



Foothill Apartments

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	Foothill Apartments
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 Foothill Apartments development (“Project”), which is located at 534 Foothill Boulevard in the City of Rialto. The Project’s location in relation to the surrounding area is shown on Exhibit 1-1.

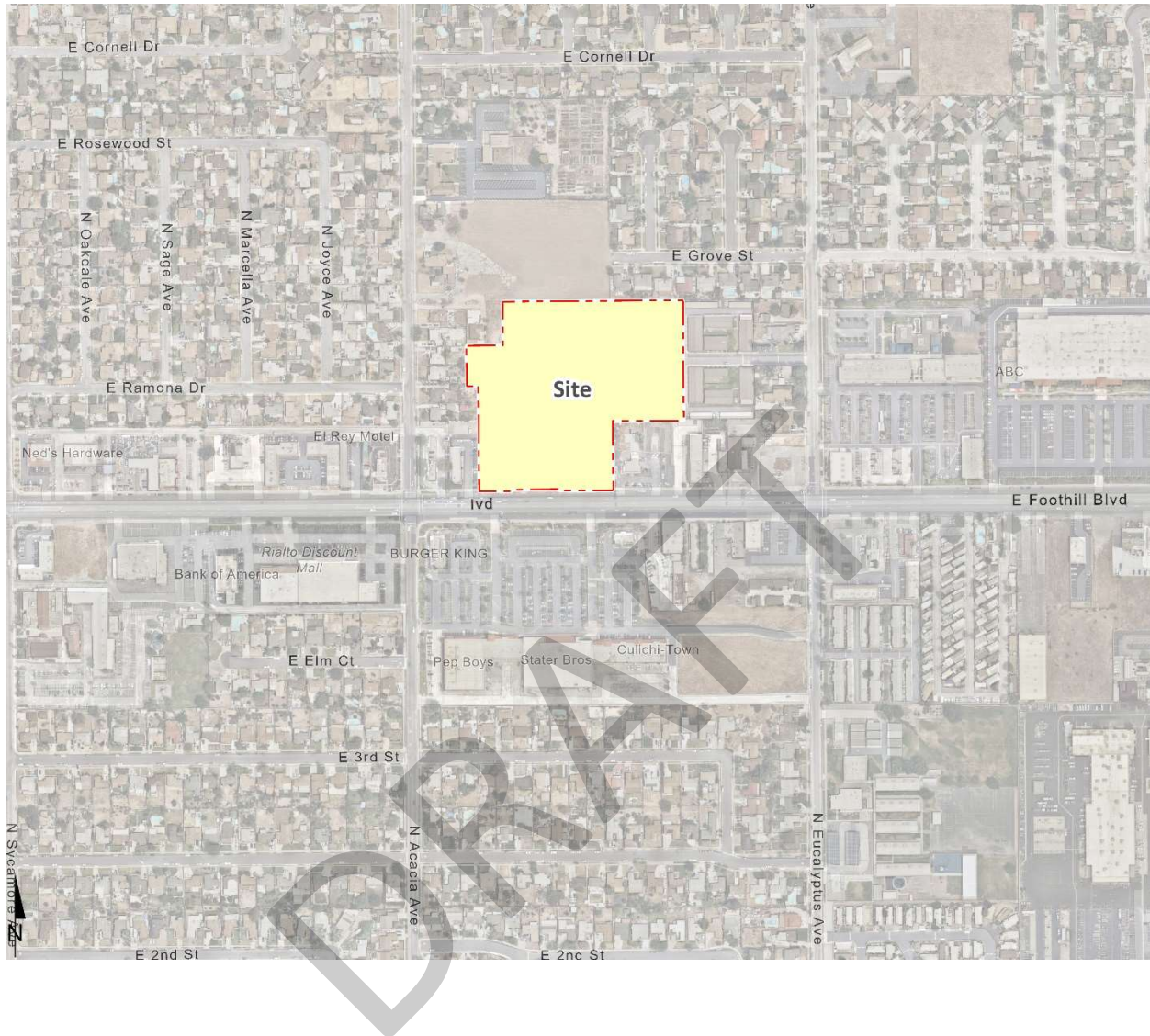
The purpose of this TA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and where necessary recommend improvements to achieve acceptable operations consistent with General Plan level of service goals and policies. This TA has been 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 require all lead agencies to adopt Vehicle Miles Traveled (VMT) as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. It is our understanding that the City of Rialto utilizes the San Bernardino County Transportation Authority (SBCTA) Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment and VMT Screening Tool. The Screening Tool allows users to input 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 Governor’s Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (Project APNs: 0254+-261-14, 0254-261-17, 0132-201-03, and 0132-181-01). The Project was found to meet the Low VMT area screening criteria. As the City of Rialto is currently developing agency specific VMT guidelines and thresholds, the Project’s VMT impact is anticipated to be less than significant based on the current San Bernardino County guidance, however, this may be subject to change once the City adopts its own VMT methodology and thresholds. 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:

- Project to construct Foothill Boulevard (SR-66) at its ultimate half-width as a Modified Major Arterial I (120-foot right-of-way) from the western Project boundary to the eastern Project boundary consistent with the City’s standards. Project to design Driveway 1 to restrict access to right-in/right-out. Project will have full access at Driveway 2.

