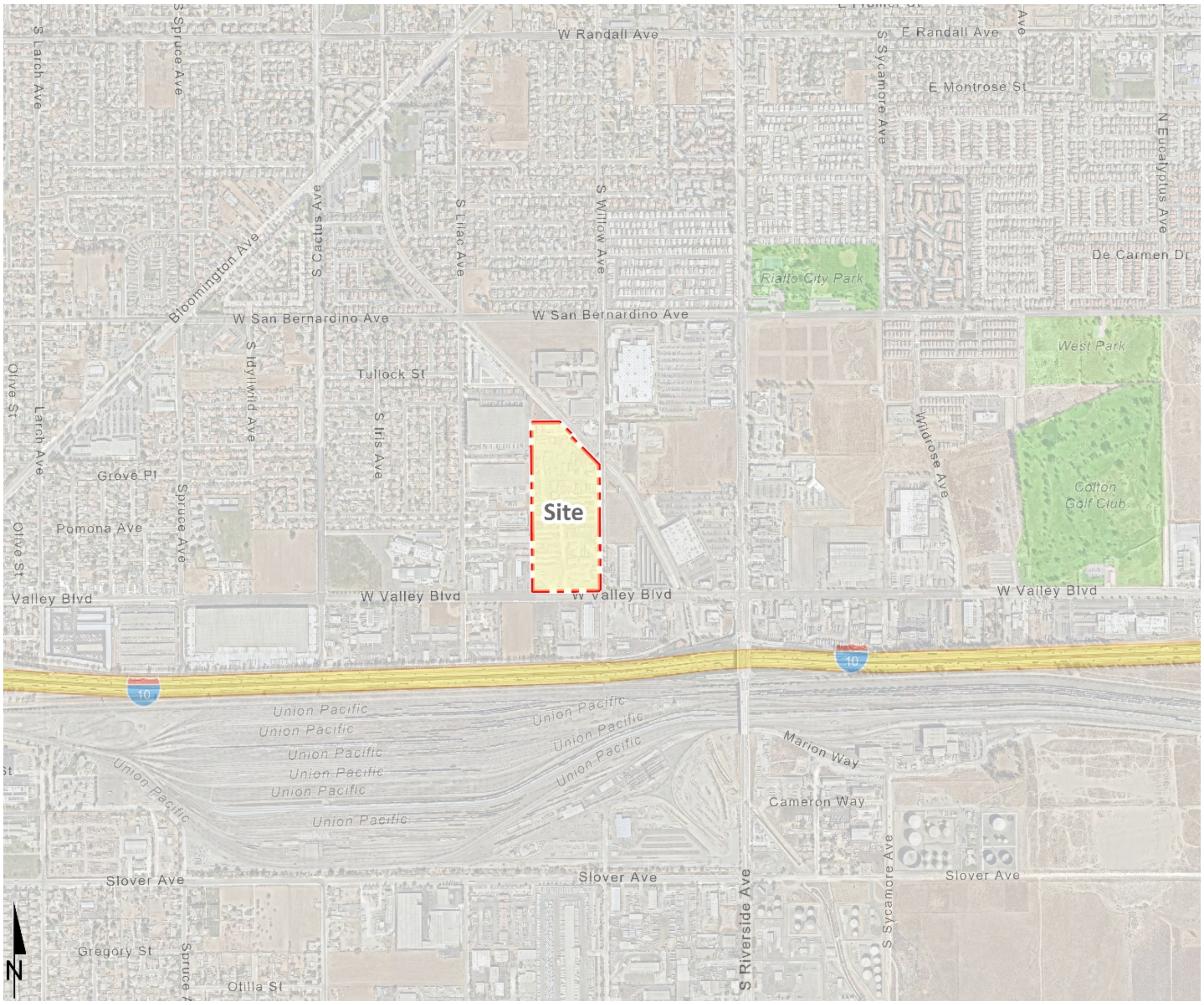
The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This TA has been prepared in accordance with the City of Rialto's Traffic Impact Analysis Report Guidelines and Requirements, County of San Bernardino Transportation Impact Study Guidelines (dated July 9, 2019), San Bernardino County Congestion Management Program (CMP) Guidelines for CMP Traffic Impact Analysis Reports (Appendix B, 2016 Update), and consultation with City staff during the TA scoping process. (1) (2) (3) The City approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TA.

1.1 SUMMARY OF FINDINGS – VEHICLE MILES TRAVELED AND LEVEL OF SERVICE

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in the transition from LOS to vehicle miles traveled (VMT), the Governor's Office of Planning and Research (OPR) published its Technical Advisory on Evaluating Transportation Impacts in CEQA (Technical Advisory). (4) It is our understanding that the City of Rialto is currently in development of City specific VMT analysis guidelines and impact thresholds based on OPR's Technical Advisory. As such, City Staff has provided Urban Crossroads with draft guidelines that the City intends to adopt. The City of Rialto Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS) (October 2021) (5) (**City Guidelines**) It is our understanding the City of Rialto utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (**Screening Tool**). The Screening Tool allows users to select an assessor's parcel number (APN) to determine if a project's location meets one or more of the screening thresholds for land use projects identified in the City Guidelines. The City Guidelines have been utilized to prepare this VMT analysis. The VMT analysis is included in Appendix 1.2. The Project is to construct the following improvements as design features in conjunction with development of the site:

- Willow Avenue is currently built out to its ultimate half-section according to the City's General Plan. As such, no roadway improvements are recommended. However, the Project should modify the existing curb and gutter and sidewalk to accommodate the future Project driveways.
- Project to construct Valley Boulevard at its ultimate half-width as a Major Arterial (120-foot right-of-way) from the western Project boundary to Willow Avenue consistent with the City's standards. Project to construct a raised median along Valley Boulevard, with a break to allow left-turn in access at Driveway 1.

EXHIBIT 1-1: LOCATION MAP



Additional details and intersection lane geometrics are provided in Section 1.6 *Recommendations* of this report.

The development of the proposed Project is not anticipated to require the construction of any off-site improvements, however, there are improvement needs identified at off-site intersections for future traffic analysis scenarios where the Project would contribute traffic (as measured by 50 or more peak hour trips). As such, the Project Applicant's responsibility for the Project's contributions towards off-site intersection deficiencies is fulfilled through payment of fair share or participation in the pre-existing fee programs that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay requisite fair share contributions and fee payments consistent with the City's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

1.2 PROJECT OVERVIEW

Exhibit 1-2 illustrates the preliminary Project site plan. The Project is proposed to consist of a single 492,410 square foot warehouse building. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023. For the purpose of this analysis, the following driveways will be assumed to provide access to the Project site:

- Driveway 1 on Valley Boulevard – Full Access (passenger cars and trucks)
- Driveway 2 on Valley Boulevard – Right-in/Right-out Only Access (passenger cars only)
- Driveway 3 on Willow Avenue – Full Access (passenger cars and trucks)

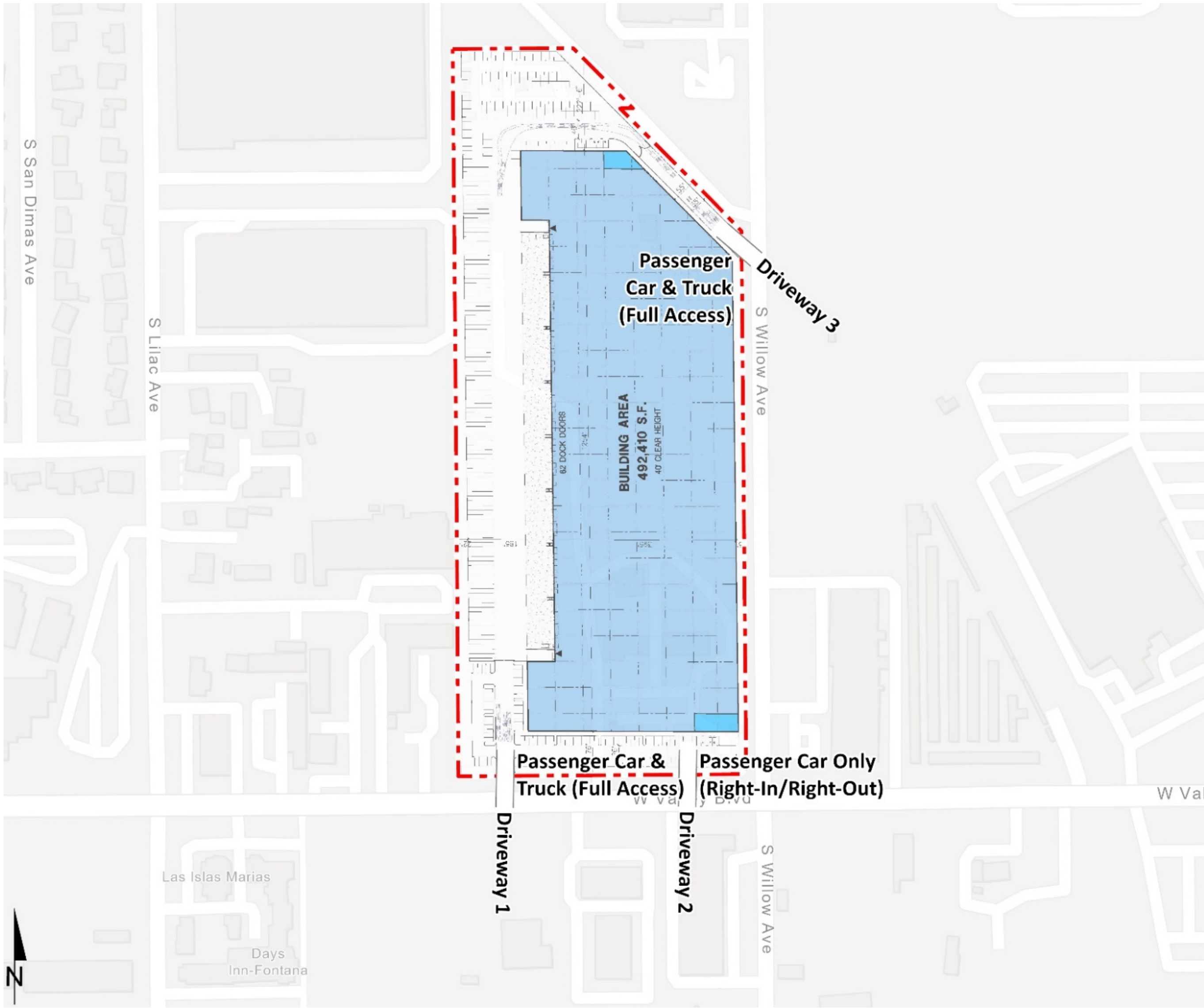
Regional access to the Project site will be provided by the I-10 Freeway via Riverside Avenue.

The site is currently occupied by a variety of users. Trip generation estimates for the existing uses have been developed using site specific data collected at the existing driveways on Willow Avenue and Valley Boulevard. Although the traffic counts were conducted during the ongoing COVID-19 pandemic, the purpose of surveying the existing uses is to take credit against the proposed use. Since the existing use operations were lower than normal, the traffic counts collected at the driveways would be lower than normal. As such, understated driveway counts would result in identifying a conservative net change between the existing uses and proposed Project.

The trip generation rate and vehicle and truck mix are sourced from the City of Rialto's Public Works Department's Traffic Impact Analysis Report Guidelines and Requirements (2013). In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (9^{th} Edition, 2012) for Warehousing (ITE Land Use Code 150) were used. (6) Passenger car equivalent (PCE) factors were applied to the trip generation rates to convert trips made by heavy trucks (2-axle, 3-axle, and 4+-axle trucks) to PCE values.

The proposed Project is anticipated to generate 1,522 two-way actual vehicle trips per day, with 129 AM peak hour trips and 141 PM peak hour trips. The assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

EXHIBIT 1-2: PRELIMINARY SITE PLAN



1.3 ANALYSIS SCENARIOS

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

- Existing (2021)
- Existing plus Ambient Growth plus Project (EAP) (2023)
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2023)
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

1.3.1 EXISTING (2021) CONDITIONS

Information for Existing (2021) conditions is disclosed to represent the baseline traffic conditions as they existed at the time this report was prepared. Due to the currently ongoing COVID-19 pandemic, schools and businesses within the study area were closed or operating at less than full capacity at the time this study was prepared. As such, historic 2019 traffic counts were utilized in conjunction with a 2% per year growth rate (compounded annually) to reflect 2021 conditions. The 2019 weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area and were conducted when local schools were in session.

1.3.2 EAP (2023) CONDITIONS

The Existing plus Ambient Growth plus Project (EAP) conditions analysis determines traffic deficiencies that would occur on the existing roadway system with the addition of Project traffic. To account for background traffic growth, an ambient growth factor from Existing conditions of 2% per year, compounded annually, for a total of 4.04% is included for EAP (2023) traffic conditions. The ambient growth is consistent with the growth used by other projects in the area within the City of Rialto.

1.3.3 EAPC (2023) CONDITIONS

The Existing plus Ambient Growth plus Project plus Cumulative (EAPC) conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for background traffic growth, traffic associated with other known cumulative development projects in conjunction with an ambient growth factor from Existing conditions of 2% per year, compounded annually, for a total of 4.04% is included for EAPC (2023) traffic conditions. The ambient growth is consistent with the growth used by other projects in the area. A comprehensive list of cumulative projects was compiled from information provided by the City of Rialto and other near-by agencies for consideration in this TA.

1.4 STUDY AREA

To ensure that this TA satisfies the City of Rialto's requirements, Urban Crossroads, Inc. prepared a TA scoping package for review by City staff prior to the preparation of this report. The Agreement provides an outline of the Project study area, trip generation, trip distribution, and analysis methodology and is provided in Appendix 1.1.

1.4.1 INTERSECTIONS

The following 7 study area intersections shown on Exhibit 1-2 and listed on Table 1-1 were selected for this TA based on consultation with City of Rialto staff. The "50 peak hour trip" criterion generally represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely utilized tool for estimating a potential area of influence (i.e., study area).

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection	Jurisdiction	CMP?
1	Driveway 1 & Valley Bl. – Future Intersection	Rialto	No
2	Driveway 2 & Valley Bl. – Future Intersection	Rialto	No
3	Willow Av. & Driveway 3 – Future Intersection	Rialto	No
4	Willow Av. & Valley Bl.	Rialto	Yes
5	Riverside Dr. & Valley Bl.	Rialto	No
6	Riverside Dr. & I-10 WB Ramps	Rialto, Caltrans	No
7	Riverside Dr. & I-10 EB Ramps	Rialto, Caltrans	No

The intent of a CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. Study area intersections that are identified as CMP facilities in the County of San Bernardino per the SBCTA CMP are indicated on Table 1-1. (3)

An alternative access has been evaluated for Driveway 3 on Willow Avenue, which assumes a two-way left-turn lane to allow vehicles to queue in the median while turning left into the Project site. The results of this alternative access analysis are provided in the intersection operations analysis tables.

EXHIBIT 1-3: STUDY AREA

1.4.2 Roadway Segments

The following 2 study area roadway segments listed in Table 1-2 were selected for this TA at the request of City of Rialto staff during the scoping process.

TABLE 1-2: ROADWAY SEGMENT ANALYSIS LOCATIONS

ID	Roadway Segment	Segment Limits
1	Valley Bl.	Willow Av. to Lilac Avenue
2	Valley Bl.	Willow Av. to Riverside Av.

1.5 Deficiencies

This section provides a summary of deficiencies by analysis scenario. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *EAP (2023) Traffic Conditions*, Section 6 *EAPC (2023) Traffic Conditions*, and Section 7 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Table 1-3.

TABLE 1-3: SUMMARY OF INTERSECTION LEVEL OF SERVICE BY ANALYSIS SCENARIO

		Existing		EAP (2023)		EAPC (2023)		HY NP (2040)		HY WP (2040)	
#	Intersection	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Valley Blvd.	N/A	N/A	🟢	🟢	🟢	🟢	N/A	N/A	🟢	🟢
2	Driveway 2 & Valley Blvd.	N/A	N/A	🟢	🟢	🟢	🟢	N/A	N/A	🟢	🟢
3	Willow Av. & Driveway 3	N/A	N/A	🟢	🟢	🟢	🟢	N/A	N/A	🟢	🟢
4	Willow Av. & Valley Blvd.	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
5	Riverside Av. & Valley Blvd.	🟡	🔴	🔴	🔴	🔴	🔴	🔴	🔴	🔴	🔴
6	Riverside Av. & I-10 WB Ramps	🟢	🟢	🟢	🟢	🟡	🟢	🔴	🟡	🔴	🟡
7	Riverside Av. & I-10 EB Ramps	🟢	🟢	🟢	🟢	🔴	🔴	🔴	🔴	🔴	🔴

🟢 LOS=A-D 🟡 LOS=E 🔴 LOS=F

1.5.1 Existing (2021) Conditions

Intersections

The following study area intersection currently operates at an unacceptable LOS during one or more peak hours under Existing (2021) traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F PM peak hour only

Roadway Segments

The study area roadway segments currently operate at an acceptable LOS under Existing (2021) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria.

Intersection Queues

The following movements currently experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Existing traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) NBL – PM peak hour only
- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours

1.5.2 EAP (2023) CONDITIONS

Intersections

The following study area intersection is anticipated to continue to operate at an unacceptable LOS during one or more peak hours under EAP (2023) traffic conditions, consistent with Existing (2021) traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F AM and PM peak hours (although AM peak hour goes from LOS E to LOS F)

Roadway Segments

The study area roadway segments are anticipated to continue to operate at an acceptable LOS under EAP (2023) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria, consistent with Existing (2021) traffic conditions.

Intersection Queues

The following movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for EAP (2023) traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) EBR – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & Valley Boulevard (#4) NBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours (consistent with Existing)

1.5.3 EAPC (2023) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS under EAPC (2023) traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F AM and PM peak hours
- Riverside Avenue & I-10 Westbound Ramps (#6) – LOS E AM peak hour only
- Riverside Avenue & I-10 Eastbound Ramps (#7) – LOS F AM and PM peak hours

Roadway Segments

The study area roadway segments are anticipated to continue to operate at an acceptable LOS under EAPC (2023) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria, consistent with Existing (2021) traffic conditions.

Intersection Queues

The following movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for EAPC (2023) traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) EBR – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & Valley Boulevard (#4) NBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & I-10 Westbound Ramps (#6) NBL – AM and PM peak hours
- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours (consistent with Existing)

1.5.4 HORIZON YEAR (2040) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without and With Project traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F AM and PM peak hours
- Riverside Avenue & I-10 WB Ramps (#6) – LOS F AM peak hour; LOS E PM peak hour
- Riverside Avenue & I-10 EB Ramps (#7) – LOS F AM and PM peak hours

Roadway Segments

The study area roadway segments are anticipated to continue to operate at an acceptable LOS under Horizon Year (2040) Without and With Project traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria, consistent with Existing (2021) traffic conditions.