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

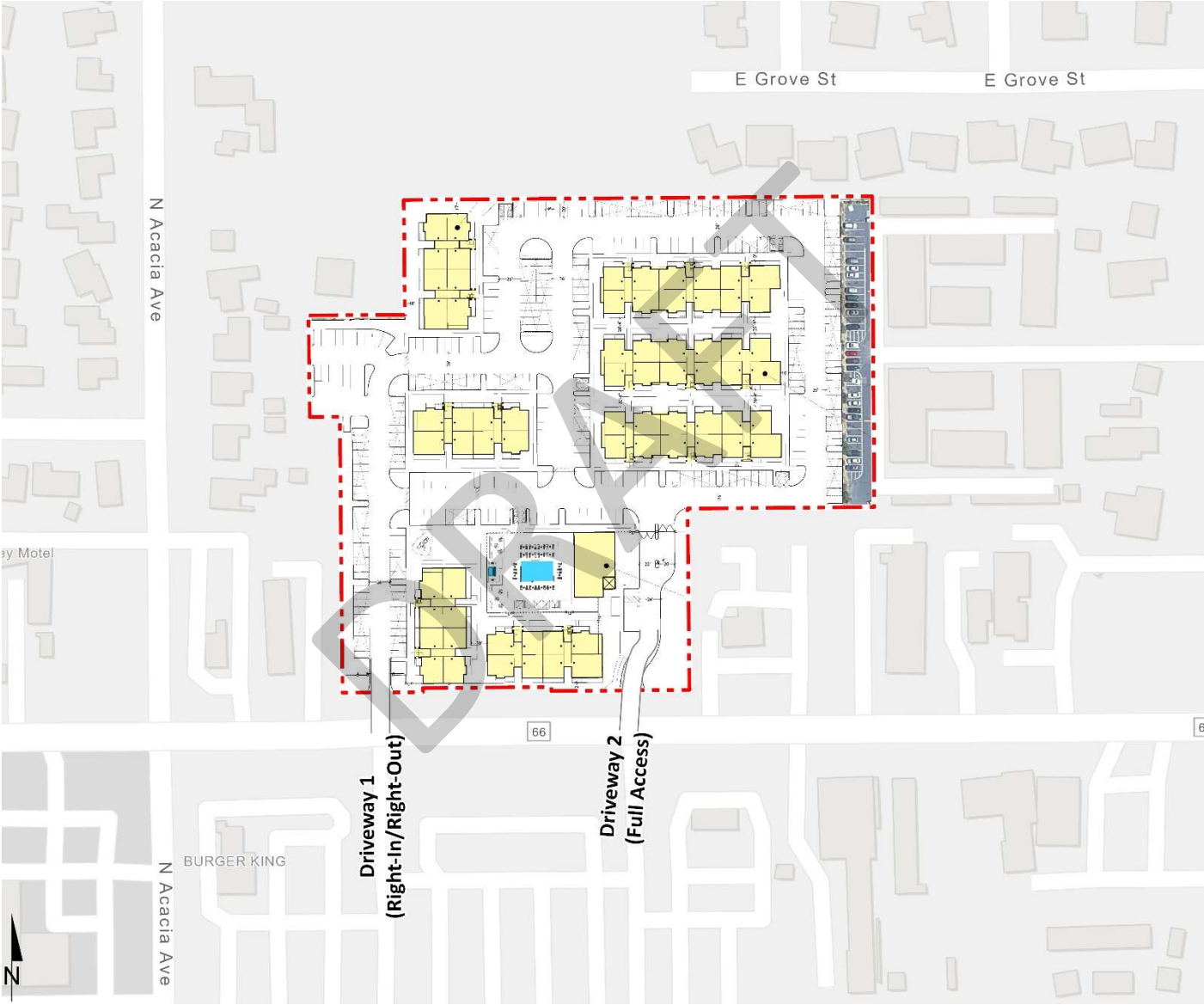
Exhibit 1-2 illustrates the preliminary Project site plan. The Project is proposed to consist of 204 multifamily mid-rise (3-10 floor) residential dwelling units. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024. For the purpose of this analysis, the following driveways will be assumed to provide access to the Project site:

- Driveway 1 on Foothill Boulevard – Right-in/Right-out Only Access; note this future driveway is for resident access only (entry/exit)
- Driveway 2 on Foothill Boulevard Avenue – Full Access (aligns with existing driveway to the south)

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. (4) 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 1,110 two-way vehicle trips per day, with 73 AM peak hour trips and 90 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) (2024)
- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2024)

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.

1.3.2 EAP (2024) 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 6.12% is included for EAP (2024) 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 (2024) 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 6.12% is included for EAPC (2024) traffic conditions. The ambient growth is consistent with the growth used by other projects in the area. This comprehensive list was compiled from information provided by the City of Rialto and other near-by agencies.

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.

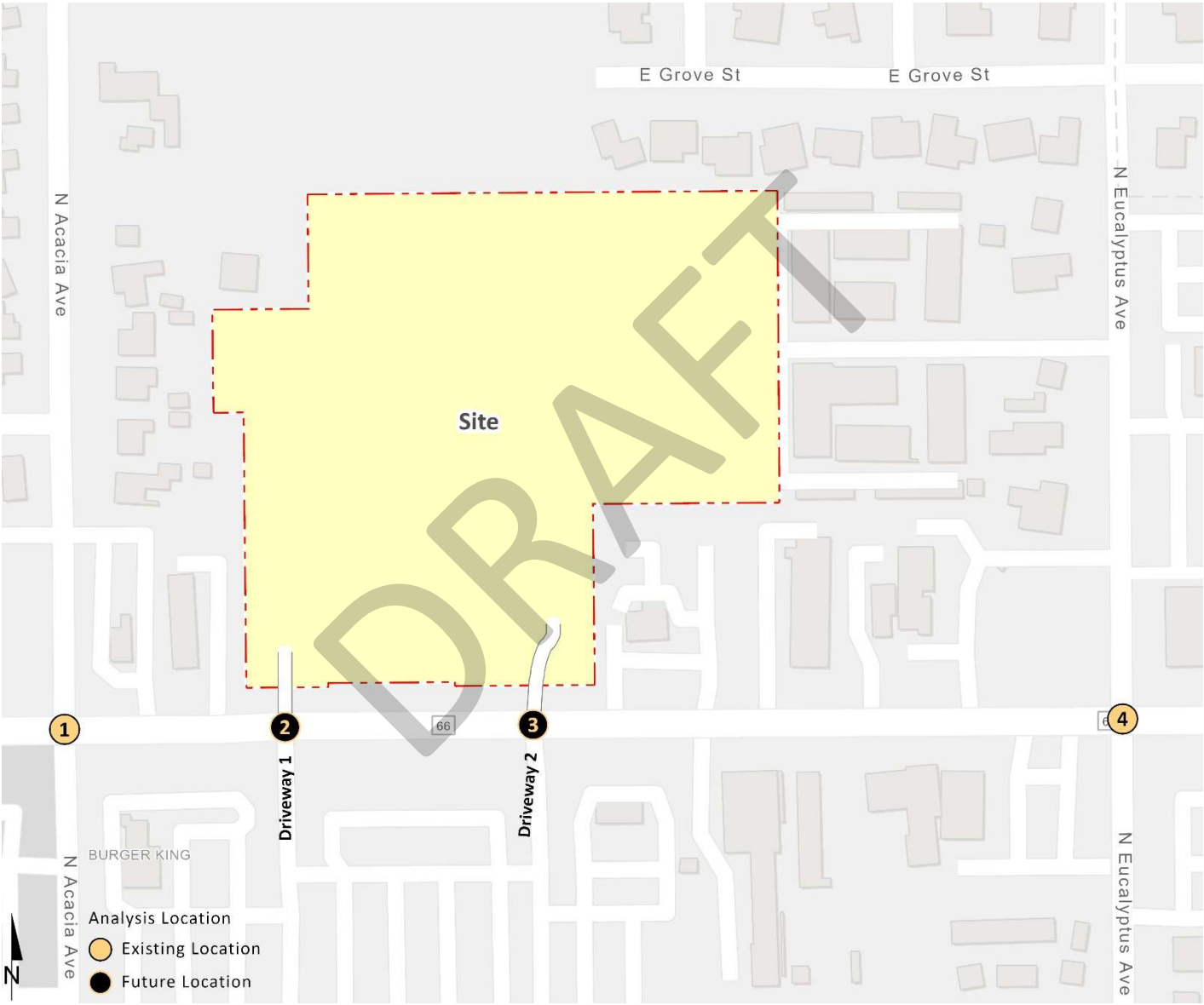
The following 4 study area intersections shown on Exhibit 1-2 and listed on Table 1-1 were selected for this TA based on consultation with City of Rialto staff. The "50 peak hour trip" criterion generally represents a minimum number of trips at which a typical intersection would have the potential to 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	Acacia Avenue & Foothill Boulevard	Rialto	No
2	Driveway 1 & Foothill Boulevard – Future Intersection	Rialto	No
3	Driveway 2 & Foothill Boulevard	Rialto	No
4	Eucalyptus Avenue & Foothill Boulevard	Rialto	No

The intent of a Congestion Management Program (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. There are no study area intersections that are identified as CMP facilities per the SBCTA CMP (see Table 1-1). (3)

EXHIBIT 1-3: STUDY AREA



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 (2024) Traffic Conditions*, Section 6 *EAPC (2024) 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

#	Intersection	Existing (2021)		EAP (2024)		EAPC (2024)	
		AM	PM	AM	PM	AM	PM
1	Acacia Ave. & Foothill Blvd.	●	●	●	●	●	●
2	Driveway 1 & Foothill Blvd.	●	●	●	●	●	●
3	Driveway 2 & Foothill Blvd.	●	●	●	●	●	●
4	Eucalyptus Ave. & Foothill Blvd.	●	●	●	●	●	●

● = A - D ● = E ● = F

1.5.1 EXISTING (2021) CONDITIONS

The study area intersections all currently operate at an acceptable LOS during peak hours under Existing (2021) traffic conditions.

1.5.2 EAP (2024) CONDITIONS

The following study area intersection is anticipated to operate at an unacceptable LOS during one or more peak hours under EAP (2024) traffic conditions:

- Driveway 2 & Foothill Boulevard (#3) – LOS E AM and PM peak hours

1.5.3 EAPC (2024) CONDITIONS

The following study area intersection is anticipated to operate at an unacceptable LOS during one or more peak hours under EAPC (2024) traffic conditions:

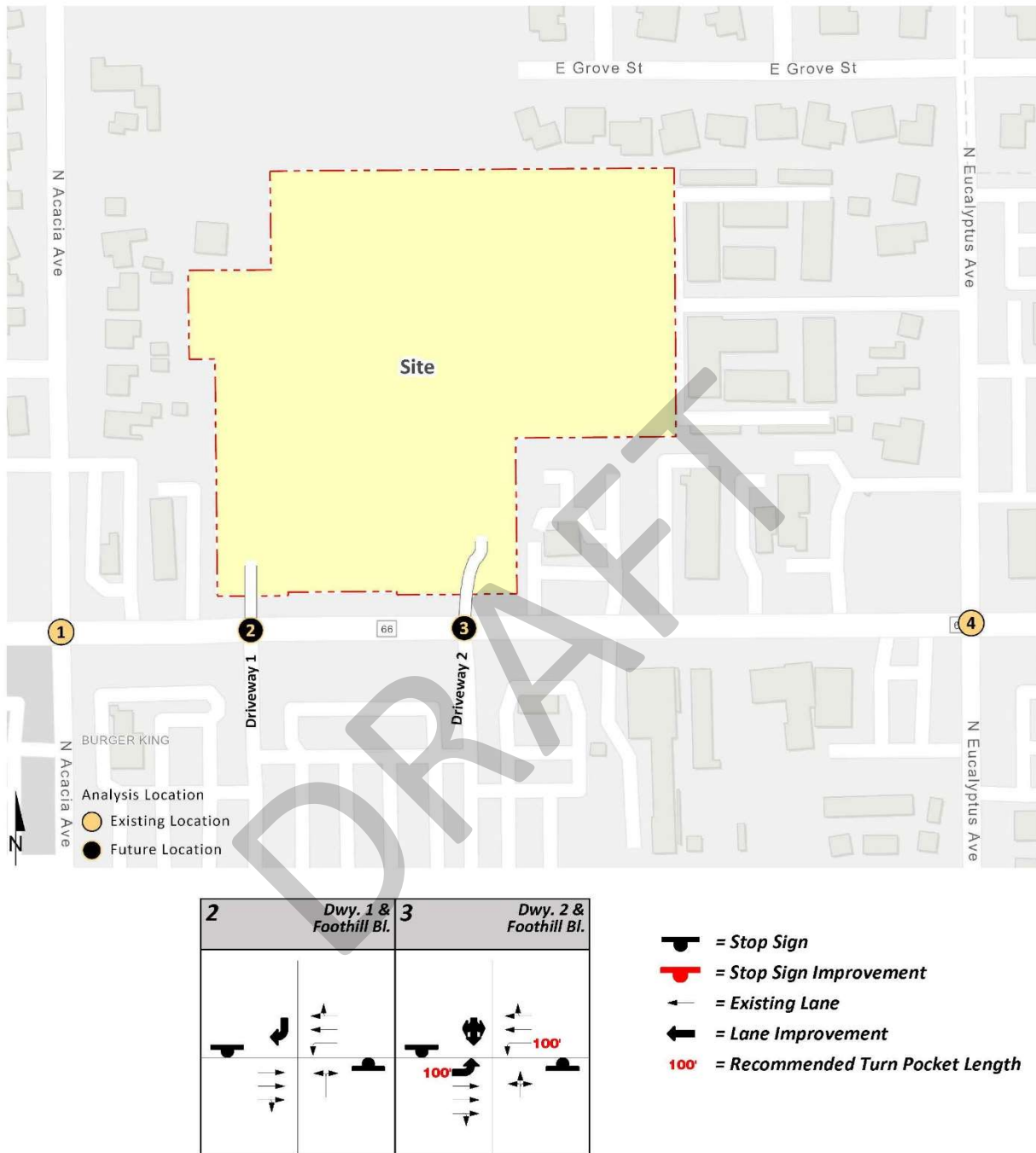
- Driveway 2 & Foothill Boulevard (#3) – LOS E AM and PM peak hours

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 is provided in Appendix 1.3.

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



Recommendation 1 – Driveway 1 & Foothill 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 designed to restrict access to right-in/right-out only.

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

- Project to install a stop sign on the southbound approach and construct a shared left-through-right turn lane. Driveway aligns with an existing driveway on the south side of Foothill Boulevard and will allow for full access.

Recommendation 3 – Foothill Boulevard is an east-west oriented roadway located on the Project's southern boundary. Project to construct Foothill Boulevard at its ultimate half-width as a Modified Major Arterial I (120-foot right-of-way) from the western Project boundary to the eastern Project boundary consistent with the City's standards.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are 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. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Rialto requires signalized intersection operations analysis based on the methodology described in the HCM. (5) 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), $V/C \leq 1.0$	Level of Service, $V/C \leq 1.0$	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., $PHF = [\text{Hourly Volume}] / [4 \times \text{Peak 15-minute Flow Rate}]$). 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. (5)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Rialto requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM. (5) 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). (6)

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. (6) 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
3	Driveway 2 & Foothill Bl.	Rialto

Although unsignalized, the future intersection of Driveway 1 & Foothill 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. 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 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

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 Drive south of the Metrolink tracks to the City's southern border, which can operate at LOS E.