Intersection Queues

The following movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Horizon Year (2040) Without and With Project traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) EBR – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & Valley Boulevard (#4) NBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & I-10 Westbound Ramps (#6) NBL – AM and PM peak hours
- Riverside Avenue & I-10 Westbound Ramps (#6) SBR – AM peak hour only

- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours (consistent with Existing)

1.6 RECOMMENDATIONS

1.6.1 SITE ADJACENT AND SITE ACCESS RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access. The site adjacent recommendations are shown on Exhibit 1-4. Queuing analysis results for the Project driveways and site adjacent intersection of Willow Avenue and Slover Avenue is provided in Appendix 1.3.

Recommendation 1 – Driveway 1 & Valley Boulevard (#1) – The following improvements are necessary to accommodate site access:

- Project to install a stop sign on the southbound approach and construct a southbound shared left-right turn lane.
- Project to stripe an eastbound left turn lane.

Recommendation 2 – ***Driveway 2 & Valley Boulevard (#2)*** – The following improvements are necessary to accommodate site access:

- Project to install a stop sign on the southbound approach and construct a southbound right turn lane. Driveway to be restricted to right-in/right-out access only.

Recommendation 3 – ***Willow Avenue & Driveway 3 (#3)*** – The following improvements are necessary to accommodate site access:

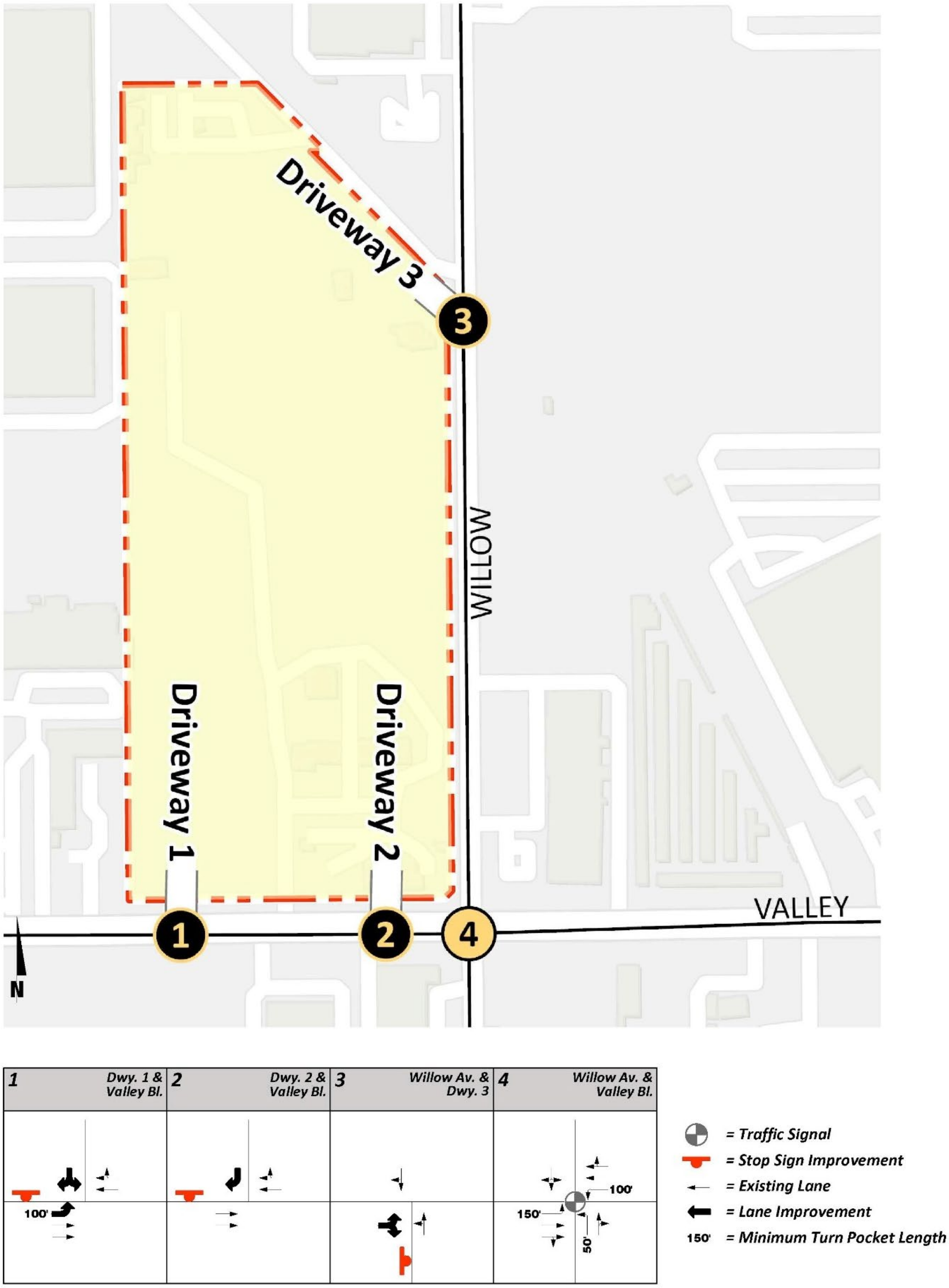
- Project to install a stop sign on the eastbound approach and construct an eastbound shared left-right turn lane.
- *Alternative improvements:* Project stripe a two-way left-turn lane along Willow Avenue to allow a refuge for left turning vehicles into Driveway 3 (see Exhibit 1-5). The intersection is anticipated to operate at acceptable LOS without or with the striped median, however, the striped median would allow for Project vehicles turning into the driveway to move out of the through lane and not cause northbound vehicles to queue.

Recommendation 4 – ***Willow Avenue & Valley Boulevard (#4)*** – The following improvements are necessary to accommodate site access:

- Modify the curb on the northeast and northwest curbs to provide a 50-foot radius to accommodate the wide turning radius of heavy trucks.

Recommendation 5 – Valley Boulevard is an east-west oriented roadway located on the Project's southern boundary. Project to construct Valley Boulevard at its ultimate half-width as a Major Arterial (120-foot right-of-way) from the western Project boundary to Willow Avenue consistent with the City's standards. Project to construct a raised median along Valley Boulevard, with a break to allow left-turn in access at Driveway 1.

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



Recommendation 6 – Willow Avenue is a north-south oriented roadway located on the Project's southern boundary. According to the City of Rialto General Plan, Willow Avenue is currently built out to its ultimate half-section. As such, there are no roadway improvements. However, existing curb and gutter and sidewalk should be modified to accommodate the future Project driveways. Under the alternative access conditions, the Project should stripe a two-way left-turn lane along the Project's frontage on Willow Avenue.

1.6.2 OFF-SITE RECOMMENDATIONS

The recommended improvements needed to address the cumulative deficiencies are summarized in Table 1-4. For those improvements listed in Table 1-4 and not constructed as part of the Project, the Project Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fees or fair share that would be assigned to construction of the identified recommended improvements.

Table 1-4 also summarizes the applicable cost associated with each of the recommended improvements based on the preliminary construction cost estimates found in Appendix G of the San Bernardino County CMP in conjunction with a cost escalation factor of 1.71 to reflect current costs. A rough order of magnitude cost has been prepared to determine the appropriate contribution value based upon the Project's fair share of traffic as part of the project approval process. Based on the Project fair share percentages, the Project's fair share cost is estimated at $26,258. These estimates are a rough order of magnitude only as they are intended only for disclosure purposes and do not imply any legal responsibility or formula for contributions or mitigation.

Recommendation 7 – Prior to the issuance of building permits, the Project Applicant shall pay the Project's fair share amount of $13,129 for the improvements identified in Table 1-4 at intersections located within the City of Rialto, or as agreed to by the City and Project Applicant.

Recommendation 8 – The Developer's fair-share amount for the intersections that either share a mutual border with or are wholly located within the jurisdiction of Caltrans that have recommended improvements which are not covered by a pre-existing fee program is $13,129. Developer shall be required to pay the amount shown above to the City of Rialto prior to the issuance of building permits. The City of Rialto shall hold Developer's Fair Share contribution in trust and shall apply Developer's Fair Share Contribution to any fee program adopted or agreed upon by the City of Rialto and other agencies.

EXHIBIT 1-5: CONCEPT STRIPING FOR WILLOW AVENUE

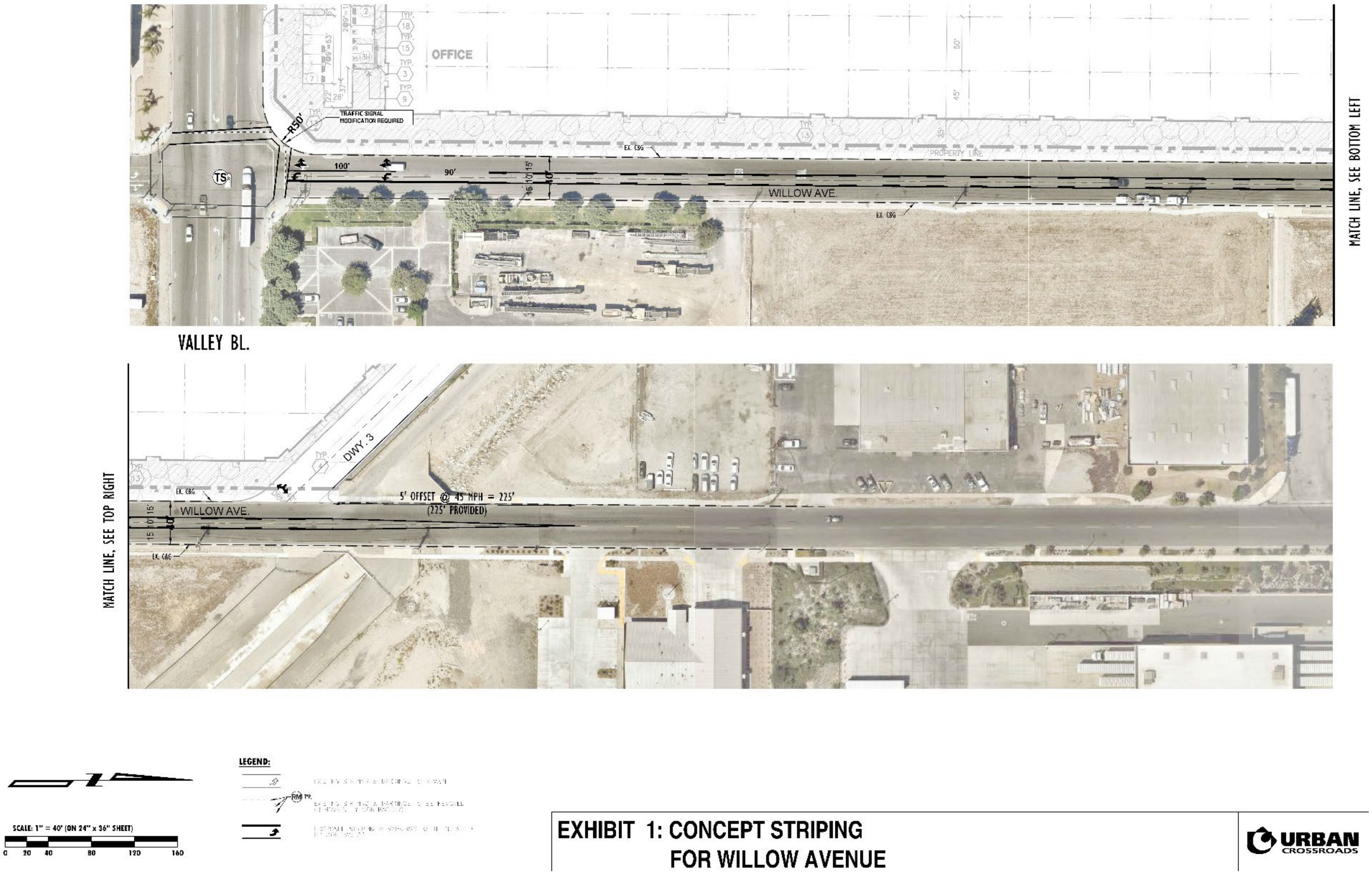


TABLE 1-4: SUMMARY OF IMPROVEMENTS AND ROUGH ORDER OF MAGNITUDE COSTS

#	Intersection Location	Jurisdiction	Analysis Scenarios: EAP (2023)	Analysis Scenarios: EAPC (2023)	Analysis Scenarios: 2040 With Project	Improvements included in Fee Program?[1]	Project Responsibility[2]	Total Cost[3]	Fair Share %[4]	Estimated Fair Share Cost
5	Riverside Av. & Valley Blvd.	Rialto	Restripe No. 2 lane EBT as a shared through-right turn lane	Same	Same	No	Construct	$0	--	$0
							Total	**$0**		**$0**
6	Riverside Av. & I-10 WB Ramps	Rialto, Caltrans	None	Restripe the SB through lane to provide a SB shared through-right turn lane	Same	No	Fair Share	$42,750	9.9%	$4,241
					Modify TS to 120 seconds			$128,250		$12,723
							Total	**$171,000**		**$16,965**
7	Riverside Av. & I-10 EB Ramps	Rialto, Caltrans	None	Add NB right turn lane	Same	No	Fair Share	$85,500	4.3%	$3,717
					Modify TS to 120 seconds			$128,250		$5,576
							Total	**$213,750**		**$9,293**
							Total Costs for Horizon Year (2040) Improvements	**$384,750**		**$26,258**
							Total Project Fair Share Contribution to Rialto[5]			**$13,129**
							Total Project Fair Share Contribution to Caltrans[6]			**$13,129**

[1] Improvements are included in the SBCTA Nexus Study Fee program or the SSBCTA Measure I Funding.

[2] Identifies the Project's responsibility to construct an improvement or contribute fair share or fee payment towards the implementation of the improvements shown.

[3] Costs have been estimated using the data provided in Appendix G of the San Bernardino County CMP (2016 Update) for preliminary construction costs. Appendix G costs escalated by a factor of 1.71 to reflect 2021 conditions, except for Traffic Signals.

[4] Program improvements constructed may be eligible for fee credit, at discretion of City. See Table 8-1 for Fair Share Calculations.

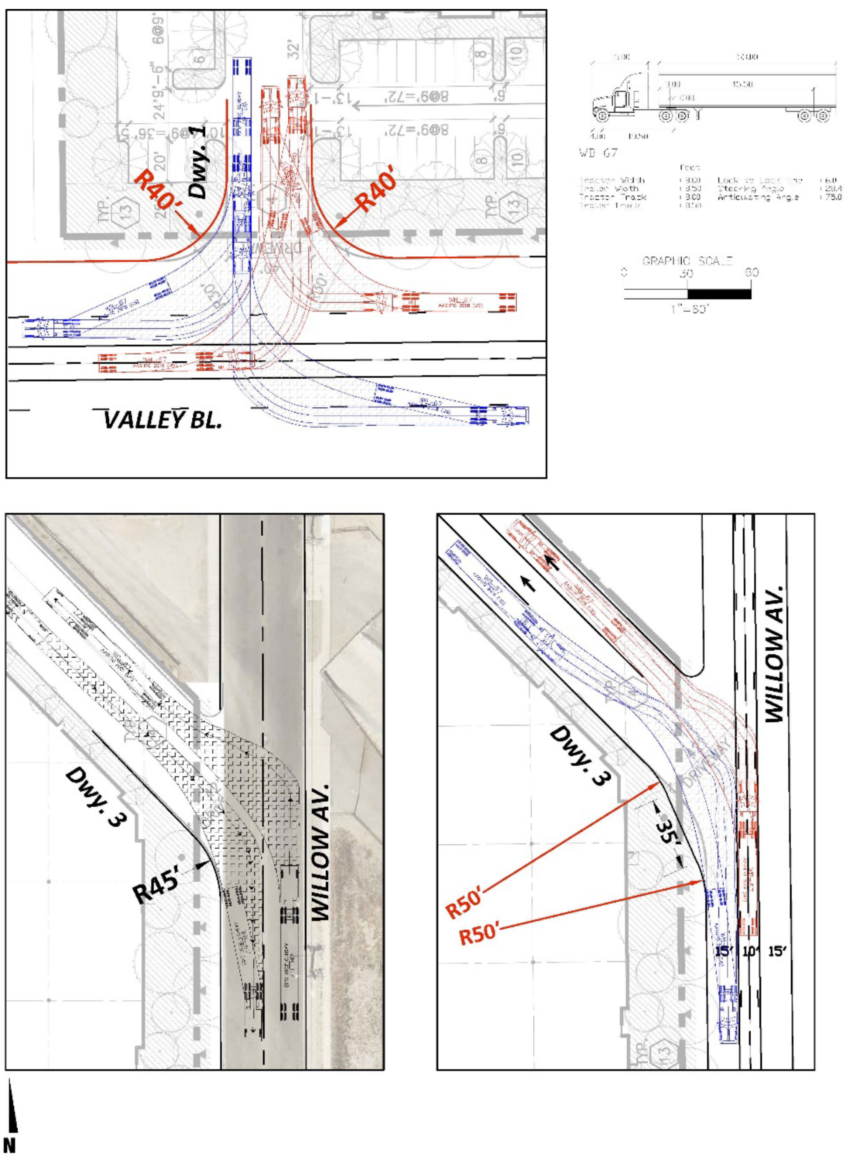
[5] Total project fair share contribution consists of the improvements which are not already included in the City of Rialto's DIF for those intersections wholly or partially within the City of Rialto.

[6] Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within Caltrans' jurisdiction.

1.7 TRUCK ACCESS AND CIRCULATION

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at the Project driveway anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-6). As shown on Exhibit 1-6, the proposed curb radii at Driveways 1 should accommodate a 40-foot curb radius on the northwest and northeast corners to support the ingress and egress of heavy trucks. Driveway 3 as designed could support the turning maneuvers of heavy trucks without the painted median. A truck turn template has also been overlaid assuming a two-way left-turn lane median along Willow Avenue, which indicates the curb on southwest corner of Willow Avenue & Driveway 3 should be modified to provide a 50-foot radius to accommodate the wide turning radius of heavy trucks.

CITY OF RIALTOCITY OF RIALTOCITY OF RIALTOCITY OF RIALTOEXHIBIT 1-5: TRUCK ACCESS



URBAN CROSSROADS

2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are consistent with City of Rialto's 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 6th Edition Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (7) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Rialto require signalized intersection operations analysis based on the methodology described in the HCM. (7) Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described on Table 2-1. Consistent with City of Rialto traffic study guidelines, a saturation flow rates of 1900 in vehicles per hour green per lane (vphgpl) has been utilized in the traffic analysis for signalized intersections:

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

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 (6th Edition)

The traffic modeling and signal timing optimization software package Synchro (Version 10) has been utilized to analyze signalized intersections within the City of Rialto. Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

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 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. (7)

California Department of Transportation (Caltrans)

The traffic modeling and signal timing optimization software package Synchro (Version 10) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e., I-10 Freeway ramps at Riverside Avenue, etc.). Signal timing for the freeway arterial-to-ramp intersections has been obtained from Caltrans. It should be noted that for the purposes of this analysis, no optimization of signal timing has been performed for the LOS analysis unless noted otherwise (for improvements).

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Rialto and County of San Bernardino require the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (7) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: 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)

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. For two-way stop-controlled intersections, the delay is reported for the worst single movement/lane (typically occurs on the side street).

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 TA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD). (8)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (8) Specifically, this TA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TA 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 the following study area intersection shown on Table 2-3:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection	Jurisdiction
1	Driveway 1 & Valley Bl. – Future Intersection	Rialto
3	Willow Av. & Driveway 3 – Future Intersection	Rialto

Although unsignalized, the future intersection of Driveway 2 & Valley Boulevard is anticipated to have restricted access (right-in/right-out only). As such, traffic signal warrants have not been evaluated for this intersection. The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *EAP (2023) Traffic Conditions*, Section 6 *EAPC (2023) Traffic Conditions*, and Section 7 *Horizon Year (2040) Traffic Conditions* 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 threshold 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 ROADWAY SEGMENT CAPACITY ANALYSIS

Roadway segment operations have been evaluated using the City of Rialto Roadway Capacity Thresholds provided in the City's Traffic Study Guidelines. (1) Per the City's Traffic Study Guidelines, roadway segments within the study area should maintain LOS D capacities along roadways. These roadway capacities are "rule of thumb" estimates for planning purposes and are affected by such factors as intersections (spacing, configuration and control features), degree of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, vehicle mix (truck and bus traffic) and pedestrian bicycle traffic. In other words, while using average daily traffic (ADT) for planning purposes is suitable with regards to evaluating potential volume to capacity with future forecasts, it is not suitable for operational analysis because it does not account for the factors listed previously. As such, where the ADT based roadway segment analysis indicates a deficiency (unacceptable LOS), a review of the more detailed peak hour intersection analysis and progression analysis are undertaken. The more detailed peak hour intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically only recommended if the peak hour intersection analysis indicates the need for additional through lanes.

The City's Traffic Study Guidelines identify that if a roadway segment exceeds 1,500 feet and the V/C ratio exceeds 1.0 (deficient roadway segment), the roadway segment must be improved even if improvements to the intersections on either end do not exceed LOS D.

2.5 QUEUING ANALYSIS

A queuing analysis has been performed for the I-10 Freeway & Riverside Avenue interchange and the adjacent intersection of Riverside Avenue & Valley Boulevard. The 95th percentile queuing of vehicles has been assessed at the off-ramps and study area intersections to determine potential queuing deficiencies at the intersection and the interchange identified above. Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the I-10 Freeway mainline from the off-ramps or out of the turn pockets or into adjacent through lanes.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. There are two footnotes which appear on the Synchro outputs. One footnote indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The other footnote indicates whether or not the volume for the 95th percentile queue is metered by an upstream signal. If the upstream intersection is at or near capacity, the 50th percentile queue represents the maximum queue experienced.

A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. The 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes during the peak hour and is derived from the average (50th percentile) queue plus 1.65 standard deviations. The queue length reported is for the lane with the highest queue in the lane group. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

2.6 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

Minimum Acceptable LOS and associated definitions of intersection deficiencies has been obtained from each of the applicable surrounding jurisdictions.

2.6.1 CITY OF RIALTO

The following LOS will be utilized for study area intersections located within the City: The City of Rialto 2010 General Plan Update has established minimum LOS standards.

Specifically, General Plan Policies 4-1.20 and 4-1.21 establish the minimum standards to be applied to any TIA, as follows:

- Policy 4-1.20: Design City streets so that signalized intersections operate at Level of Service (LOS) D or better during the morning and evening peak hours and require new development to mitigate traffic impacts that degrade LOS below that level.
- Policy 4-1.21: Design City streets so that unsignalized intersections operate with no vehicular movement having an average delay greater than 120 seconds during the morning and evening peak hours and require new development to mitigate traffic impacts that increase delay above that level.

The City's Traffic Study Guidelines identifies LOS D as the minimum LOS for intersections and roadway segments, with the exception of Riverside Avenue south of the Metrolink tracks to the City's southern border, which can operate at LOS E.

2.6.2 CALTRANS

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT as the metric for determining impacts on the State Highway System (SHS). However, LOS D has been utilized as the target LOS for Caltrans facilities, consistent with other recent studies in the City of Rialto.

2.6.3 SAN BERNARDINO COUNTY CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, for the purposes of this analysis, LOS D has been utilized for all study area intersections.

2.7 DEFICIENCY CRITERIA

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

2.7.1 INTERSECTIONS

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies at intersections within the City of Rialto. Consistent with the City's traffic study guidelines, new development is required to improve traffic deficiencies exceeding these levels.

Deficiencies are deemed to occur at any intersection in which the Project causes the LOS to fall below LOS D or the peak hour delay to increase as follows:

- LOS A/B = By 10.0 seconds
- LOS C = By 8.0 seconds
- LOS D = By 5.0 seconds
- LOS E = By 2.0 seconds
- LOS F = By 1.0 seconds

2.7.2 CALTRANS FACILITIES

To determine whether the addition of project traffic to the State Highway facilities would result in a deficiency, the following will be utilized:

- The TA finds that the LOS of a ramp-to-arterial intersection will degrade from D or better to E or F.

2.8 PROJECT FAIR SHARE CALCULATION METHODOLOGY

In cases where this TA identifies that the Project would contribute additional traffic volumes to traffic deficiencies, Project fair share costs of improvements necessary to address deficiencies have been identified. The Project's fair share cost of improvements is determined based on the following equation, which is the ratio of Project traffic to new traffic, and new traffic is total near-term future (EAPC) traffic less existing baseline traffic:

Project Fair Share % = Project (2040) AM/PM Traffic / (EAPC AM/PM Total Traffic – Existing AM/PM Traffic)

The project fair share percentage has been calculated for both the AM peak hour and PM peak hour and the highest of the two has been selected. The Project fair share contribution calculations are presented in Section 7 *Local and Regional Funding Mechanisms* of this TA. The cost of implementing the improvements shown on Table 1-4 have been estimated based on the preliminary construction cost estimates found in Appendix G of the San Bernardino County CMP in conjunction with a total cost escalation factor of 1.71 to more closely approximate current costs. These cost estimates have been utilized in conjunction with the Project fair share percentages to determine the Project's fair share cost of the recommended improvements (see Table 8-1). These estimates are a rough order of magnitude only as they are intended only for discussion purposes and do not imply any legal responsibility or formula for contributions or physical improvements.

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3 AREA CONDITIONS

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

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the agreement with City of Rialto staff (Appendix 1.1), the study area includes a total of 7 existing and future intersections as shown previously on Exhibit 1-3. 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 RIALTO GENERAL PLAN CIRCULATION ELEMENT

Exhibit 3-2 shows the City of Rialto General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Rialto General Plan roadway cross-sections.

Major Arterials can accommodate six travel lanes and an 18-foot raised median within a 120-foot right-of-way. These facilities are intended to carry large volumes of relatively high-speed traffic between the region to different parts of the City. An example of a Major Arterial within the study area includes:

- Valley Boulevard

Collectors can accommodate two travel lanes with 8-foot shoulders for parking on either side within a 64-foot right-of-way. An example of a collector within the study area includes:

- Willow Avenue

3.4 TRUCK ROUTES

The City of Rialto's truck routes are shown on Exhibit 3-4. Valley Boulevard and Riverside Avenue are both identified as truck routes. The truck trip distribution patterns for the proposed Project have been developed through consultation with the City during the TA scoping process and are consistent with other nearby studies.

3.5 TRANSIT SERVICE

The study area is currently served by Omnitrans, a public transit agency serving various jurisdictions within San Bernardino County, with bus service along Riverside Avenue and part of Valley Boulevard. The existing transit routes within the study area are shown on Exhibit 3-5. There are currently no routes that run adjacent to the Project. Transit service is reviewed and updated by Omnitrans 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.