2.5 DEFICIENCY CRITERIA

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

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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 and traffic signal warrant 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:

- Foothill Boulevard

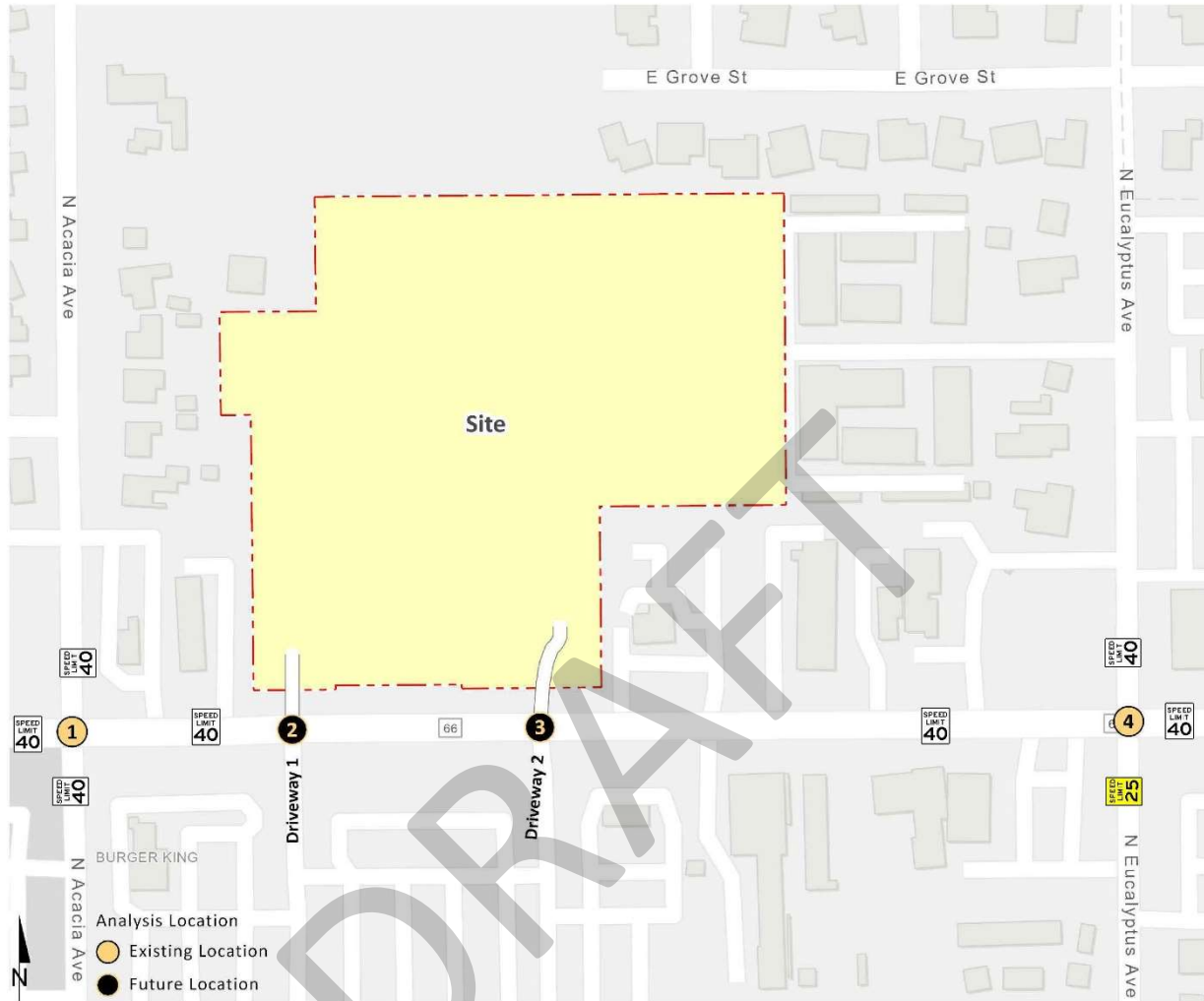
Collectors can accommodate two travel lanes with 8-foot shoulders for parking on either side within a 64-foot right-of-way. Examples of collectors within the study area include:

- Acacia Avenue
- Eucalyptus Avenue

3.3 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 Foothill Boulevard. The existing transit routes within the study area are shown on Exhibit 3-4. Omnitrans Route 14 currently runs along Foothill Boulevard with existing stops at Acacia Avenue and Eucalyptus Avenue. It is likely that the existing transit line could serve the proposed 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



1 Acacia Av. & Foothill Bl.	2 Dwy. 1 & Foothill Bl.	3 Dwy. 2 & Foothill Bl.	4 Eucalyptus Av. & Foothill Bl.

- = Traffic Signal
- = Stop Sign
- 4** = Number of Lanes
- D** = Divided
- U** = Undivided
- DEF** = Defacto Right Turn
- = Speed Limit (MPH)
- = School Speed Limit (MPH)