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

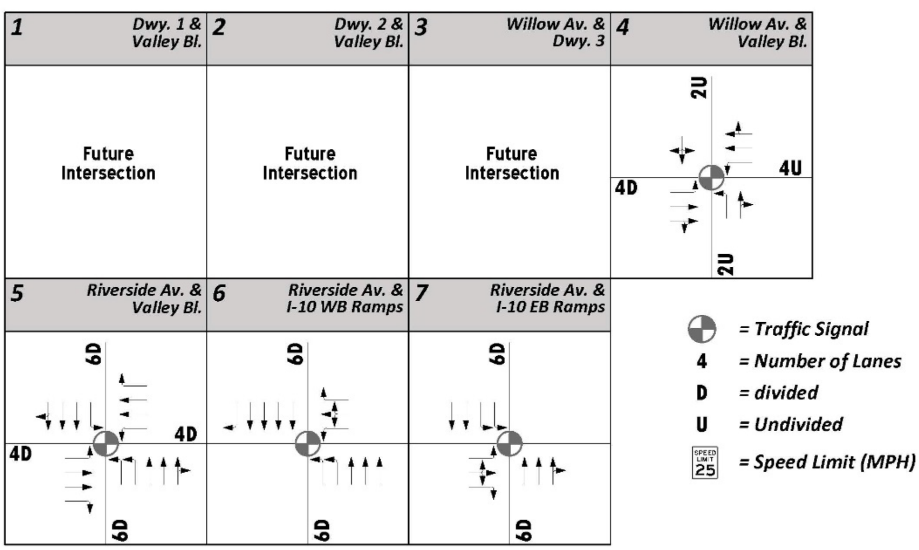


EXHIBIT 3-2: CITY OF RIALTO GENERAL PLAN CIRCULATION ELEMENT

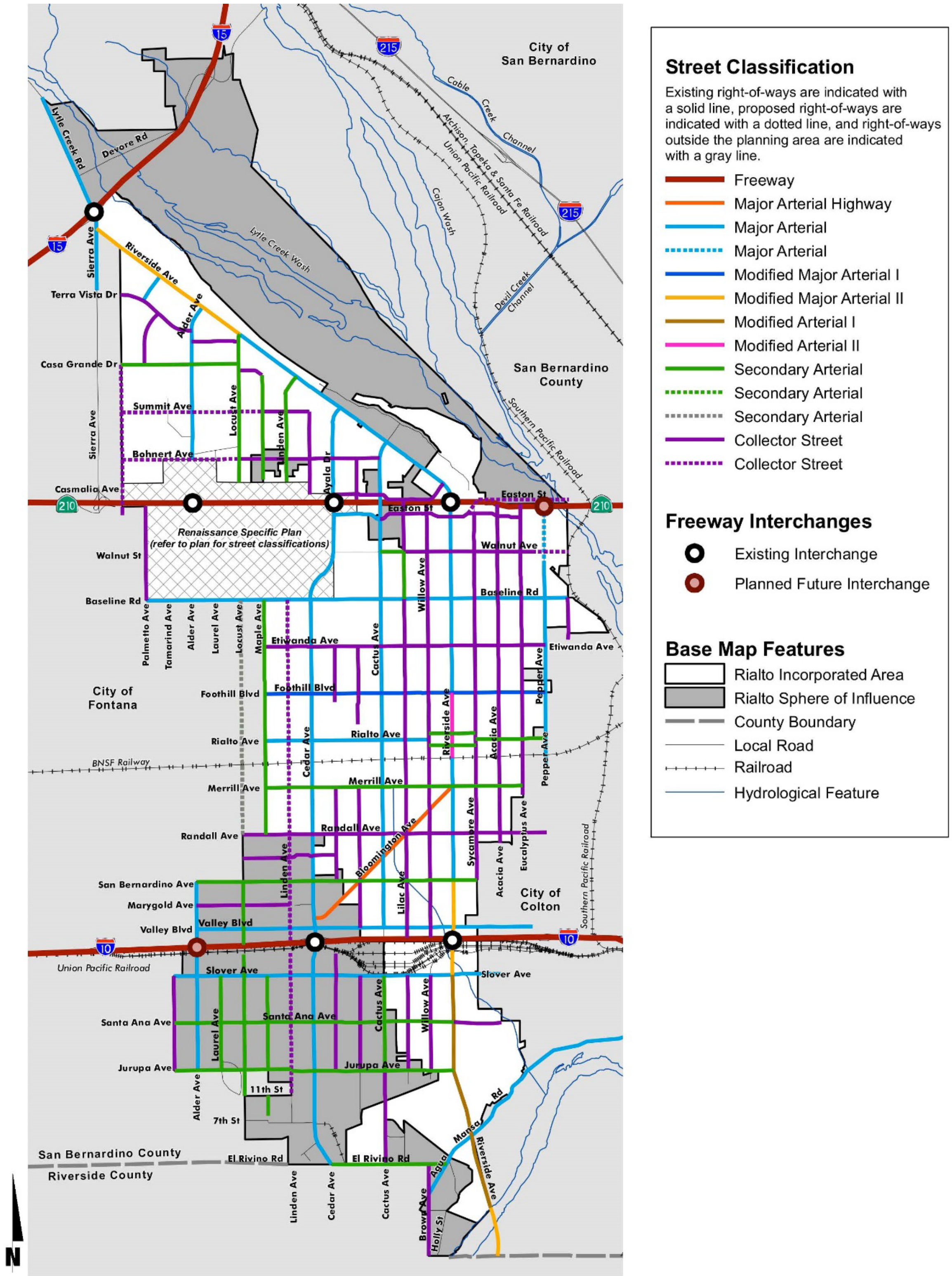


EXHIBIT 3-3: CITY OF RIALTO ROADWAY CROSS-SECTIONS

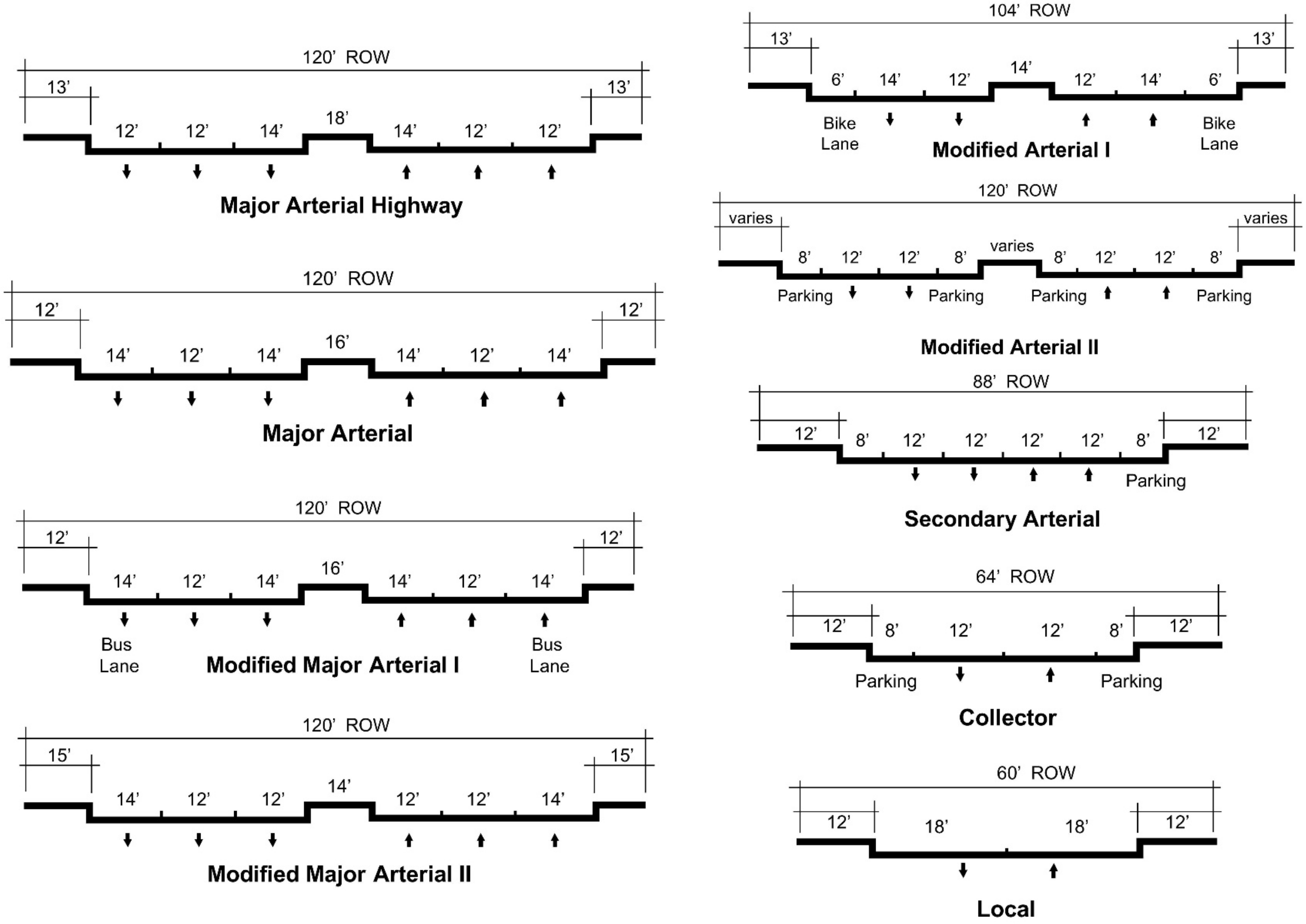


EXHIBIT 3-4: CITY OF RIALTO TRUCK ROUTES

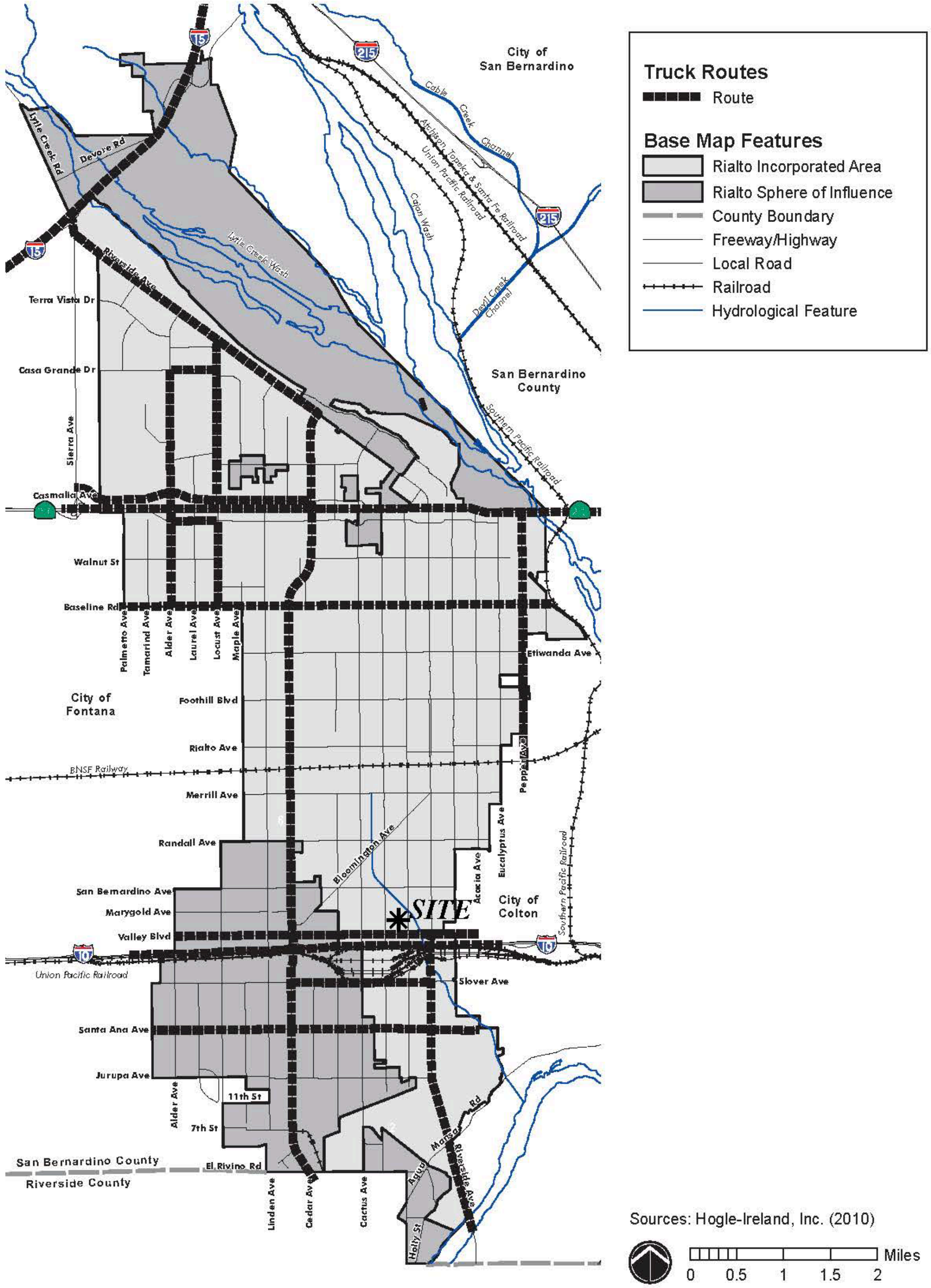
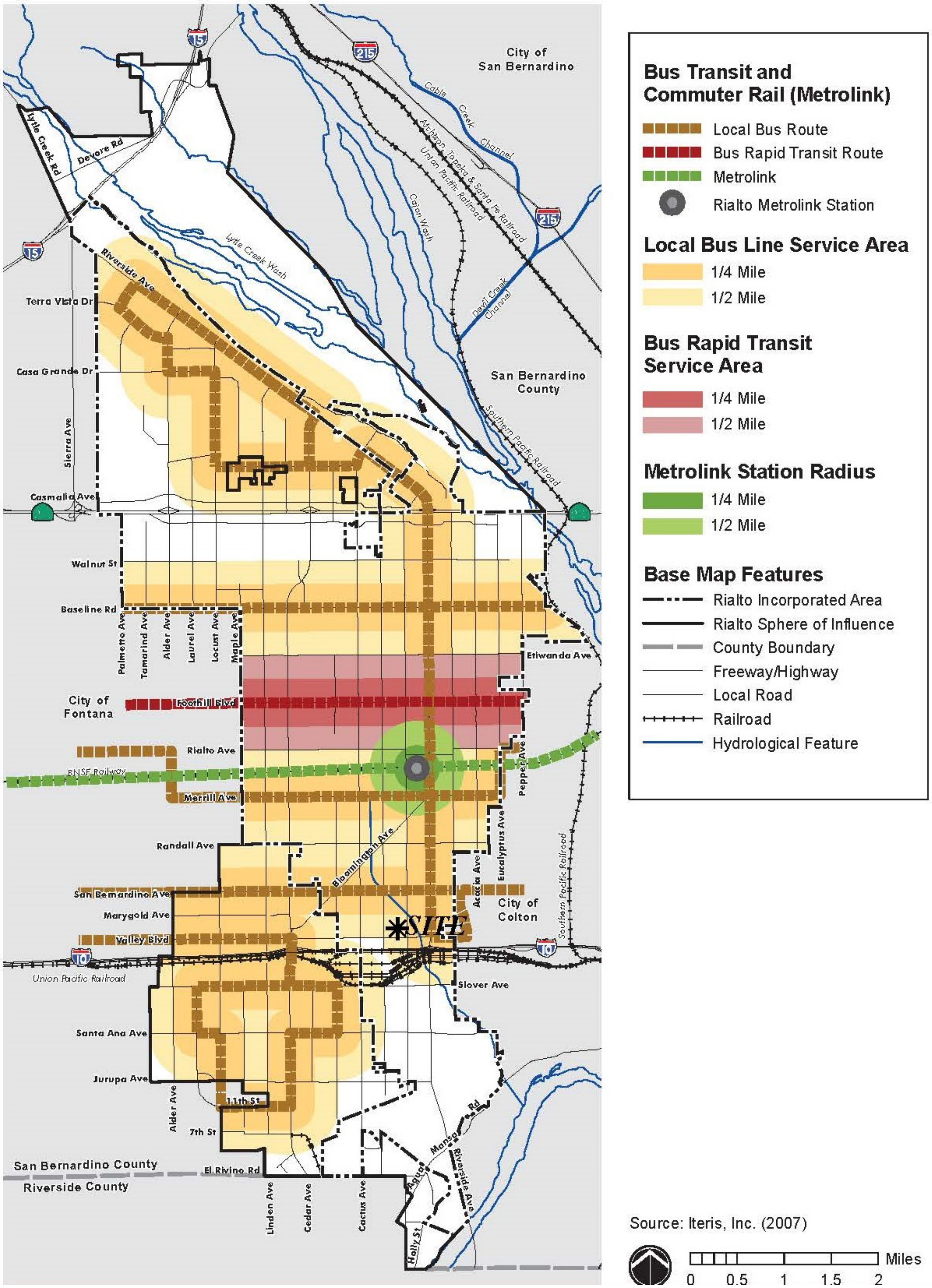


EXHIBIT 3-5: EXISTING TRANSIT ROUTES



3.6 BICYCLE & PEDESTRIAN FACILITIES

The City of Rialto's bicycle facilities are shown on Exhibit 3-6. The County of San Bernardino does not have an exhibit showing bikeways and trails. Field observations indicate nominal pedestrian and bicycle activity within the study area. As shown on Exhibit 3-7, pedestrian facilities are built out along portions of Valley Boulevard, Willow Avenue, and Riverside Avenue.

3.7 EXISTING (2021) TRAFFIC COUNTS

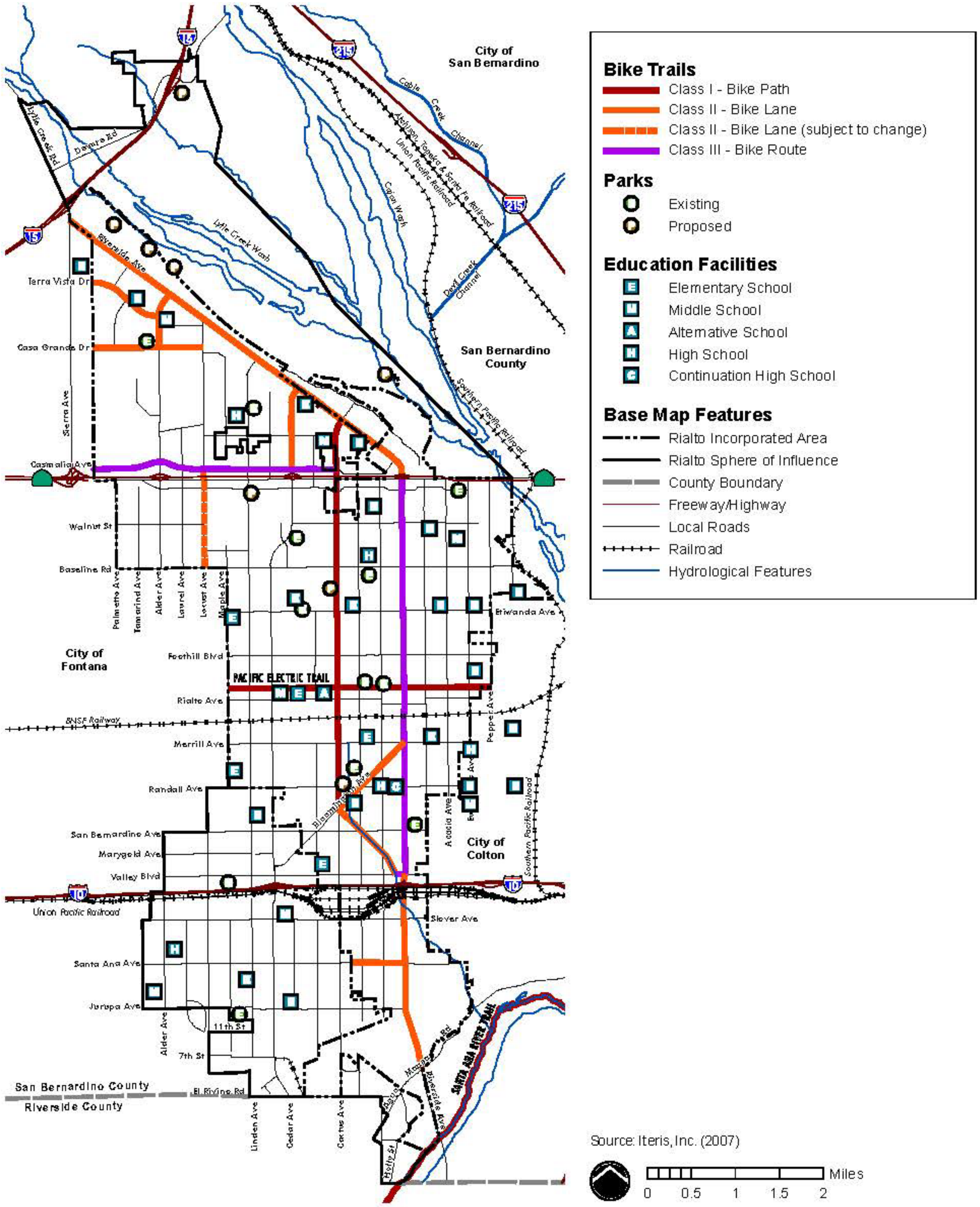
The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in January, February, and May of 2019. The following peak hours were selected for analysis:

- 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)

Due to the currently ongoing COVID-19 pandemic, schools and businesses within the study area were closed or operating at less than full capacity at the time this study was prepared. As such, historic 2019 traffic counts were utilized in conjunction with a 2% per year growth rate (compounded annually) to reflect 2021 conditions. The 2019 weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules.

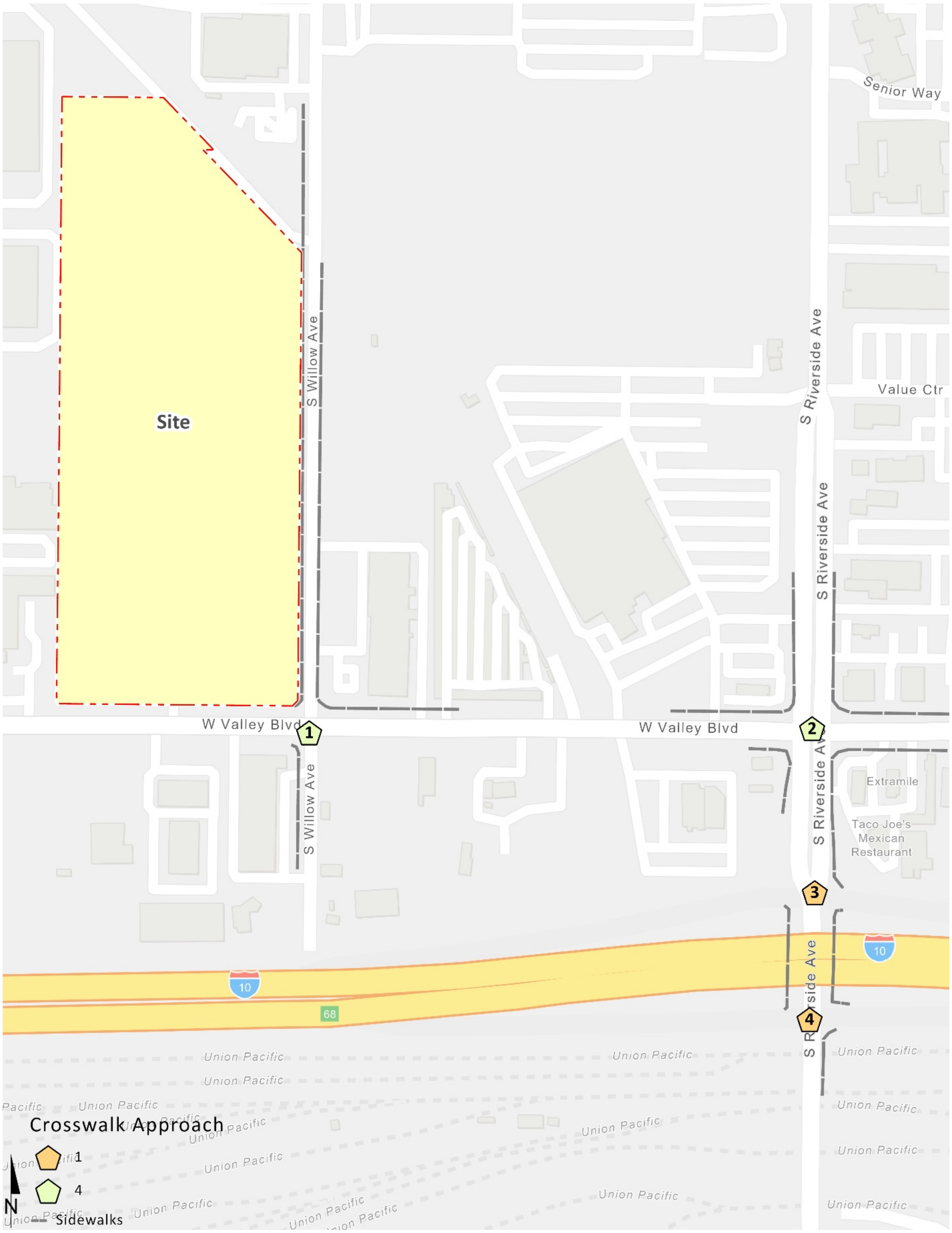
The traffic counts include the following vehicle classifications: Passenger Cars, 2-Axle Trucks, 3-Axle Trucks, and 4 or More Axle Trucks. To represent the effects large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into PCE. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the CMP and the City's Traffic Study Guidelines.

EXHIBIT 3-6: CITY OF RIALTO BICYCLE FACILITIES



Source: Iteris, Inc. (2007)

EXHIBIT 3-7: EXISTING PEDESTRIAN FACILITIES



Existing weekday ADT volumes are shown on Exhibit 3-8. Where actual 24-hour tube count data was not available, Existing ADT volumes were 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 13.22 = Leg Volume

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 7.57 percent. As such, the above equation utilizing a factor of 13.22 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 7.57 percent (i.e., 1/0.0757 = 13.22) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes are shown on Exhibit 3-8. Note volumes shown are in actual vehicles. The PCE volumes used for the peak hour operations analyses can be found in the applicable appendix with the intersection operations analysis worksheets.

3.8 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 on Table 3-1, which indicates all existing study area intersections are currently operating at an acceptable LOS during the peak hours, with the exception of the following intersection:

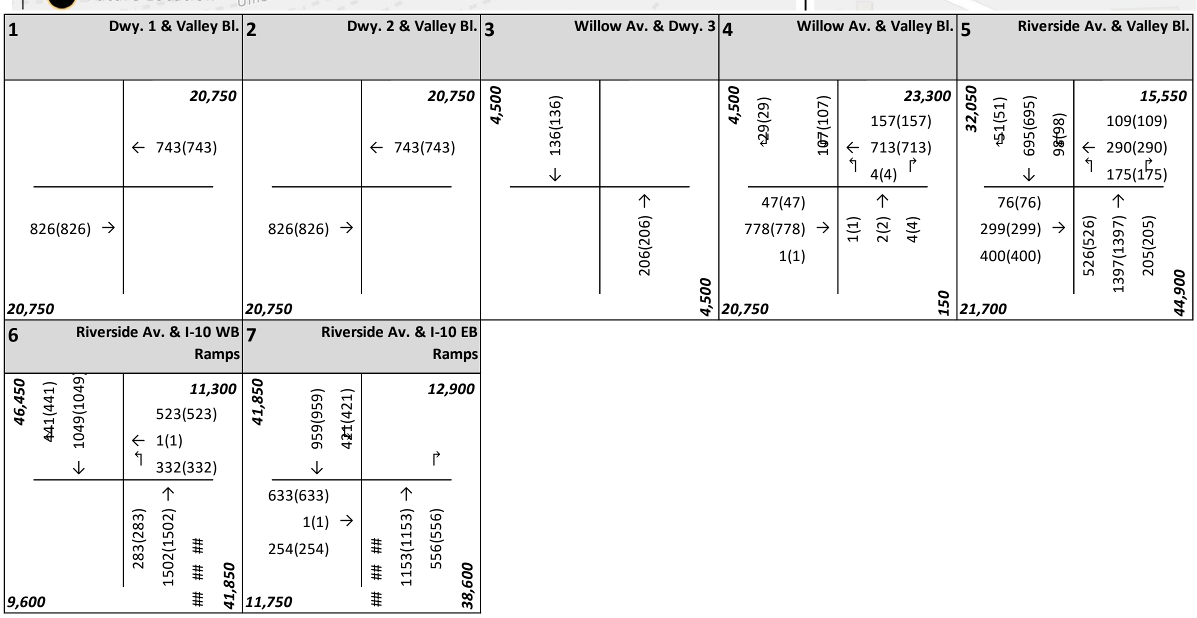
- Riverside Avenue & Valley Boulevard (#5) – LOS F PM peak hour only

The intersection operations analysis worksheets are included in Appendix 3.2 of this TA.

3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

All of the study area intersections are currently signalized. As such, no traffic signal warrant analysis has been conducted for Existing traffic conditions.

EXHIBIT 3-8: EXISTING (2021) TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 3-1: INTERSECTION ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Intersection	Traffic Control[2]	Delay[1] (secs.) AM	Delay[1] (secs.) PM	Level of Service AM	Level of Service PM
1	Driveway 1 & Valley Blvd.		Future Intersection			
2	Driveway 2 & Valley Blvd.		Future Intersection			
3	Willow Av. & Driveway 3		Future Intersection			
4	Willow Av. & Valley Blvd.	TS	10.9	10.7	B	B
5	Riverside Av. & Valley Blvd.	TS	65.4	**88.8**	E	**F**
6	Riverside Av. & I-10 WB Ramps	TS	29.3	19.2	C	B
7	Riverside Av. & I-10 EB Ramps	TS	29.0	37.2	C	D

* **BOLD** = Unacceptable LOS

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 TS = Traffic Signal

3.10 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Rialto Traffic Study Guidelines provide roadway volume capacity values. These roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 3-2 provides a summary of the Existing (2021) conditions roadway segment capacity analysis based on the City of Rialto Roadway Capacity Thresholds. As shown in Table 3-2, all study area roadway segments currently operate at an acceptable LOS based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria.