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

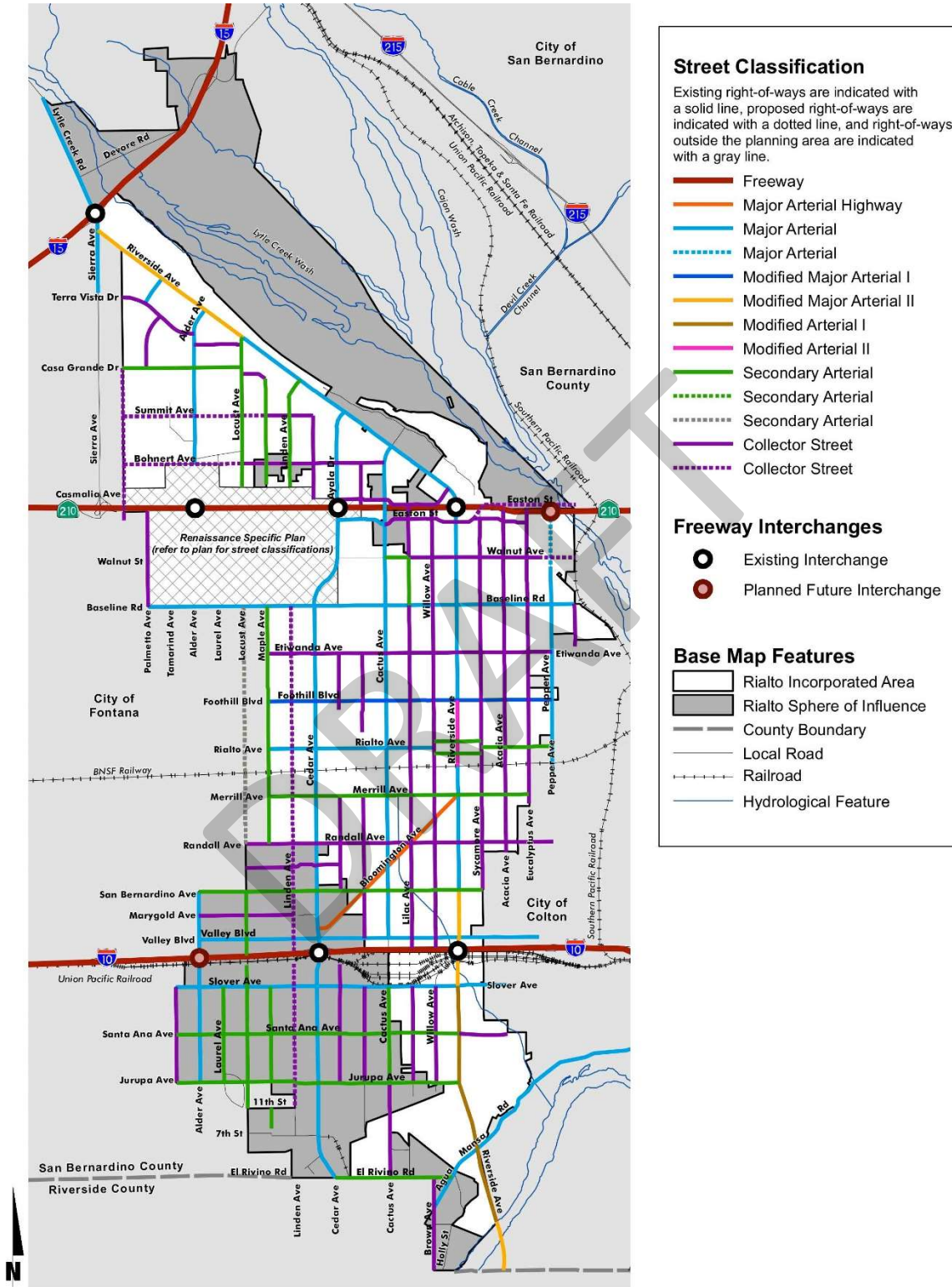


EXHIBIT 3-3: CITY OF RIALTO ROADWAY CROSS-SECTIONS

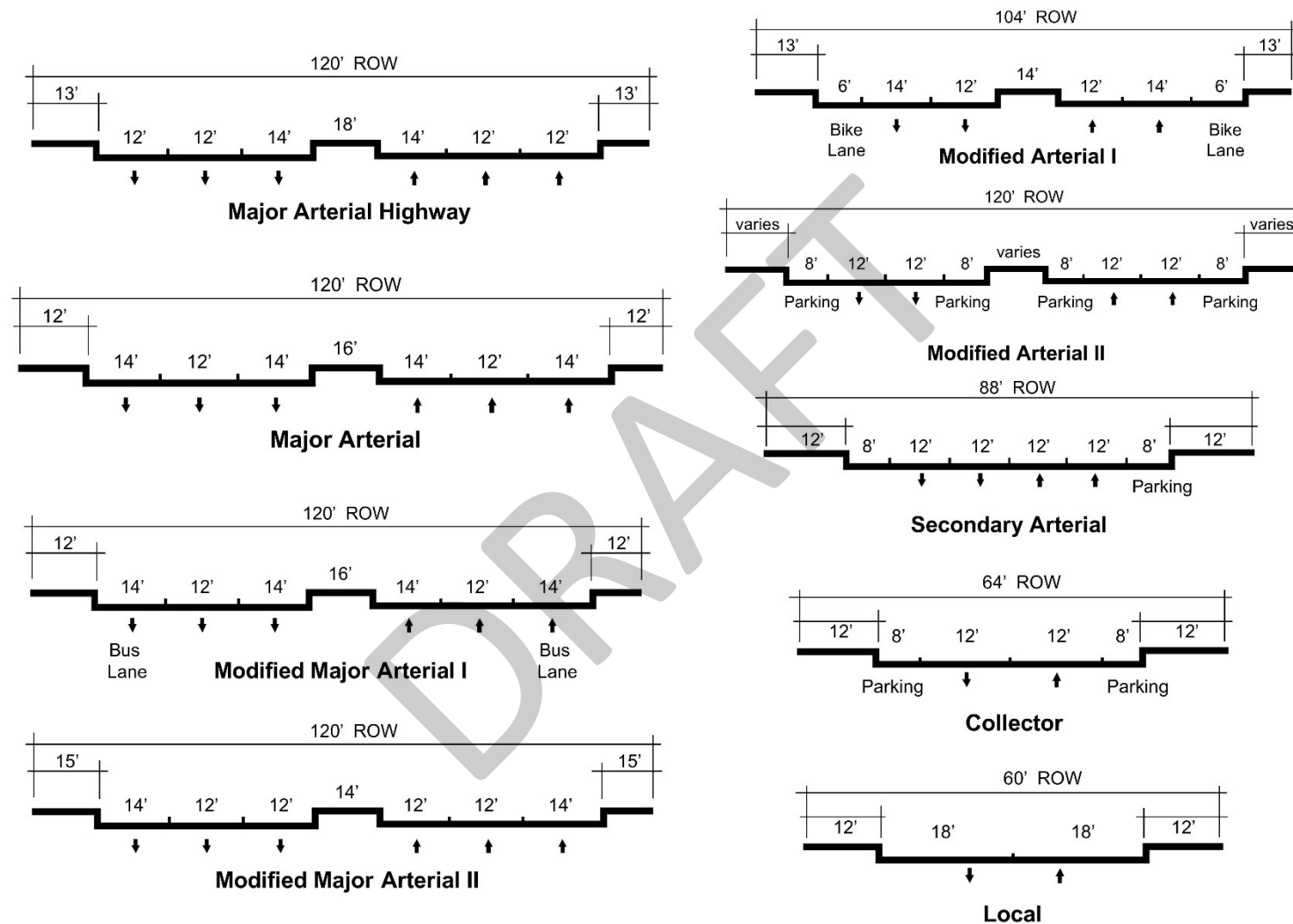
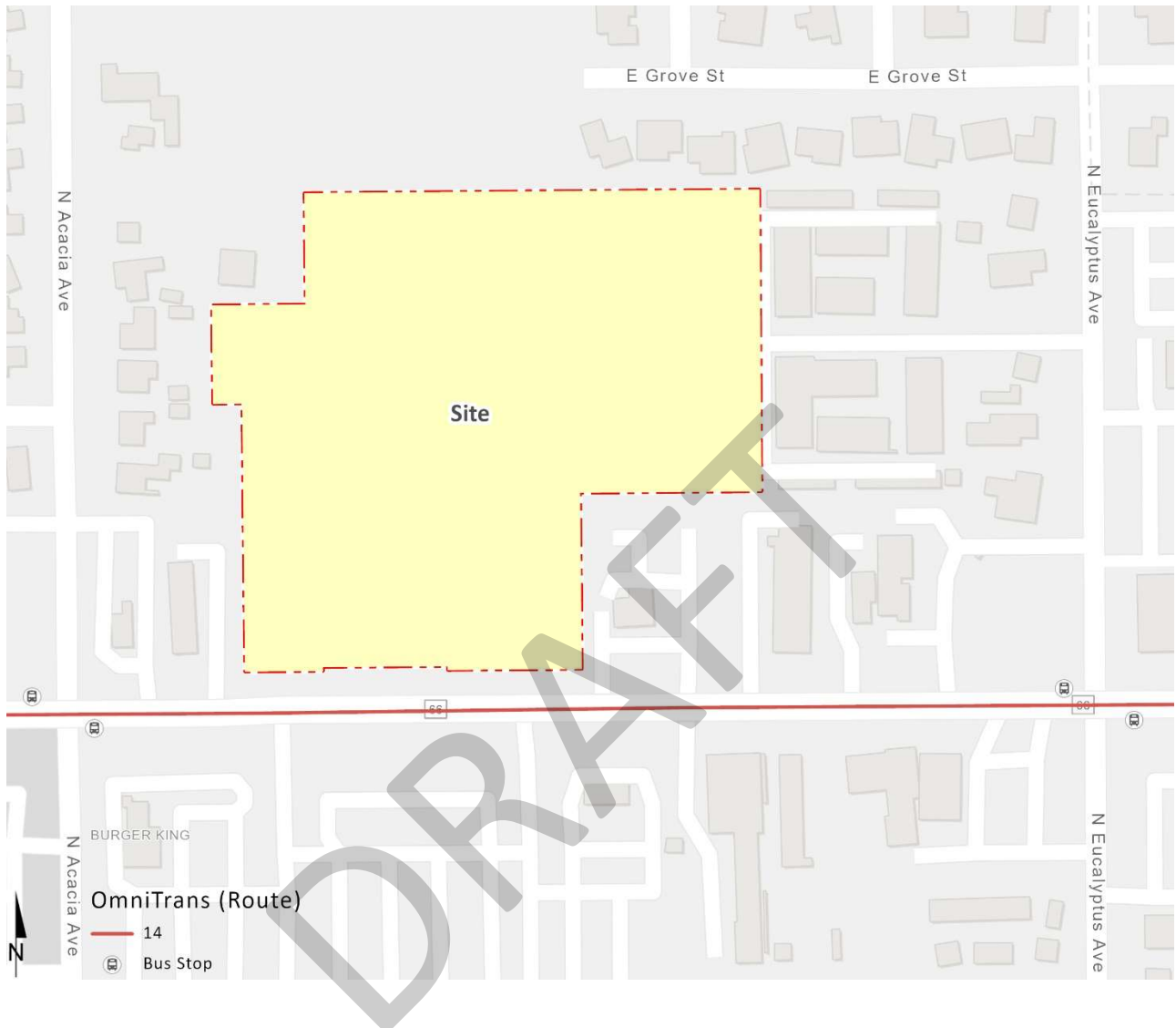