TABLE 3-2: ROADWAY SEGMENT ANALYSIS FOR EXISTING (2021) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing 2021	V/C[2]	LOS[3]
1	Valley Blvd.	Willow Av. to Lilac Av.	4U	36,000	20,733	0.58	A
2		Willow Av. to Riverside Av.	4U	36,000	23,304	0.65	B

1 These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

2 V/C = Volume to Capacity Ratio

3 LOS = Level of Service

3.11 QUEUING ANALYSIS

Queuing analysis findings are presented on Table 3-3. It is important to note that available staking lengths are consistent with the measured distance between the intersection and the freeway mainline or the intersection turn pockets. As shown on Table 3-3, the following movements are currently experiencing queuing issues during the weekday AM or PM peak 95th percentile traffic flows:

- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours

- Riverside Avenue & Valley Boulevard (#4) NBL – PM peak hour only
- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours

Worksheets for Existing traffic conditions queuing analysis are provided in Appendix 3.3.

TABLE 3-3: PEAK HOUR QUEUING SUMMARY FOR EXISTING (2021) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak	PM Peak	AM	PM
Willow Av. & Valley Blvd.	EBL	165	13	26	Yes	Yes
	EBR	140	0	0	Yes	Yes
	WBL	130	3	5	Yes	Yes
	WBR	240	30	68	Yes	Yes
	NBL	110	3	4	Yes	Yes
Riverside Av. & Valley Blvd.	EBL	150	73	108 [2]	Yes	Yes
	EBR	375	331	226	Yes	Yes
	WBL	210	403 [2]	317 [2]	**No**	**No**
	WBR	180	0	43	Yes	Yes
	NBL	265	237 [2]	411 [2]	Yes	**No**
	SBL	240	84	135	Yes	Yes
Riverside Av. & I-10 WB Ramps	WBL	1,935	291	294	Yes	Yes
	WBL/T/R	445	251	314 [2]	Yes	Yes
	WBR	400	178	228	Yes	Yes
	NBL	160	160	142	Yes	Yes
	SBR	205	82	66	Yes	Yes
Riverside Av. & I-10 EB Ramps	EBL	1,245	281 [2]	388 [2]	Yes	Yes
	EBL/T/R	2,725	204	404 [2]	Yes	Yes
	EBR	425	190	273 [2]	Yes	Yes
	SBL	205	224 [2]	219 [2]	**No**	**No**

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

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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 Project is proposed to consist of the development of a 492,410 square foot warehouse building. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2023. Access to the Project site will be provided to Valley Boulevard via two proposed driveways and Willow Avenue via one proposed driveway. Regional access to the Project site will be provided by the I-10 Freeway via Riverside Avenue.

4.1 PROJECT TRIP GENERATION

4.1.1 EXISTING USE

The site is currently occupied by a variety of users. Trip generation estimates for the existing uses have been developed using site specific data collected at the existing driveways on Willow Avenue and Valley Boulevard. The existing site was surveyed during typical weekday conditions on August 19, 2020 (Wednesday). Vehicle trips were categorized by vehicle type at each location (i.e., passenger vehicles and heavy trucks, by axle type). Although the traffic counts were conducted during the ongoing COVID-19 pandemic, the purpose of surveying the existing uses is to take credit against the proposed use. Since the existing use operations were lower than normal, the traffic counts collected at the driveways would be lower than normal. As such, understated driveway counts would result in identifying a conservative net change between the existing uses and proposed Project.

According to the existing site tenant information, all tenants were occupied and operating at full capacity at the time driveway traffic counts were collected. Table 4-1 presents the trip generation of the existing uses based on the data provided in Attachment A. The peak periods of 6-9 AM and 3-6 PM were observed to determine the peak one hour in the morning and evening peak hours. The trip generation summary illustrates the daily, and peak hour trip generation estimates for the proposed Project in actual and PCE vehicles. As shown in Table 4-1, the existing uses generates a total of 230 actual trip-ends per day with 18 actual AM peak hour trips and 16 actual PM peak hour trips.

TABLE 4-1: EXISTING TRIP GENERATION SUMMARY

Land Use	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Existing Trip Generation Summary (Actual Vehicles)							
Passenger Cars:	8	3	11	2	8	10	154
2-axle Trucks:	*0*	*0*	*0*	*0*	*0*	*0*	*4*
3-axle Trucks:	*1*	*0*	*1*	*2*	*1*	*3*	*20*
4+-axle Trucks:	*2*	*4*	*6*	*3*	*0*	*3*	*52*
Total Trucks:	3	4	7	5	1	6	76
Existing Use Total Trips (Actual Vehicles)[1]	**11**	**7**	**18**	**7**	**9**	**16**	**230**
Existing Trip Generation Summary (PCE)							
Passenger Cars:	8	3	11	2	8	10	154
2-axle Trucks:	*0*	*0*	*0*	*0*	*0*	*0*	*6*
3-axle Trucks:	*2*	*0*	*2*	*4*	*2*	*6*	*40*
4+-axle Trucks:	*6*	*12*	*18*	*9*	*0*	*9*	*156*
Total Trucks (PCE):	8	12	20	13	2	15	202
Existing Use Total Trips (PCE)[1]	**16**	**15**	**31**	**15**	**10**	**25**	**356**

[1] Total Trips = Passenger Cars + Truck Trips.

4.1.2 PROPOSED PROJECT

The trip generation rate and vehicle and truck mix are sourced from the City of Rialto's Public Works Department's Traffic Impact Analysis Report Guidelines and Requirements (2013). In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition, 2012) for Warehousing (ITE Land Use Code 150) were used. Table 4-2 presents the trip generation rates in both actual vehicles and PCE. The City of Rialto requires the following warehouse trip generation rates and vehicle mix for all warehousing projects within the City (no use of ITE high-cube warehouse trip generation rates are permitted).

The resulting trip generation summary for the proposed Project are shown on Table 4-3. As shown in Table 4-3, the Project is anticipated to generate a total of 1,752 actual trip-ends per day with 147 actual AM peak hour trips and 157 actual PM peak hour trips.

TABLE 4-2: PROJECT TRIP GENERATION RATES

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates									
Warehousing[3]	TSF	150	0.240	0.060	0.300	0.080	0.240	0.320	3.560
Passenger Cars (60.0%)			*0.144*	*0.036*	*0.180*	*0.048*	*0.144*	*0.192*	*2.136*
2-Axle Trucks (0.8%)			*0.002*	*0.001*	*0.003*	*0.001*	*0.002*	*0.003*	*0.029*
3-Axle Trucks (11.2%)			*0.027*	*0.007*	*0.034*	*0.009*	*0.027*	*0.036*	*0.399*
4-Axle+ Trucks (28.0%)			*0.067*	*0.016*	*0.083*	*0.022*	*0.067*	*0.089*	*0.996*
Passenger Car Equivalent (PCE) Trip									
Warehousing[3]	TSF	150	0.240	0.060	0.300	0.080	0.240	0.320	3.560
Passenger Cars (60.0%)			*0.144*	*0.036*	*0.180*	*0.048*	*0.144*	*0.192*	*2.136*
2-Axle Trucks (0.8%) (PCE = 1.5)[4]			*0.003*	*0.002*	*0.005*	*0.002*	*0.003*	*0.005*	*0.044*
3-Axle Trucks (11.2%) (PCE = 2.0)[4]			*0.054*	*0.014*	*0.068*	*0.018*	*0.054*	*0.072*	*0.798*
4-Axle+ Trucks (28.0%) (PCE = 3.0)[4]			*0.201*	*0.048*	*0.249*	*0.066*	*0.201*	*0.267*	*2.988*

1 Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Ninth Edition (2012).

2 TSF = thousand square feet

3 Vehicle and Truck Mix Source: City of Rialto Public Works Department Traffic Impact Analysis Report Guidelines and Requirements (2013).

4 PCE rates are per City of Rialto Public Works Department Traffic Impact Analysis Report Guidelines and Requirements (2013).

TABLE 4-3: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary (Actual Vehicles):									
Warehousing	492.410	TSF							
Passenger Cars:			71	18	89	24	71	95	1,052
2-axle Trucks:			*1*	*0*	*1*	*0*	*1*	*1*	*14*
3-axle Trucks:			*13*	*3*	*16*	*4*	*13*	*17*	*196*
4+-axle Trucks:			*33*	*8*	*41*	*11*	*33*	*44*	*490*
Total Trucks:			47	11	58	15	47	62	700
Warehousing Total Trips (Actual Vehicles)[2]			**118**	**29**	**147**	**39**	**118**	**157**	**1,752**
Project Trip Generation Summary (PCE):									
Warehousing	492.410	TSF							
Passenger Cars:			71	18	89	24	71	95	1,052
2-axle Trucks:			1	1	2	1	1	2	22
3-axle Trucks:			27	7	34	9	27	36	394
4+-axle Trucks:			99	24	123	32	99	131	1,472
Total Trucks:			127	32	159	42	127	169	1,888
Warehousing Total Trips (PCE)[2]			**198**	**50**	**248**	**66**	**198**	**264**	**2,940**

1 TSF = thousand square feet

2 Total Trips = Passenger Cars + Truck Trips.

4.1.3 NET NEW PROJECT TRIP GENERATION

A trip generation comparison of the proposed Project less the trips associated with the existing uses is summarized on Table 4-4 for actual vehicles and Table 4-5 for PCE. As shown in Table 4-4, the proposed Project is anticipated to generate an additional 1,522 trip-ends per day with 129 more actual AM peak hour trips and 141 more actual PM peak hour trips in comparison to the existing uses. The net increase trip generation shown in Table 4-5 (PCE) has been utilized for the purposes of this TA.

TABLE 4-4: PROJECT TRIP GENERATION COMPARISON (ACTUAL VEHICLES)

	AM Peak Hour			PM Peak Hour			
Trip Generation Comparison	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Proposed Project Trip Generation (Table 4-3)							
Passenger Cars:	*71*	*18*	*89*	*24*	*71*	*95*	*1,052*
Trucks:	*47*	*11*	*58*	*15*	*47*	*62*	*700*
Total:	118	29	147	39	118	157	1,752
Existing Uses Trip Generation (Table 4-1)							
Passenger Cars:	*8*	*3*	*11*	*2*	*8*	*10*	*154*
Trucks:	*3*	*4*	*7*	*5*	*1*	*6*	*76*
Total:	11	7	18	7	9	16	230
Variance (Proposed - Existing)							
Passenger Cars:	***63***	***15***	***78***	***22***	***63***	***85***	***898***
Trucks:	***44***	***7***	***51***	***10***	***46***	***56***	***624***
Total Net Increase:	**107**	**22**	**129**	**32**	**109**	**141**	**1,522**

TABLE 4-5: PROJECT TRIP GENERATION COMPARISON (PCE)

	AM Peak Hour			PM Peak Hour			
Trip Generation Comparison	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**Daily**
Proposed Project Trip Generation (Table 4-3)							
Passenger Cars:	*71*	*18*	*89*	*24*	*71*	*95*	*1,052*
Trucks:	*127*	*32*	*159*	*42*	*127*	*169*	*1,888*
Total:	198	50	248	66	198	264	2,940
Existing Uses Trip Generation (Table 4-1)							
Passenger Cars:	*8*	*3*	*11*	*2*	*8*	*10*	*154*
Trucks:	*8*	*12*	*20*	*13*	*2*	*15*	*202*
Total:	16	15	31	15	10	25	356
Variance (Proposed - Existing)							
Passenger Cars:	***63***	***15***	***78***	***22***	***63***	***85***	***898***
Trucks:	***119***	***20***	***139***	***29***	***125***	***154***	***1,686***
Total Net Increase:	**182**	**35**	**217**	**51**	**188**	**239**	**2,584**

4.2 PROJECT TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. 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. Truck distribution patterns are based on truck routes, the site's proximity to the regional freeway system and likely distribution of traffic if a future tenant is known. Passenger car distribution patterns are based on existing and planned land uses in the area along with the planned circulation system. Exhibit 4-1 illustrates the truck trip distribution patterns for the Project and Exhibit 4-2 illustrates the passenger car trip distribution patterns.

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 (non-truck trips only).

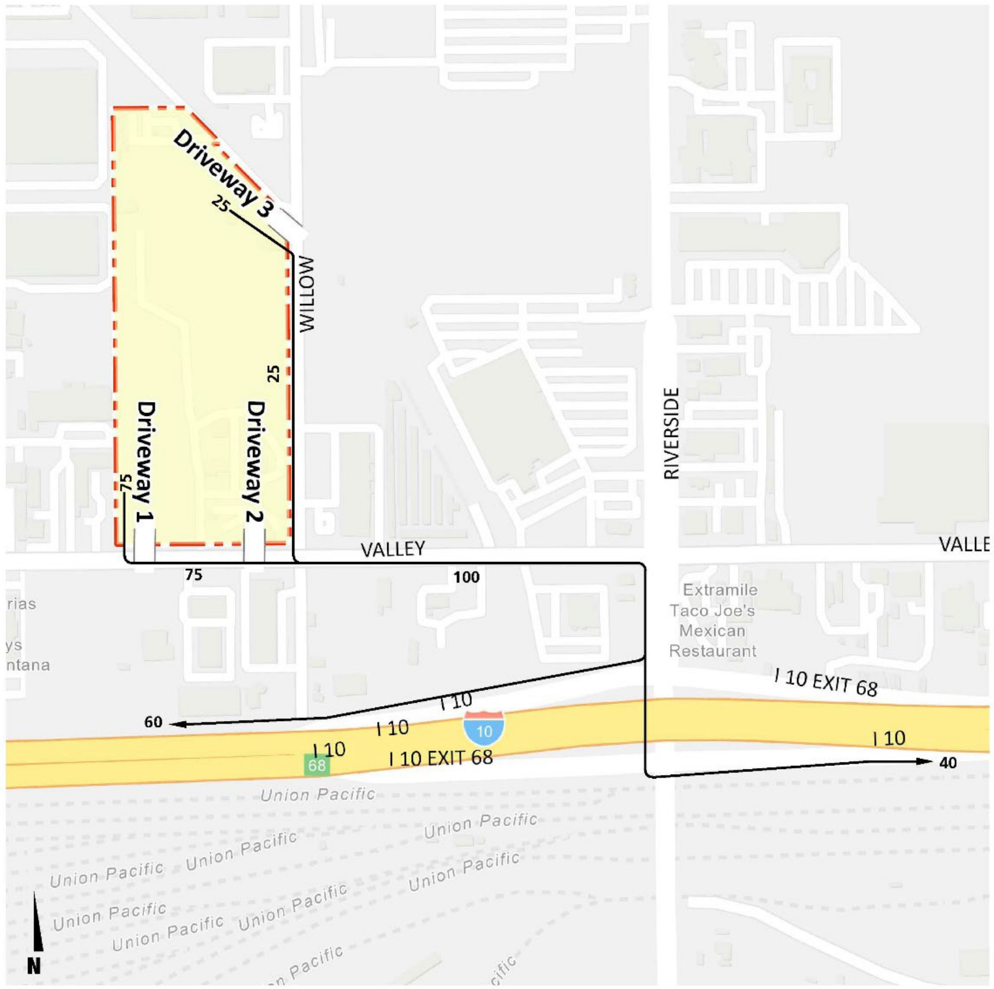
4.4 PROJECT TRIP ASSIGNMENT

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 ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-3.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2.0% per year. The total ambient growth is 2.0% for 2023 traffic conditions (growth over 2 years). The ambient growth factor is intended to approximate regional traffic growth. 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. The traffic generated by the proposed Project is manually added to the base volume to determine EAP/EAPC forecasts.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION



10 *= Percent To/From Project*

EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

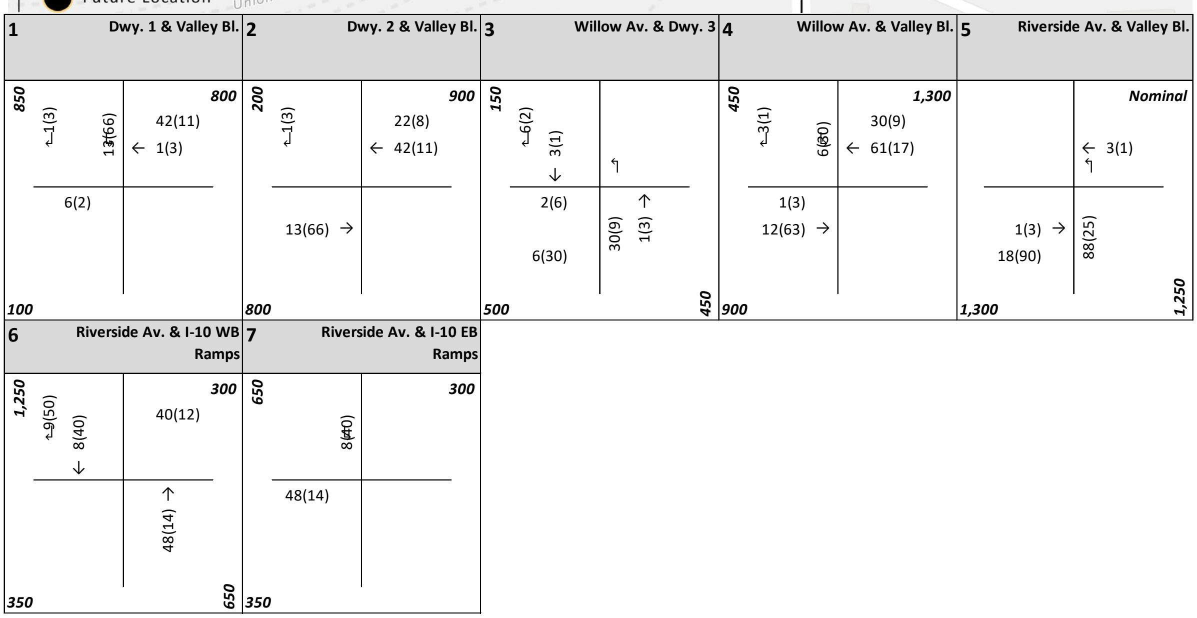
10 = *Percent To Project*

= *Inbound*

10 = *Percent From Project*

= *Outbound*

EXHIBIT 4-3: PROJECT ONLY TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

***Average Daily Trips***

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

- EAP (2023)
  - Adjusted Existing 2021 volumes
  - Ambient growth traffic (4.04%)
  - Project Traffic
- EAPC (2023)
  - Adjusted Existing 2021 volumes
  - Ambient growth traffic (4.04%)
  - Cumulative Development traffic
  - Project Traffic

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Rialto. The cumulative projects listed are those that would generate traffic and would contribute traffic to study area intersections. Cumulative projects from the neighboring jurisdictions of City of Fontana and County of San Bernardino have also been included. Exhibit 4-4 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-6. If applicable, the traffic generated by individual cumulative projects was manually added to the EAPC (2023) forecasts to ensure that traffic generated by the listed cumulative development projects on Table 4-6 is reflected as part of the background traffic. In an effort to conduct a conservative analysis, the cumulative projects are added in conjunction with the ambient growth identified in Section 4.5 *Background Traffic*. Cumulative ADT and peak hour intersection turning movement volumes are shown on Exhibit 4-5 for near-term traffic conditions.