EXHIBIT 3-4: EXISTING TRANSIT ROUTES



3.4 BICYCLE & PEDESTRIAN FACILITIES

The City of Rialto's bicycle facilities are shown on Exhibit 3-5. The only existing bike trail is the Pacific Electric Trail which is located south of Foothill Boulevard. Field observations indicate nominal pedestrian and bicycle activity within the study area. As shown on Exhibit 3-6, pedestrian facilities are built out along Foothill Boulevard with the exception of the Project's frontage.

3.5 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 2015. 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 2015 traffic counts were utilized in conjunction with a 2% per year growth rate (compounded annually) to reflect 2021 conditions. The 2015 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 3-5: CITY OF RIALTO BICYCLE FACILITIES

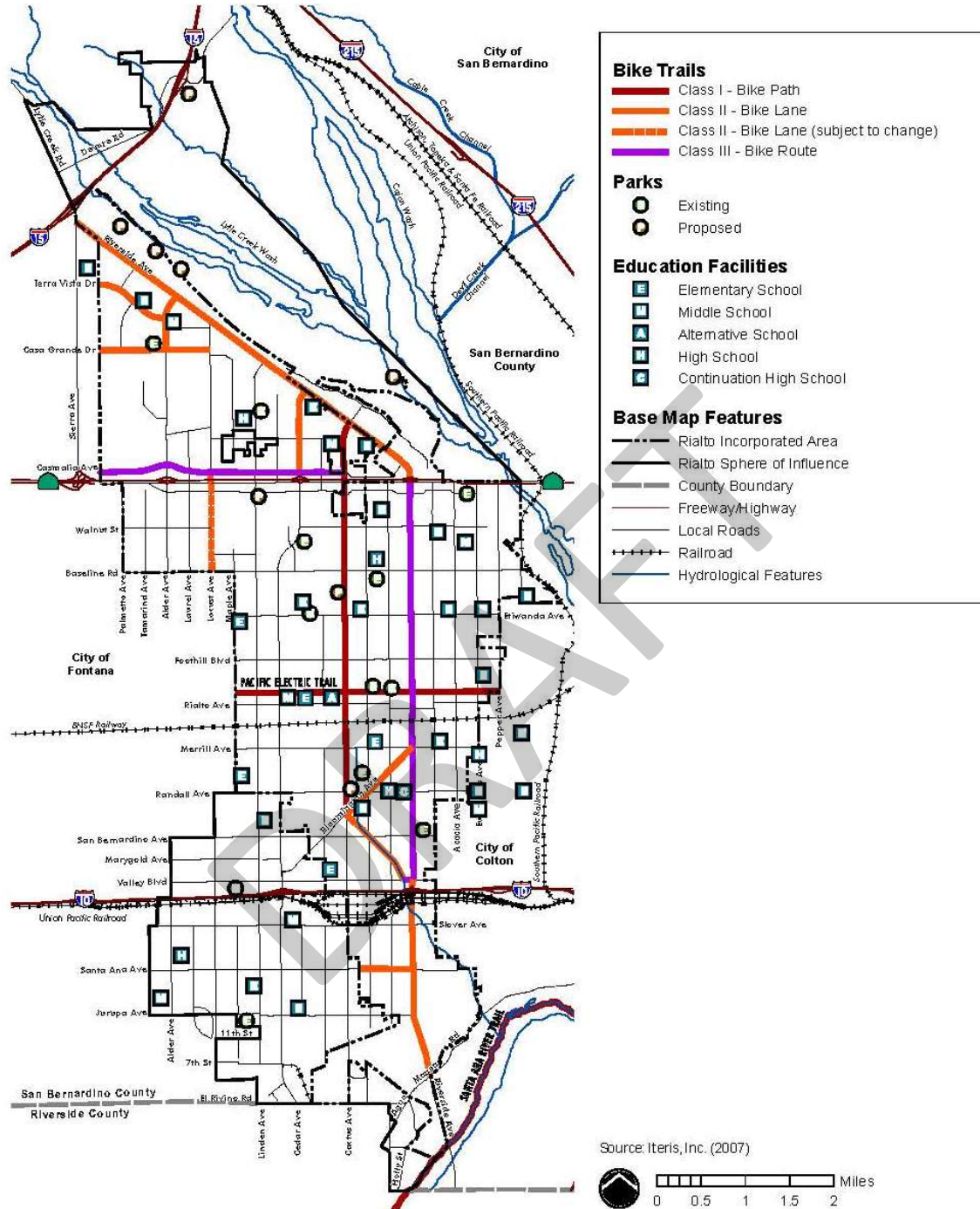
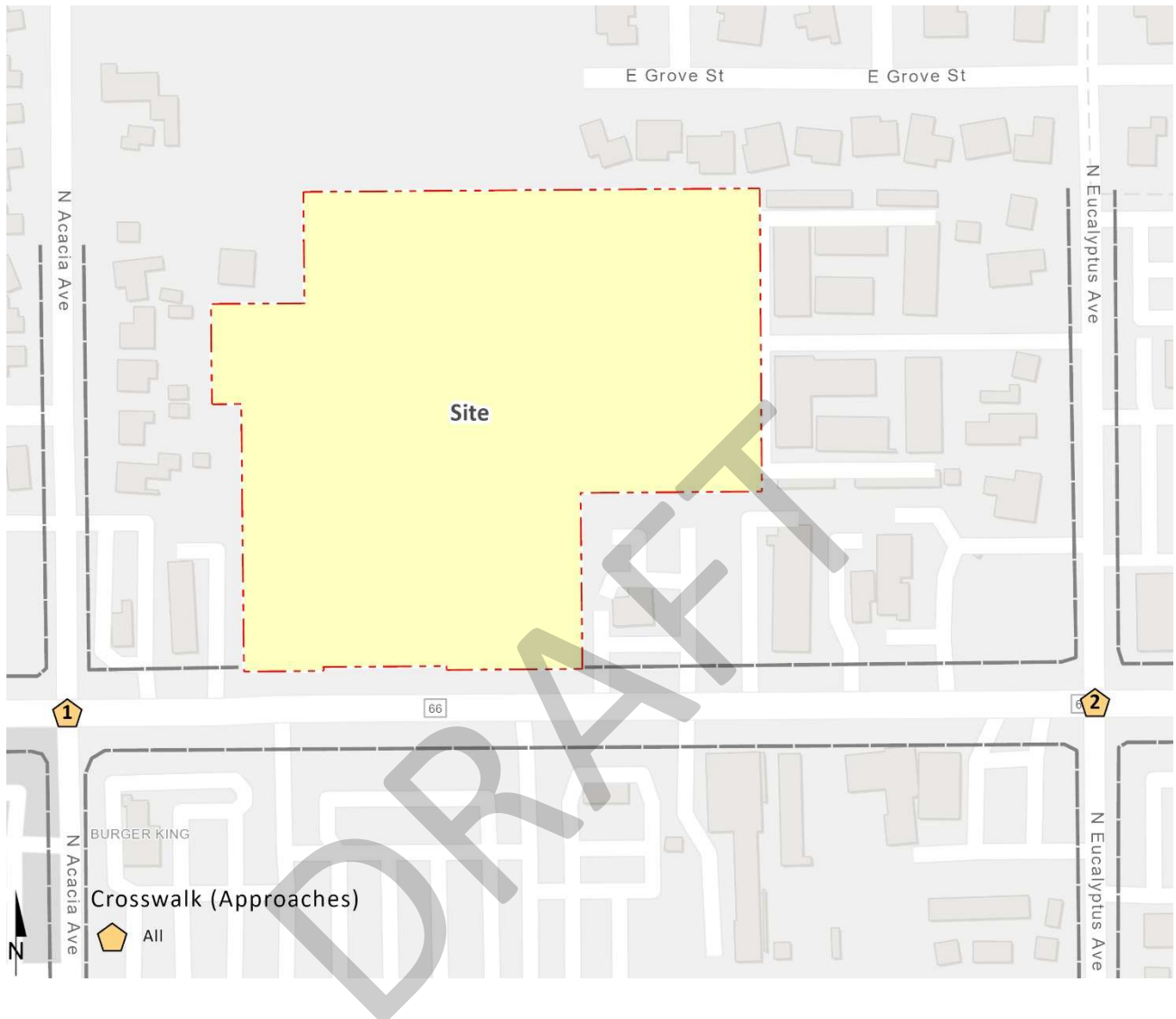


EXHIBIT 3-6: EXISTING PEDESTRIAN FACILITIES



Existing weekday ADT volumes are shown on Exhibit 3-7. 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:

$$\text{Weekday PM Peak Hour (Approach Volume + Exit Volume)} \times 13.22 = \text{Leg Volume}$$

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 3-7. 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.

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

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

#	Intersection	Traffic Control ²	Delay ¹ (secs.)		Level of Service	
			AM	PM	AM	PM
1	Acacia Ave. & Foothill Blvd.	TS	16.1	15.0	A	B
2	Driveway 1 & Foothill Blvd.	CSS	Future Intersection			
3	Driveway 2 & Foothill Blvd.	CSS	18.3	26.2	C	D
4	Eucalyptus Ave. & Foothill Blvd.	TS	12.8	13.4	B	B

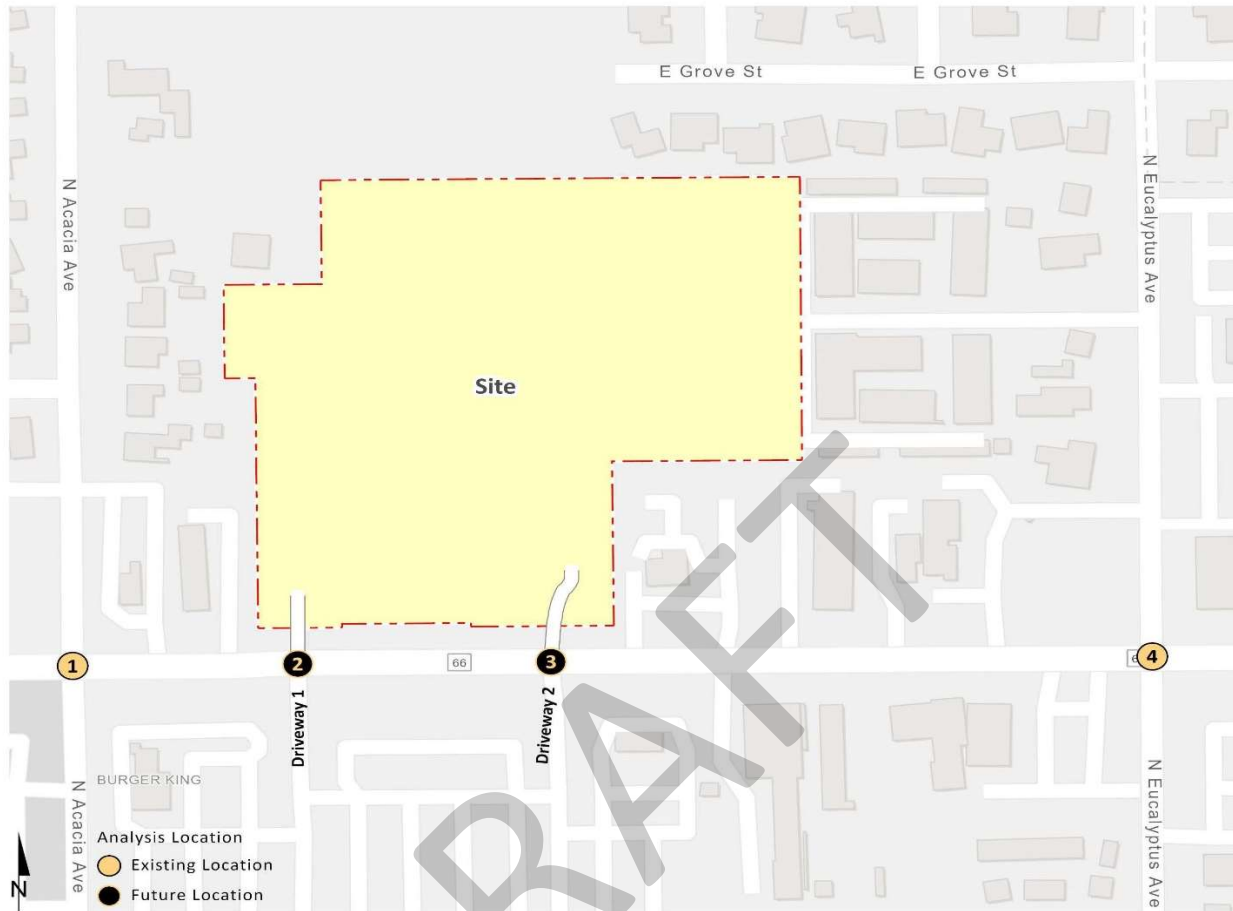
¹ Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements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

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

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

The intersection of Driveway 2 & Foothill Boulevard currently meets a peak hour volume-based traffic signal warrant based on the existing volumes for the shopping center to the south (see Appendix 3.3).