4.7 NEAR-TERM CONDITIONS

The “buildup” approach has been utilized which combines existing traffic counts with a background ambient growth factor to forecast the EAP (2023) and EAPC (2023) traffic conditions. An ambient growth factor of 4.04% accounts for background (area-wide) traffic increases that occur over time up to the year 2023 from the year 2021 (one percent over a 2-year period). Project traffic is added to assess EAP (2023) and EAPC (2023) traffic conditions, respectively. Traffic volumes generated by cumulative development projects are included to assess the EAPC (2023) traffic conditions. The 2023 roadway networks are similar to the existing conditions roadway network with the exception of future intersections and driveways proposed to be developed by the Project. It should be noted that Existing plus Ambient Growth plus Cumulative (EAC) traffic forecasts were also developed for applicable County of San Bernardino study area intersections only to determine the change in delay and identify whether the Project has an adverse effect on a pre-project deficiency.

EXHIBIT 4-4: CUMULATIVE DEVELOPMENT LOCATION MAP

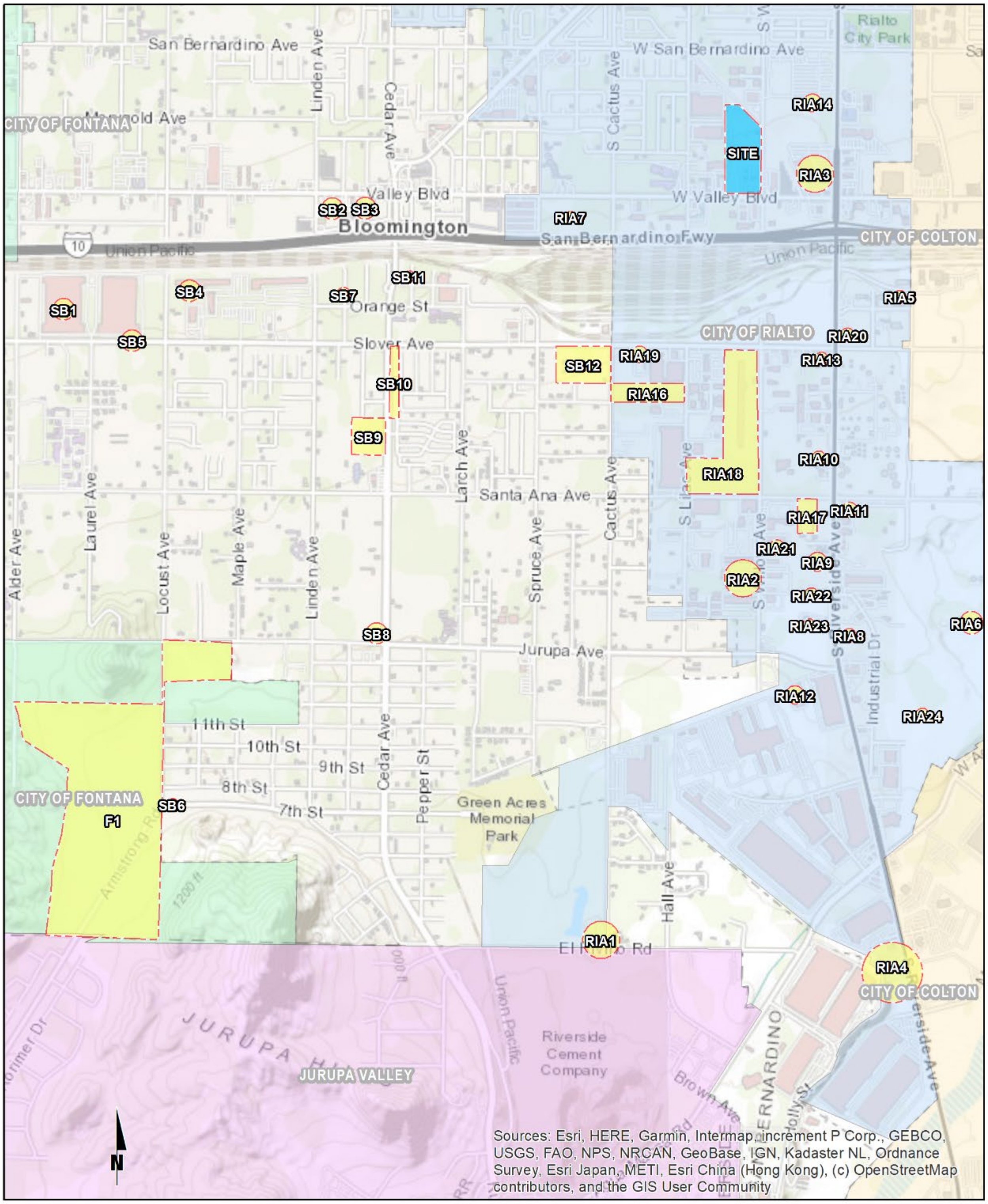
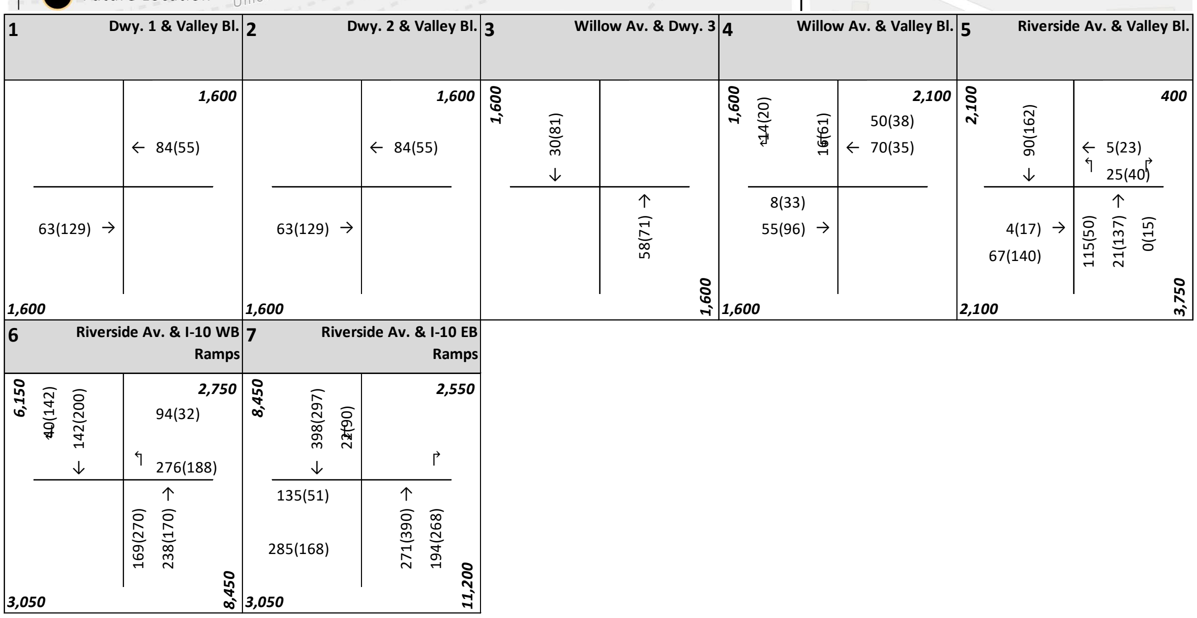


EXHIBIT 4-5: CUMULATIVE ONLY TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 4-6: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

ID	Project Name	Land Use	Quantity	Units[1]
City of Rialto:				
RIA1	Panattoni I-10 (Cactus Av. & El Rivino Rd.)	Warehouse	2,475.745	TSF
RIA2	CapRock III	Warehouse	582.000	TSF
RIA3	Newmark Merrill Companies	Discount Super Store	198.000	TSF
		Tire Store	9.861	TSF
		Retail	25.436	TSF
		Fast Food w/ Drive-Thru	5.484	TSF
RIA4	Kore Infrastructure	Biosolids Facility	288	TPD
RIA5	NEC of Sycamore Av. and Cameron Wy.	Trucking	--[2]	--
RIA6	South of Santa Ana Av., East of Riverside Av.	Warehouse	370.000	TSF
RIA7	South of Valley Bl., West of Cactus Av.	Warehouse	--[2]	--
RIA8	SEC of Riverside Av. and Industrial Dr.	Trucking	--[2]	--
RIA9	NWC of Riversid Av. and Industrial Dr.	Truck Drop	--[2]	--
RIA10	NWC of Riverside Av. and Santa Ana Av.	Warehouse	527.900	TSF
RIA11	SEC of Riverside Av. and Santa Ana Av.	Super Convenience Market/Gas Station	16	VFP
		Diesel Station	2	VFP
RIA12	South of Jurupa Av., West of Riverside Av.	FedEx	--[2]	--
RIA13	SWC of Riverside Av. & Slover Av.	Speciality Retail & Fast Food w/ Drive-Thru	8.510	TSF
RIA14	North of Valley Bl., West of Riverside Av.	Warehouse	--[2]	--
RIA15	South of Slover Av., East of Cactus Av.	Wheeler Trucking	--[2]	--
RIA16	Lilac Avenue Warehouse	Warehouse	47.460	TSF
RIA17	SC Fuels (19839 Santa Ana Avenue)	Warehouse	48.302	TSF
RIA18	Old Dominion Freight Line Expansion	Truck Trailer Yard	407	Spaces
RIA19	Flyers Energy Addition	Warehouse	9.350	TSF
RIA20	Onyx Paving	Contractor's Yard	0.770	AC
RIA21	Bakery Addition	Bakery	14.000	TSF
RIA22	Lynn Trucking	Truck Parking Yard	3.070	AC
		Car Wash/Repair	8.827	TSF
RIA23	Riverside Pallet Yard	Pallet Yard	3.580	AC
RIA24	Angelus Black - Concrete Block	Manufacturing	178.475	TSF
County of San Bernardino:				
SB1	NWC of Slover Av. and Locust Av.	Fast Food Restaurant With Drive-Thru	3.265	TSF
		Retail Store	7.200	TSF
		Warehouse	20.750	TSF
SB2	SEC of Linden Av. and Valley Bl.	Fast Food Restaurant	1.500	TSF
SB3	Valley Bl., West of Linden Av.	Office Building	0.250	AC
SB4	Linden Av., north of Slover Av.	Tire Store	3.000	TSF
SB5	Slover Av. between Locust Av. and Laurel Av.	High-Cube Warehouse	344.000	TSF
SB6	Locust Av. and 7th St.	Single Family Residential	198	DU
SB7	NEC and NWC of Cedar Av. and Orange St.	Warehouse	395.000	TSF
SB8	NWC of Cedar Av. and Jurupa Av.	High-Cube Warehouse	677.000	TSF
SB9	Cedar Truck Yard	Truck Storage	8.940	AC
SB10	Cedar / Slover Retail	Super Convenience Market/Gas Station	12	VFP
		Automated Car Wash	1.000	Tunnel
		Fast Food Restaurant With Drive-Thru	9.907	TSF
SB11	Cedar Avenue Technology Center	Warehouse	184.770	TSF
SB12	Cactus and Slover Warehouse	Warehouse	257.855	TSF
City of Fontana:				
F1	West Valley Logistics Center	High-Cube Transload & Short-Term Storage	3183.100	TSF
		Warehouse	290.590	TSF

[1] DU = Dwelling Units; TSF = Thousand Square Feet; AC = Acres; TPD = Tons Per Day; VFP = Vehicle Fueling Positions

[2] Quantity and land use unknown. City of Rialto provided estimated trips and PCE AM and PM.

4.8 HORIZON YEAR (2040) VOLUME DEVELOPMENT

Traffic projections for Horizon Year (2040) without Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM) using accepted procedures for model forecast refinement and smoothing for study area intersections located within the County of San Bernardino. The current version of the SBTAM (Version 2.20, March 2019) reflects the local input in the adopted 2016 SCAG RTP within the County of San Bernardino. The post processing volume worksheets are provided in Appendix 4.1 of this TA. In addition the support SBTAM model plots are also included.

The traffic forecasts reflect the area-wide growth anticipated between Existing (2021) conditions and Horizon Year (2040) traffic conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year (2040) peak hour forecasts were refined using the model derived long range forecasts, base (validation) year model forecasts, along with existing peak hour traffic count data collected at each analysis location. The SBTAM has a base (validation) year of 2012 and a horizon (future forecast) year of 2040. The difference in model volumes (2040-2012) defines the growth in traffic over the 28-year period.

The refined future peak hour approach and departure volumes obtained from the model output data are then entered into a spreadsheet program consistent with the National Cooperative Highway Research Program (NCHRP Report 765), along with initial estimates of turning movement proportions. A linear programming algorithm is used to calculate individual turning movements which match the known directional roadway segment forecast volumes computed in the previous step. This program computes a likely set of intersection turning movements from intersection approach counts and the initial turning proportions from each approach leg.

The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.27. These factors represent the relationship of the highest single AM peak hour to the modeled 3-hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4-hour PM peak period (an even distribution would result in a factor of 0.25).

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Horizon Year traffic conditions. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either EAPC traffic conditions were not assumed as part of this analysis. As such, in conjunction with the addition of cumulative projects that are not consistent with the General Plan, additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable Horizon Year (2040) forecasts. Specifically, Horizon Year (2040) turning volumes were compared to EAPC volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth (no less than 10%) includes any additional growth between EAPC and Horizon Year (2040) traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2021) and EAPC conditions. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year (2040) peak hour forecasts.

The future Horizon Year (2040) Without Project peak hour turning movements were then reviewed by Urban Crossroads, Inc. for reasonableness, and in some cases, were adjusted to achieve flow conservation, reasonable growth, and reasonable diversion between parallel routes. Flow conservation checks ensure that traffic flow between two closely spaced intersections, such as two adjacent driveway locations, is verified in order to make certain that vehicles leaving one intersection are entering the adjacent intersection and that there is no unexplained loss of vehicles. The result of this traffic forecasting procedure is a series of traffic volumes which are suitable for traffic operations analysis.

5 EAP (2023) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Ambient Growth plus Project (EAP) conditions and the resulting intersection operations, traffic signal warrant, and queuing analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAP 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 EAP conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 EAP (2023) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 4.04% and the addition of Project traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for EAP (2023) traffic conditions are shown on Exhibit 5-1.

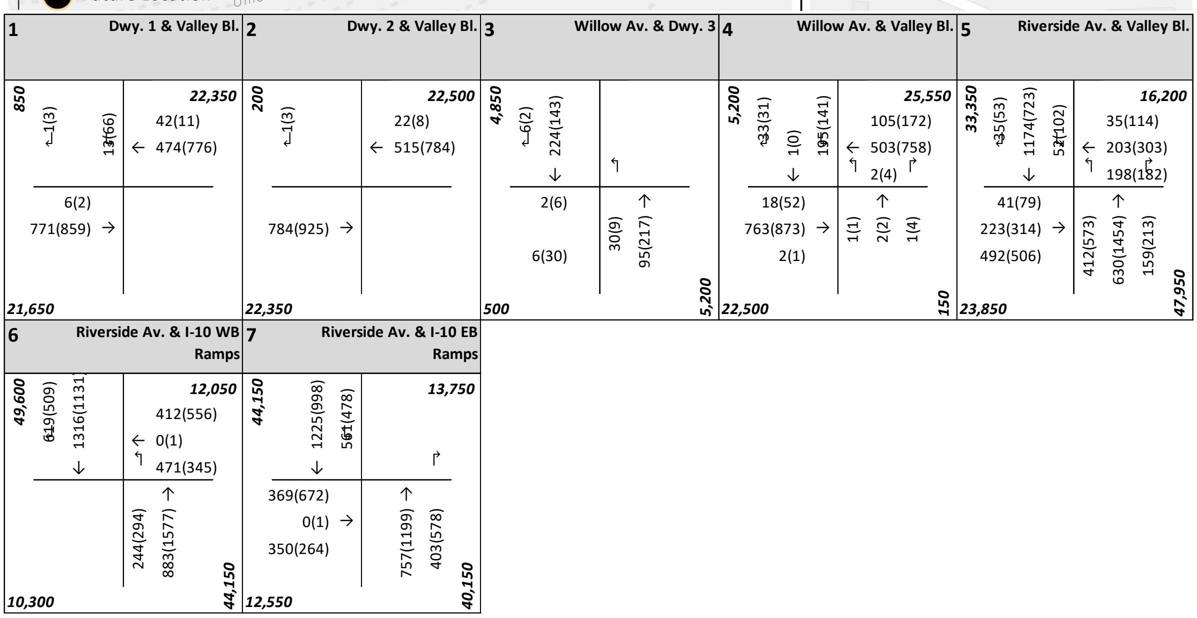
5.3 INTERSECTION OPERATIONS ANALYSIS

EAP (2023) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TA. The intersection analysis results are summarized on Table 5-1 for EAP (2023) traffic conditions, which shows the following study area intersection is anticipated to continue to operate at an unacceptable LOS during one or more peak hours, consistent with Existing traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F AM and PM peak hours (AM peak hour went from LOS E to LOS F)

The intersection operations analysis worksheets for EAP (2023) traffic conditions are included in Appendix 5.1 of this TA.

EXHIBIT 5-1: EAP (2023) TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 5-1: INTERSECTION ANALYSIS FOR EAP (2023) CONDITIONS

#	Intersection	Traffic Control[2]	Existing (2021) Delay[1] (secs.) AM	Existing (2021) Delay[1] (secs.) PM	Existing (2021) Level of Service AM	Existing (2021) Level of Service PM	EAP (2023) Delay[1] (secs.) AM	EAP (2023) Delay[1] (secs.) PM	EAP (2023) Level of Service AM	EAP (2023) Level of Service PM
1	Driveway 1 & Valley Blvd.	**CSS**	Future Intersection				13.9	24.5	B	C
2	Driveway 2 & Valley Blvd.	**CSS**	Future Intersection				10.4	11.5	B	B
3	Willow Av. & Driveway 3	**CSS**	Future Intersection				10.1	9.6	B	A
	-Alternative Access	**CSS**	Future Intersection				10.1	9.6	B	A
4	Willow Av. & Valley Blvd.	TS	10.9	10.7	B	B	11.3	11.5	B	B
5	Riverside Av. & Valley Blvd.	TS	65.4	**88.8**	E	**F**	**101.2**	**138.0**	**F**	**F**
6	Riverside Av. & I-10 WB Ramps	TS	29.3	19.2	C	B	31.9	25.3	C	C
7	Riverside Av. & I-10 EB Ramps	TS	29.0	37.2	C	D	31.6	41.0	C	D

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

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrant analysis has been conducted on all future Project driveways for EAP traffic conditions. The planning level (ADT-based) traffic signal warrant has been utilized for these future intersections as they do not currently exist. Based on the posted speed limits, the driveways on Valley Boulevard have utilized the Rural ADT-based traffic signal warrant and the driveway on Willow Avenue has utilized the Urban ADT-based traffic signal warrant. None of the Project driveways are anticipated to meet the planning level, ADT-based traffic signal warrant for EAP (2023) traffic conditions (see Appendix 5.2).

5.5 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Rialto Traffic Study Guidelines provide roadway volume capacity values. These roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 5-2 provides a summary of the EAP (2023) conditions roadway segment capacity analysis based on the City of Rialto Roadway Capacity Thresholds. As shown in Table 5-2, all study area roadway segments are anticipated to continue to operate at an acceptable LOS under EAP (2023) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria.

TABLE 5-2: ROADWAY SEGMENT ANALYSIS FOR EAP (2023) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	Existing (2021)	V/C[2]	LOS[3]	EAP (2023)	V/C[2]	LOS[3]
1	Valley Blvd.	West of Willow Av.	4U	36,000	20,733	0.58	A	22,487	0.62	B
2		Willow Av. to Riverside Av.	4U	36,000	23,304	0.65	B	25,544	0.71	C

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

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

5.6 QUEUING ANALYSIS

Queuing analysis findings for EAP (2023) are presented on Table 5-3. As shown on Table 5-3, the turning movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic under EAP traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) EBR – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & Valley Boulevard (#4) NBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours (consistent with Existing)

Worksheets for EAP (2023) traffic conditions queuing analysis are provided in Appendix 5.3.

TABLE 5-3: PEAK HOUR QUEUING SUMMARY FOR EAP (2023) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2021) 95th Percentile Queue (Feet) AM Peak Hour	Existing (2021) 95th Percentile Queue (Feet) PM Peak Hour	Existing (2021) Acceptable?[1] AM	Existing (2021) Acceptable?[1] PM	EAP (2023) 95th Percentile Queue (Feet) AM Peak Hour	EAP (2023) 95th Percentile Queue (Feet) PM Peak Hour	EAP (2023) Acceptable?[1] AM	EAP (2023) Acceptable?[1] PM
Willow Av. & Valley Blvd.	EBL	165	13	26	Yes	Yes	14	28	Yes	Yes
	EBR	140	0	0	Yes	Yes	0	0	Yes	Yes
	WBL	130	3	5	Yes	Yes	3	5	Yes	Yes
	WBR	240	30	68	Yes	Yes	49	77	Yes	Yes
	NBL	110	3	4	Yes	Yes	4	4	Yes	Yes
Riverside Av. & Valley Blvd.	EBL	150	73	108 [2]	Yes	Yes	76	118	Yes	Yes
	EBR	375	331	226	Yes	Yes	415 [2]	543 [2]	**No**	**No**
	WBL	210	403 [2]	317 [2]	**No**	**No**	423 [2]	357 [2]	**No**	**No**
	WBR	180	0	43	Yes	Yes	0	42	Yes	Yes
	NBL	265	237 [2]	411	Yes	**No**	413 [2]	502 [2]	**No**	**No**
	SBL	240	84	135	Yes	Yes	86	145	Yes	Yes
Riverside Av. & I-10 WB Ramps	WBL	1,935	291	294	Yes	Yes	368 [2]	349 [2]	Yes	Yes
	WBL/T/R	445	251	314 [2]	Yes	Yes	304 [2]	365 [2]	Yes	Yes
	WBR	400	178	228	Yes	Yes	242	253	Yes	Yes
	NBL	160	160	142	Yes	Yes	166	150	Yes	Yes
	SBR	205	82	66	Yes	Yes	126	75	Yes	Yes
Riverside Av. & I-10 EB Ramps	EBL	1,245	281	388 [2]	Yes	Yes	338 [2]	420 [2]	Yes	Yes
	EBL/T/R	2,725	204	404 [2]	Yes	Yes	272 [2]	446 [2]	Yes	Yes
	EBR	425	190	273 [2]	Yes	Yes	247 [2]	310 [2]	Yes	Yes
	SBL	205	224	219	**No**	**No**	271 [2]	265 [2]	**No**	**No**

[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 on this table, where applicable.

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

5.7 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

5.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the recommended improvement strategies to address EAP (2023) traffic deficiencies are presented on Table 5-4. Worksheets for EAP (2023) conditions, with improvements, HCM calculation worksheets are provided in Appendix 5.4.

In order to address the peak hour intersection deficiency and the EAP queuing issue for the eastbound right turn movement at the intersection of Riverside Avenue and Valley Boulevard, it is recommended that the Project restripe the number two eastbound through lane as a shared through-right turn lane. Upon completion of the proposed restriping, the existing signal timing should be reviewed, and a one-time adjustment should be implemented in order to improve the queues for the other deficient turn lanes at the intersection of Riverside Avenue and Valley Boulevard.

TABLE 5-4: INTERSECTION ANALYSIS FOR EAP (2023) CONDITIONS WITH IMPROVEMENTS

#	Intersection	Traffic Control[3]	Northbound L	Northbound T	Northbound R	Southbound L	Southbound T	Southbound R	Eastbound L	Eastbound T	Eastbound R	Westbound L	Westbound T	Westbound R	Delay[2] (secs.) AM	Delay[2] (secs.) PM	Level of Service AM	Level of Service PM
5	Riverside Av. & Valley Blvd.																	
	- Without Improvements	TS	2	3	0	1	3	0	1	2	1	1	2	1	**101.2**	**138.0**	**F**	**F**
	- With Improvements	TS	2	3	0	1	3	0	1	<u>1</u>	<u>2</u>	1	2	1	34.4	32.8	C	C

Intersection Approach Lanes[1]

[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; > = Right-Turn Overlap Phasing; <u>1</u> = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal

[4] Project to restripe the number 2 EB lane to restripe as a shared through-right turn lane.

5.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

As shown on Table 5-2, there are no roadway segment deficiencies anticipated for EAP (2023) traffic conditions. As such, no improvements have been recommended.

5.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES FOR QUEUES

Table 5-5 shows the peak hour queuing summary, assuming the intersection improvements identified in Table 5-4. As shown in Table 5-5, the queues are anticipated to improve, however the northbound left turn lane is anticipated to continue to experience queuing issues. Given the proximity of the adjacent intersection and freeway to Riverside Avenue & Valley Boulevard, it is not feasible to lengthen the northbound left turn pocket although the queuing is anticipated to improve from Existing traffic conditions with the implementation of the improvements identified in Table 5-4. The signal timing modifications discussed in Section 5.7.1 may improve the northbound left turn queue once the restriping has been implemented. Worksheets for EAP (2023) traffic conditions queuing analysis are provided in Appendix 5.5 (with improvements).

TABLE 5-5: PEAK HOUR QUEUING SUMMARY FOR EAP (2023) CONDITIONS WITH IMPROVEMENTS

Intersection	Movement	Available Stacking Distance (Feet)	EAP (2023) 95th Percentile Queue (Feet) AM Peak Hour	EAP (2023) 95th Percentile Queue (Feet) PM Peak Hour	Acceptable?[1] AM	Acceptable?[1] PM
Riverside Av. & Valley Blvd.	EBL	150	77	119	Yes	Yes
	EBR	375	113	124	Yes	Yes
	WBL	515	362 [2]	315 [2]	Yes	Yes
	WBR	180	0	31	Yes	Yes
	NBL	265	**320** [2]	**363** [2]	**No**	**No**
	SBL	240	88	192 [2]	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

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

6 EAPC (2023) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2023) traffic forecasts, and the resulting intersection operations, traffic signal warrant, and queuing analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (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 EAPC conditions only (e.g., intersection and roadway improvements along 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 EAPC conditions only.

6.2 EAPC (2023) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 4.04% in conjunction with the addition of cumulative project development and Project traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for EAPC (2023) traffic conditions are shown on Exhibit 6-1.

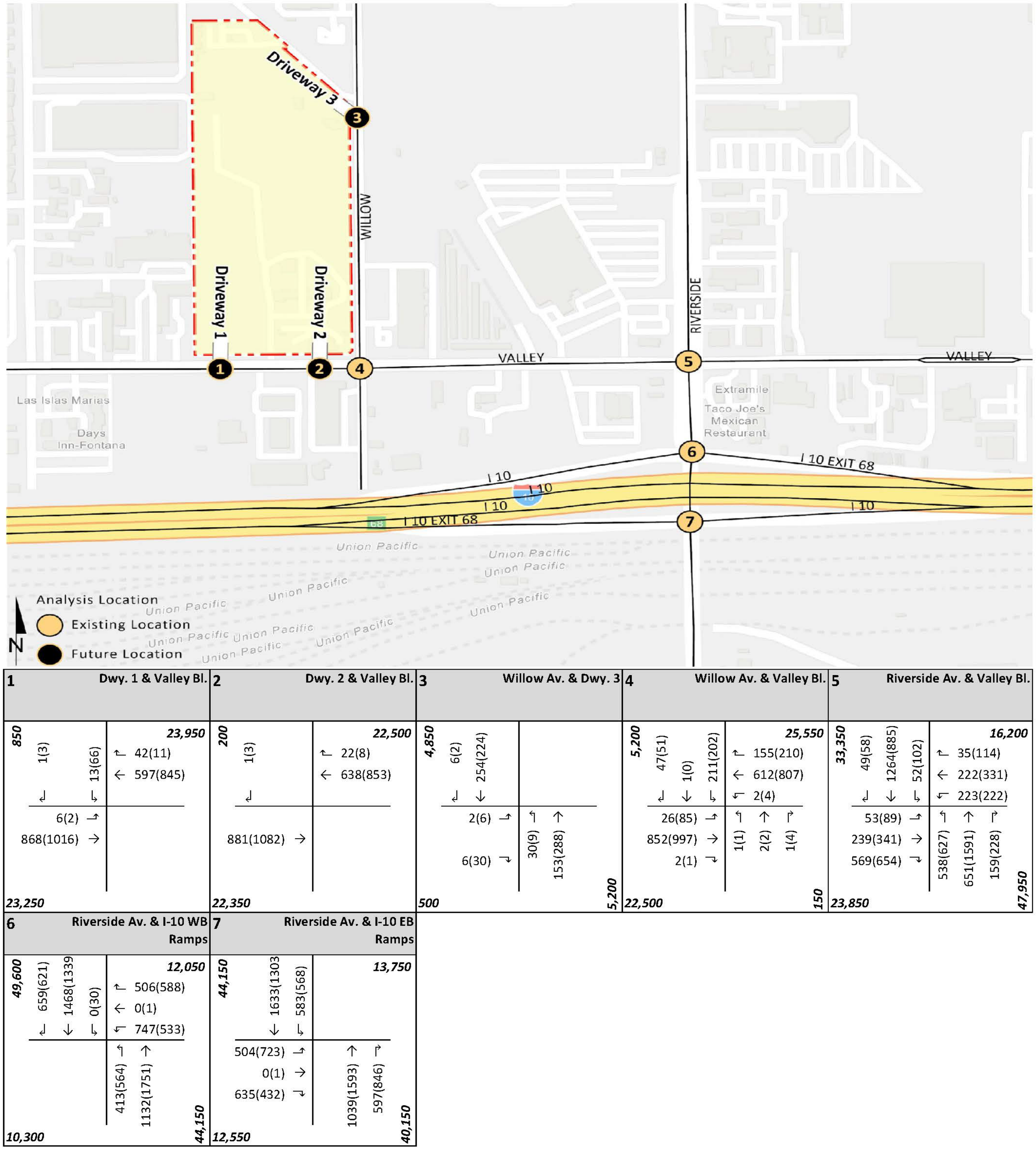
6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC (2023) traffic conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown on Table 6-1, the following study area intersections are anticipated to operate at an unacceptable LOS under EAPC (2023) traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F AM and PM peak hours
- Riverside Avenue & I-10 WB Ramps (#6) – LOS E AM peak hour only
- Riverside Avenue & I-10 EB Ramps (#7) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for EAPC (2023) traffic conditions are included in Appendix 6.1.

EXHIBIT 6-1: EAPC (2023) TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

TABLE 6-1: INTERSECTION ANAL YSIS FOR EAPC (2023) CONDITIONS

#	Intersection	Traffic Control[2]	EAPC (2023) Delay[1] (secs.) AM	PM	Level of Service AM	PM
1	Driveway 1 & Valley Blvd.	**CSS**	16.1	29.1	C	D
2	Driveway 2 & Valley Blvd.	**CSS**	11.2	11.9	B	B
3	Willow Av. & Driveway 3	**CSS**	10.4	10.3	B	B
	-Alternative Access	**CSS**	10.4	10.3	B	B
4	Willow Av. & Valley Blvd.	TS	12.6	14.6	B	B
5	Riverside Av. & Valley Blvd.	TS	**164.6**	**191.8**	**F**	**F**
6	Riverside Av. & I-10 WB Ramps	TS	**65.3**	54.8	**E**	D
7	Riverside Av. & I-10 EB Ramps	TS	**87.5**	**123.9**	**F**	**F**

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

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

2 CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

6.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrant analysis has been conducted on all future Project driveways for EAPC traffic conditions. Based on the posted speed limits, the driveways on Valley Boulevard have utilized the Rural ADT-based traffic signal warrant and the driveway on Willow Avenue has utilized the Urban ADT-based traffic signal warrant. None of the Project driveways are anticipated to meet the planning level, ADT-based traffic signal warrant for EAPC (2023) traffic conditions (see Appendix 6.2).

6.5 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Rialto Traffic Study Guidelines provide roadway volume capacity values. These roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 6-2 provides a summary of the EAPC (2023) conditions roadway segment capacity analysis based on the City of Rialto Roadway Capacity Thresholds. As shown in Table 6-2, both study area roadway segments are anticipated to operate at an acceptable LOS under EAPC (2023) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria.

TABLE 6-2: ROADWAY SEGMENT ANALYSIS FOR EAPC (2023) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	EAPC (2023)	V/C[2]	LOS[3]
1	Valley Blvd.	West of Willow Av.	4U	36,000	24,297	0.67	B
2		Willow Av. to Riverside Av.	4U	36,000	27,840	0.77	C

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

6.6 QUEUING ANALYSIS

Queuing analysis findings for EAPC (2023) are presented on Table 6-3. As shown on Table 6-3, the turning movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under EAPC traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) EBR – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & Valley Boulevard (#4) NBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & I-10 Westbound Ramps (#6) NBL – AM and PM peak hours
- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours (consistent with Existing)

Worksheets for EAPC (2023) traffic conditions queuing analysis are provided in Appendix 6.3.

TABLE 6-3: PEAK HOUR QUEUING SUMMARY FOR EAPC (2023) CONDITIONS

Intersection	Movement	Available Stacking Distance (Feet)	EAPC (2023)			
			95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Willow Av. & Valley Blvd.	EBL	165	19	44	Yes	Yes
	EBR	140	0	0	Yes	Yes
	WBL	130	4	5	Yes	Yes
	WBR	240	76	104	Yes	Yes
	NBL	110	4	4	Yes	Yes
Riverside Av. & Valley Blvd.	EBL	150	89	130	Yes	Yes
	EBR	375	625 [2]	905 [2]	**No**	**No**
	WBL	210	495 [2]	428 [2]	**No**	**No**
	WBR	180	0	42	Yes	Yes
	NBL	265	585 [2]	557 [2]	**No**	**No**
	SBL	240	86	145	Yes	Yes
Riverside Av. & I-10 WB Ramps	WBL	1,935	573 [2]	501 [2]	Yes	Yes
	WBL/T/R	445	539 [2]	518 [2,3]	Yes	Yes
	WBR	400	461 [2]	389 [2]	Yes	Yes
	NBL	160	270 [2]	295 [2]	**No**	**No**
	SBR	205	201	211	Yes	Yes
Riverside Av. & I-10 EB Ramps	EBL	1,245	554 [2]	572 [2]	Yes	Yes
	EBL/T/R	2,725	495 [2]	578 [2]	Yes	Yes
	EBR	425	453 [2,3]	465 [2,3]	Yes	Yes
	SBL	205	340 [2]	358 [2]	**No**	**No**

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An

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

[3] Although 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 I-10 Freeway mainline.

6.7 RECOMMENDED IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the City of Rialto and County of San Bernardino deficiency criteria discussed in Section 2.7 *Deficiency Criteria*, the following intersections were found to be deficient.

6.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the recommended improvement strategies to address EAPC (2023) traffic deficiencies are presented on Table 6-4. The Project Applicant shall restripe the improvement identified at the intersection of Riverside Avenue and Valley Boulevard (see Section 5.7) and shall contribute to the other remaining improvements through payment of regional DIF fees or fair share contribution as identified on Table 1-3. Worksheets for EAPC (2023) conditions, with improvements, HCM calculation worksheets are provided in Appendix 6.5.

TABLE 6-4: INTERSECTION ANALYSIS FOR EAPC (2023) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
		Traffic	Northbound			Southbound			Eastbound			Westbound						
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
5	Riverside Av. & Valley Blvd.																	
	- Without Improvements	TS	2	3	0	1	3	0	1	2	1	1	2	1	**160.2**	**190.9**	**F**	**F**
	- With Improvements[6]	TS	2	3	0	1	3	0	1	**1**	**2**	1	2	1	60.6	49.8	E	D
6	Riverside Av. & I-10 WB Ramps																	
	- Without Improvements[4,5]	TS	2	3	0	0	4	1	0	0	0	1	1	1	**65.4**	54.8	**E**	D
	- With Improvements[4,5]	TS	2	3	0	0	4	1	0	0	0	1	1	1	41.8	32.9	D	C
7	Riverside Av. & I-10 EB Ramps																	
	- Without Improvements[4]	TS	0	3	0	2	2	0	1	1	1	0	0	0	**107.4**	**174.5**	**F**	**F**
	- With Improvements[4]	TS	0	3	**1**	2	2	0	1	1	1	0	0	0	37.1	41.1	D	D

[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; > = Right-Turn Overlap Phasing; >> = Free-right turn lane **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; **TS** = Improvement

[4] Improvement consists of modifying the cycle length to 120-seconds.

[5] Improvement consists of restriping the southbound approach to restripe number 4 lane as a shared through-right turn lane.

[6] Project to restripe the number 2 EB lane to restripe as a shared through-right turn lane.

6.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

As shown previously on Table 6-2, there are no roadway segment deficiencies anticipated for EAPC (2023) traffic conditions. As such, no improvements have been recommended.

6.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES FOR QUEUES

Table 6-5 shows the peak hour queuing summary, assuming the intersection improvements identified in Table 6-4. As shown in Table 6-5, the queues are anticipated to improve, however the northbound left turn lane is anticipated to continue to experience queuing issues. Given the proximity of the adjacent intersection and freeway to Riverside Avenue & Valley Boulevard, it is not feasible to lengthen the northbound left turn pocket although the queuing is anticipated to improve from Existing traffic conditions with the implementation of the improvements identified in Table 6-4. The signal timing modifications discussed in Section 5.7.1 may improve the northbound left turn queue once the restriping has been implemented. Worksheets for EAPC (2023) traffic conditions queuing analysis are provided in Appendix 6.6 (with improvements).

TABLE 6-5: PEAK HOUR QUEUING SUMMARY FOR EAPC (2023) CONDITIONS WITH IMPROVEMENTS

Intersection	Movement	Available Stacking Distance (Feet)	EAPC			
			95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Riverside Av. & Valley Blvd.	EBL	150	92	127	Yes	Yes
	EBR	375	143	168	Yes	Yes
	WBL	515	466 [2]	398 [2]	Yes	Yes
	WBR	180	0	32	Yes	Yes
	NBL	265	**485** [2]	**422** [2]	**No**	**No**
	SBL	240	88	210 [2]	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

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

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7 HORIZON YEAR (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, roadway segment, and queuing analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2022) 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 Horizon Year only (e.g., intersection and roadway improvements along 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 Horizon Year conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.

7.2 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM (see Section 4.7 *Horizon Year (2040) Volume Development* of this TA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-process volumes obtained from the SBTAM, plus the traffic generated by the proposed Project (Project Buildout). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibit 7-2.

EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES

1 Dwy. 1 & Valley Bl.

900 · *26,350*

← 613(911)

919(1088) →

25,600

2 Dwy. 2 & Valley Bl.

200 · *24,750*

← 613(911)

919(1088) →

24,600

3 Willow Av. & Dwy. 3

5,300

277(245) ↓

167(314) ↑

550 · *5,700*

4 Willow Av. & Valley Bl.

6,000 · *28,100*

49(55) · 2(0) ↓ · 226(190)

137(222)
← 563(854)
4(8)

28(90)
887(996) →
4(2)

↑ 1(2) · 2(3) · 1(6)

24,750 · *200*

5 Riverside Av. & Valley Bl.

36,700 · *17,850*

38(68) · 1444(974) ↓ · 57(112)

38(127)
← 226(357)
245(244)

47(101)
248(360) →
595(611)

↑ 483(657) · 716(1750) · 175(251)

26,250 · *54,450*

6 Riverside Av. & I-10 WB Ramps

54,550 · *13,250*

716(628) · 1709(1463) ↓ · 0(33)

513(634)
← 0(1)
822(587)

↑ 454(621) · 1180(1906)

11,350 · *54,850*

7 Riverside Av. & I-10 EB Ramps

54,850 · *15,100*

1893(1445) ↓ · 638(605)

502(780)
0(1) →
698(475)

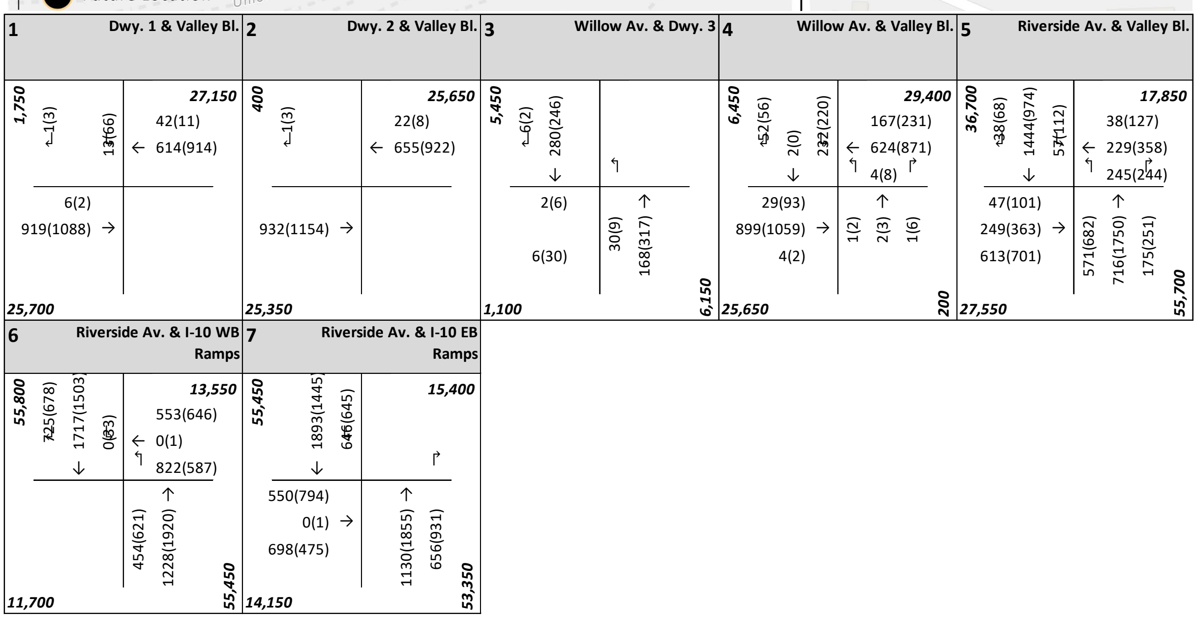
↑ 1130(1855) · 656(931)

13,800 · *53,350*

##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

EXHIBIT 7-2: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES



##(##) AM(PM) Peak Hour Intersection Volumes

Average Daily Trips

7.4 INTERSECTION OPERATIONS ANALYSIS

7.4.1 HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year (2040) Without Project conditions with roadway and intersection geometrics consistent with Section 7.1 *Roadway Improvements*. As shown on Table 7-1, the following study area intersections are anticipated to operate at an unacceptable LOS under Horizon Year (2040) Without Project traffic conditions:

- Riverside Avenue & Valley Boulevard (#5) – LOS F AM and PM peak hours
- Riverside Avenue & I-10 WB Ramps (#6) – LOS F AM peak hour; LOS E PM peak hour
- Riverside Avenue & I-10 EB Ramps (#7) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for Opening Year Cumulative Without Project traffic conditions are included in Appendix 7.1.

7.4.2 HORIZON YEAR (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown on Table 7-1, there are no additional study area intersections anticipated to operate at a deficient LOS during one or both peak hours for Horizon Year (2040) With Project traffic conditions, in addition to the locations identified above for Horizon Year (2040) Without Project traffic conditions. The intersection operations analysis worksheets for Horizon Year (2040) With Project traffic conditions are included in Appendix 7.2 of this TA.

TABLE 7-1: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS

			2040 Without Project				2040 With Project				Difference in Delay	
		Traffic	Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service			
#	Intersection	Control[2]	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Driveway 1 & Valley Blvd.	CSS	Future Intersection				16.6	18.0	C	C	----	----
2	Driveway 2 & Valley Blvd.	CSS	Future Intersection				11.4	12.3	B	B	----	----
3	Willow Av. & Driveway 3	CSS	Future Intersection				10.7	10.6	B	B	----	----
	-Alternative Access	CSS	Future Intersection				10.6	10.6	B	B	----	----
4	Willow Av. & Valley Blvd.	TS	13.0	25.2	B	C	13.6	25.8	B	C	0.6	0.6
5	Riverside Av. & Valley Blvd.	TS	**150.4**	**>200.0**	**F**	**F**	**193.2**	**>200.0**	**F**	**F**	**42.8**	----
6	Riverside Av. & I-10 WB Ramps	TS	**84.4**	**55.6**	**F**	**E**	**88.3**	**69.4**	**F**	**E**	**3.9**	**13.8**
7	Riverside Av. & I-10 EB Ramps	TS	**122.0**	**152.7**	**F**	**F**	**122.0**	**164.1**	**F**	**F**	0.0	**11.4**

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

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are

2 CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; **<u>TS</u>** = Improvement

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

All of the existing intersections are currently signalized and only the future Project driveways would be unsignalized. As such, traffic signal warrant analysis has not been performed for Horizon Year (2040) Without Project traffic conditions.

Traffic signal warrant analysis has been conducted on all future Project driveways for Horizon Year (2040) With Project traffic conditions. Based on the posted speed limits, the driveways on Valley Boulevard have utilized the Rural ADT-based traffic signal warrant and the driveway on Willow Avenue has utilized the Urban ADT-based traffic signal warrant. None of the Project driveways are anticipated to meet the planning level, ADT-based traffic signal warrant for Horizon Year (2040) With Project traffic conditions (see Appendix 7.3).

7.6 ROADWAY SEGMENT CAPACITY ANALYSIS

The City of Rialto Traffic Study Guidelines provide roadway volume capacity values. These roadway segment capacities are approximate figures only and are used at the General Plan level to assist in determining the roadway functional classification (number of through lanes) needed to meet traffic demand. Table 7-2 provides a summary of the Horizon Year (2040) conditions roadway segment capacity analysis based on the City of Rialto Roadway Capacity Thresholds. As shown in Table 7-2, both study area roadway segments are anticipated to operate at an unacceptable LOS under EAPC (2023) traffic conditions based on the City's planning level daily roadway capacity thresholds and minimum LOS criteria.

TABLE 7-2: ROADWAY SEGMENT ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS

#	Roadway	Segment Limits	Roadway Section	LOS Capacity[1]	2040 Without Project	V/C[2]	LOS[3]	2040 With Project	V/C[2]	LOS[3]
1	Valley Blvd.	West of Willow Av.	4U	36,000	24,497	0.68	B	26,413	0.73	C
2		Willow Av. to Riverside Av.	4U	36,000	28,974	0.80	C	30,272	0.84	D

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

[1] These maximum roadway capacities assume 9,000 vehicles per lane per day for arterials.

[2] V/C = Volume to Capacity Ratio

[3] LOS = Level of Service

7.7 QUEUING ANALYSIS

Queuing analysis findings for Horizon Year (2040) are presented on Table 7-3. As shown on Table 7-3, the turning movements are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Horizon Year (2040) Without Project traffic conditions:

- Riverside Avenue & Valley Boulevard (#4) EBR – AM and PM peak hours
- Riverside Avenue & Valley Boulevard (#4) WBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & Valley Boulevard (#4) NBL – AM and PM peak hours (consistent with Existing)
- Riverside Avenue & I-10 Westbound Ramps (#6) NBL – AM and PM peak hours
- Riverside Avenue & I-10 Westbound Ramps (#6) SBR – AM peak hour only

- Riverside Avenue & I-10 Eastbound Ramps (#7) SBL – AM and PM peak hours (consistent with Existing)

With the addition of Project traffic, only the southbound right turn movement at Riverside Avenue and the I-10 Westbound Ramps is anticipated to go from acceptable to deficient (and only during the PM peak hour). Worksheets for Horizon Year (2040) Without and With Project traffic conditions queuing analysis are provided in Appendix 7.4 and Appendix 7.5, respectively.

TABLE 7-3: PEAK HOUR QUEUING SUMMARY FOR HORIZON YEAR (2040) CONDITIONS

		Available Stacking Distance	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
Intersection	**Movement**	**(Feet)**	**AM Peak Hour**	**PM Peak Hour**	**AM**	**PM**	**AM Peak Hour**	**PM Peak Hour**	**AM**	**PM**
Willow Av. & Valley Blvd.	EBL	165	21	50	Yes	Yes	22	59	Yes	Yes
	EBR	140	0	0	Yes	Yes	0	0	Yes	Yes
	WBL	130	6	9	Yes	Yes	6	10	Yes	Yes
	WBR	240	61	160	Yes	Yes	87	137	Yes	Yes
	NBL	110	4	8	Yes	Yes	4	7	Yes	Yes
Riverside Av. & Valley Blvd.	EBL	150	80	144	Yes	Yes	80	144	Yes	Yes
	EBR	375	661 [2]	696 [2]	**No**	**No**	722 [2]	1,011 [2]	**No**	**No**
	WBL	210	548 [2]	474 [2]	**No**	**No**	548 [2]	474 [2]	**No**	**No**
	WBR	180	0	44	Yes	Yes	0	44	Yes	Yes
	NBL	265	464 [2]	571 [2]	**No**	**No**	623 [2]	612 [2]	**No**	**No**
	SBL	240	93	168 [2]	Yes	Yes	93	168 [2]	Yes	Yes
Riverside Av. & I-10 WB Ramps	WBL	1,935	633 [2]	556 [2]	Yes	Yes	648 [2]	569 [2]	Yes	Yes
	WBL/T/R	445	584 [2,3]	585 [2,3]	Yes	Yes	616 [2,3]	593 [2,3]	Yes	Yes
	WBR	400	462 [2,3]	444 [2,3]	Yes	Yes	522 [2,3]	452 [2,3]	Yes	Yes
	NBL	160	314 [2]	343 [2]	**No**	**No**	314 [2]	343 [2]	**No**	**No**
	SBR	205	335 [2]	165	**No**	Yes	357 [2]	357 [2]	**No**	**No**
Riverside Av. & I-10 EB Ramps	EBL	1,245	588 [2]	627 [2]	Yes	Yes	627 [2]	638 [2]	Yes	Yes
	EBL/T/R	2,725	534 [2]	646 [2]	Yes	Yes	567 [2]	654 [2]	Yes	Yes
	EBR	425	502 [2]	509 [2,3]	Yes	Yes	525 [2]	527 [2]	Yes	Yes
	SBL	205	373 [2]	358 [2]	**No**	**No**	382 [2]	396 [2]	**No**	**No**

[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 on this table, where applicable.

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

[3] Although 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 I-10 Freeway mainline.

7.8 DEFICIENCIES AND IMPROVEMENTS

This section provides a summary of deficiencies, based on the City of Rialto's deficiency criteria discussed in Section 2.7 *Deficiency Criteria*, and improvements needed to improve operations back to acceptable levels.

7.8.1 IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the recommended improvement strategies to address Horizon Year (2040) traffic deficiencies are presented in Table 7-4. Worksheets for Horizon Year (2040) Without and With Project conditions, with improvements, HCM calculation worksheets are provided in Appendices 7.6 and 7.7, respectively.

TABLE 7-4: INTERSECTION ANALYSIS FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS

			Intersection Approach Lanes[1]												Delay[2]		Level of	
		Traffic	Northbound			Southbound			Eastbound			Westbound			(secs.)		Service	
#	Intersection	Control[3]	L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
5	Riverside Av. & Valley Blvd.																	
	- Without Project[4]	TS	2	3	0	1	3	0	1	**1**	**2**	1	2	1	50.4	53.0	D	D
	- With Project[4]	TS	2	3	0	1	3	0	1	**1**	**2**	1	2	1	64.5	71.7	E	E
6	Riverside Av. & I-10 WB Ramps																	
	- Without Project[5,6]	TS	2	3	0	0	4	1	0	0	0	1	1	1	51.6	39.7	D	D
	- With Project[5,6]	TS	2	3	0	0	4	1	0	0	0	1	1	1	53.2	40.4	D	D
7	Riverside Av. & I-10 EB Ramps																	
	- Without Project[5]	TS	0	3	**1**	2	2	0	1	1	1	0	0	0	47.1	48.2	D	D
	- With Project[5]	TS	0	3	**1**	2	2	0	1	1	1	0	0	0	54.1	54.5	D	D

[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; > = Right-Turn Overlap Phasing; **1** = Improvement

[2] Per the Highway Capacity Manual 6th Edition, overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] TS = Traffic Signal; **TS** = Improvement

[4] Project to restripe the number 2 EB lane to restripe as a shared through-right turn lane.

[5] Improvement also consists of modifying the cycle length to 130-seconds.

[6] Improvement consists of restriping the southbound approach to restripe number 4 lane as a shared through-right turn lane.

7.8.2 IMPROVEMENTS TO ADDRESS DEFICIENCIES ON ROADWAY SEGMENTS

As shown previously on Table 6-2, there are no roadway segment deficiencies anticipated for EAPC (2023) traffic conditions. As such, no improvements have been recommended.

7.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES FOR QUEUES

Table 7-5 shows the peak hour queuing summary, assuming the intersection improvements identified in Table 7-4. As shown in Table 7-5, the queues are anticipated to improve, however the northbound left turn lane is anticipated to continue to experience queuing issues. Given the proximity of the adjacent intersection and freeway to Riverside Avenue & Valley Boulevard, it is not feasible to lengthen the northbound left turn pocket although the queuing is anticipated to improve from Existing traffic conditions with the implementation of the improvements identified in Table 7-4. The signal timing modifications discussed in Section 5.7.1 may improve the northbound left turn queue once the restriping has been implemented. Worksheets for Horizon

Year (2040) Without and With Project traffic conditions, with improvements, queuing analysis are provided in Appendix 7.8 and Appendix 7.9, respectively.

TABLE 7-5: PEAK HOUR QUEUING SUMMARY FOR HORIZON YEAR (2040) CONDITIONS WITH IMPROVEMENTS

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 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
Riverside Av. & Valley Blvd.	EBL	150	81	139	Yes	Yes	81	139	Yes	Yes
	EBR	375	132	98	Yes	Yes	152	197	Yes	Yes
	WBL	515	511 [2]	445 [2]	Yes	Yes	511 [2]	445 [2]	Yes	Yes
	WBR	180	0	42	Yes	Yes	0	42	Yes	Yes
	NBL	265	**348** [2]	**436** [2]	**No**	**No**	**498** [2]	**475** [2]	**No**	**No**
	SBL	240	95	236 [2]	Yes	Yes	95	236 [2]	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 on this table, where applicable.

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

8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Rialto are funded through a combination of direct project mitigation, development impact fee programs or fair share contributions, such as the City of Rialto Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

8.1 CITY OF RIALTO DEVELOPMENT IMPACT FEE PROGRAM

In 2006, the City of Rialto adopted their DIF program incorporating the regional component of Measure I. The fee schedule was updated in June 2020. Fees from new residential, commercial and industrial development are collected to fund Measure I compliant regional facilities. Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program.

After the City's DIF fees are collected, they are placed in a separate interest-bearing account pursuant to the requirements of Government Code sections 66000 *et seq*. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of the improvements listed in its facilities list.

8.2 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by the SBCTA and concluded that each jurisdiction should include a regional fee component in their local programs in order to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in November 2011. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study. While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past and will continue to fund new transportation facilities in San Bernardino County.

8.3 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs, construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, has been provided on Table 8-1 for the applicable deficient study area intersections.

As discussed previously in Section 1.6 *Recommendations*, based on the Project fair share percentages shown in Table 8-1, the Project shall pay the following fair share for the improvements identified in Table 1-4:

- City of Rialto: $13,129
- Caltrans: $13,129

TABLE 8-1: PROJECT FAIR SHARE CALCULATIONS

#	Intersection		Existing	Project	2040 With Project	Total New Traffic	Project % of New Traffic[1]
6	Riverside Av. & I-10 WB Ramps						
		AM:	4,155	193	6,211	2,056	9.4%
		PM:	4,458	213	6,605	2,147	**9.9%**
7	Riverside Av. & I-10 EB Ramps						
		AM:	4,238	106	6,676	2,438	**4.3%**
		PM:	4,540	97	6,961	2,421	4.0%

BOLD = Highest fair share percentage is highlighted.

Note: Volumes based on PCE.

9 REFERENCES

1. **City of Rialto Public Works Department.** *Traffic Impact Analysis Report Guidelines and Requirements.* City of Rialto : s.n., December 2013 (Adopted February 5, 2014).
2. **County of San Bernardino.** *Transportation Impact Study Guidelines.* County of San Bernardino : s.n., July 9, 2019.
3. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.
4. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
5. **City of Rialto.** *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS).* October 2021.
6. **Institute of Transportation Engineers (ITE).** *Trip Generation Manual.* 9th Edition. 2012.
7. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
8. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (CA MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CA MUTCD).* 2014.

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