EXHIBIT 3-7: EXISTING (2021) TRAFFIC VOLUMES



1	Acacia Ave & Foothill Blvd.	2	Driveway 1 & Foothill Blvd.	3	Driveway 2 & Foothill Blvd.	4	Eucalyptus Ave & Foothill Blvd.
5,350	28,600	27,000	Nominal	27,850	5,900	20,950	
85(59) 97(135) 53(60) ↑ 34(41) ↑ 1009(999) ↓ 36(37) 46(66) 935(1034) 56(97) 63(90) 82(115) 56(52)	← 1043(1080)	2(1) 1029(1065) 43(83) 14(14) 46(76)	95(109) 88(97) 48(30) 47(45) 586(940) 48(42) 50(99) 700(1027) 59(59) 59(66) 108(122) 92(65)				
29,600	5,150	27,000	27,000	1,650	21,200	6,150	

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

Average Daily Trips

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 204 multifamily (mid-rise, 3-10 floor) residential dwelling units. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2024. Access to the Project site will be provided to Foothill Boulevard via two proposed driveways.

4.1 PROJECT TRIP GENERATION

4.1.1 PROPOSED PROJECT

The trip generation rates are sourced from the ITE Trip Generation Manual (10th Edition, 2017) for the Multifamily (Mid-Rise, 3-10 Floor) Residential (ITE Land Use Code 221) land use. (4) Table 4-1 presents the trip generation rates. The resulting trip generation summary for the proposed Project are shown on Table 4-2. As shown in Table 4-2, the Project is anticipated to generate a total of 1,110 trip-ends per day with 73 AM peak hour trips and 90 PM peak hour trips.

TABLE 4-1: PROJECT TRIP GENERATION RATES

Land Use ¹	ITE LU Code	Units ²	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates:									
Multifamily Housing (Mid-Rise) (3-10 floors)	221	DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44

¹ Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

² DU = Dwelling Units

TABLE 4-2: PROJECT TRIP GENERATION SUMMARY

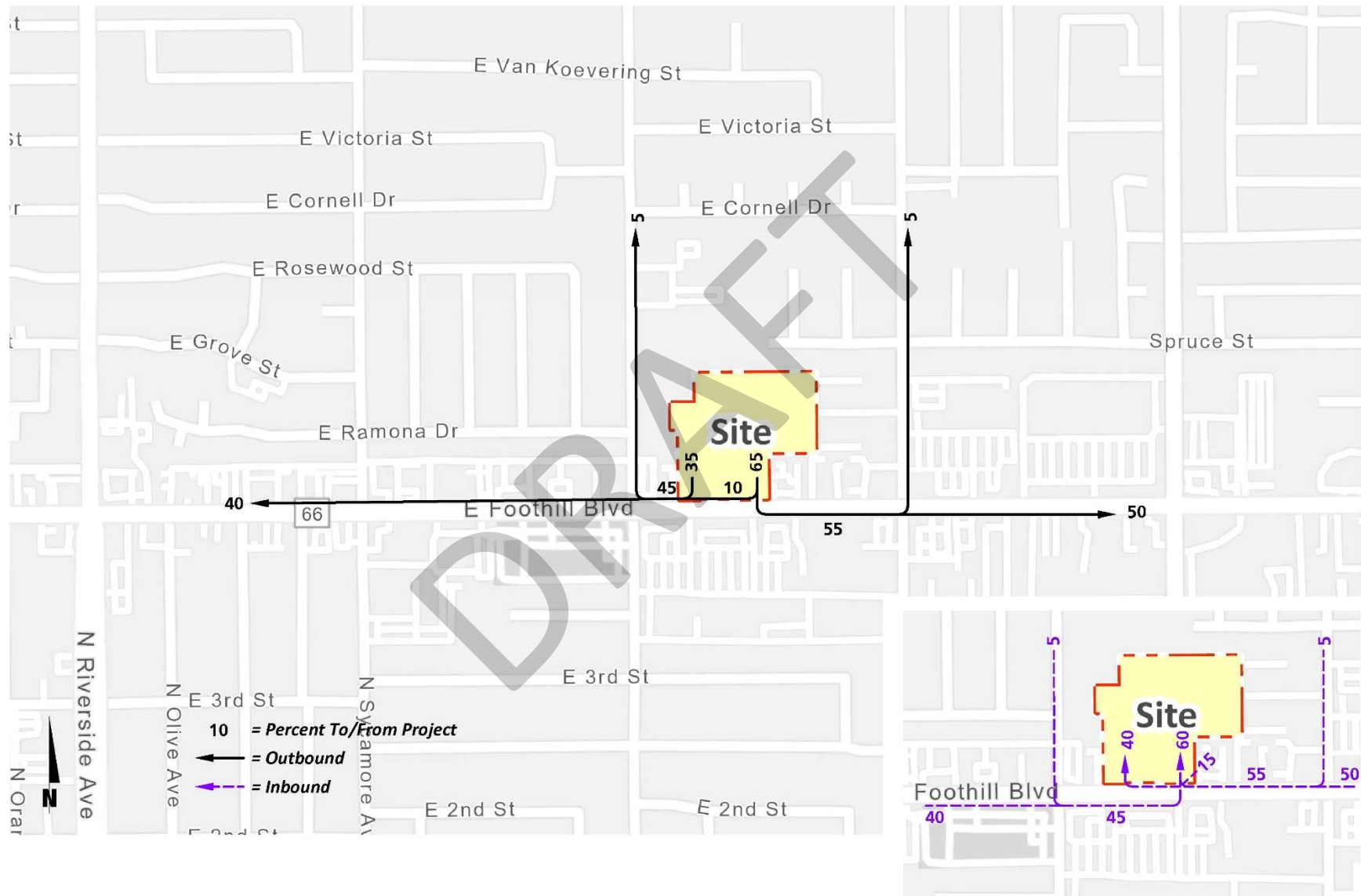
Project	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Project Trip Generation Summary:								
Rialto 8-Acre Residential	204 DU	19	54	73	55	35	90	1,110

¹ DU = Dwelling Units

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. Distribution patterns are based on existing and planned land uses in the area along with the planned circulation system. Exhibit 4-1 illustrates the trip distribution patterns for the Project.

EXHIBIT 4-1: PROJECT TRIP DISTRIBUTION



4.3 MODAL SPLIT

The potential for Project trips 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 4-2.

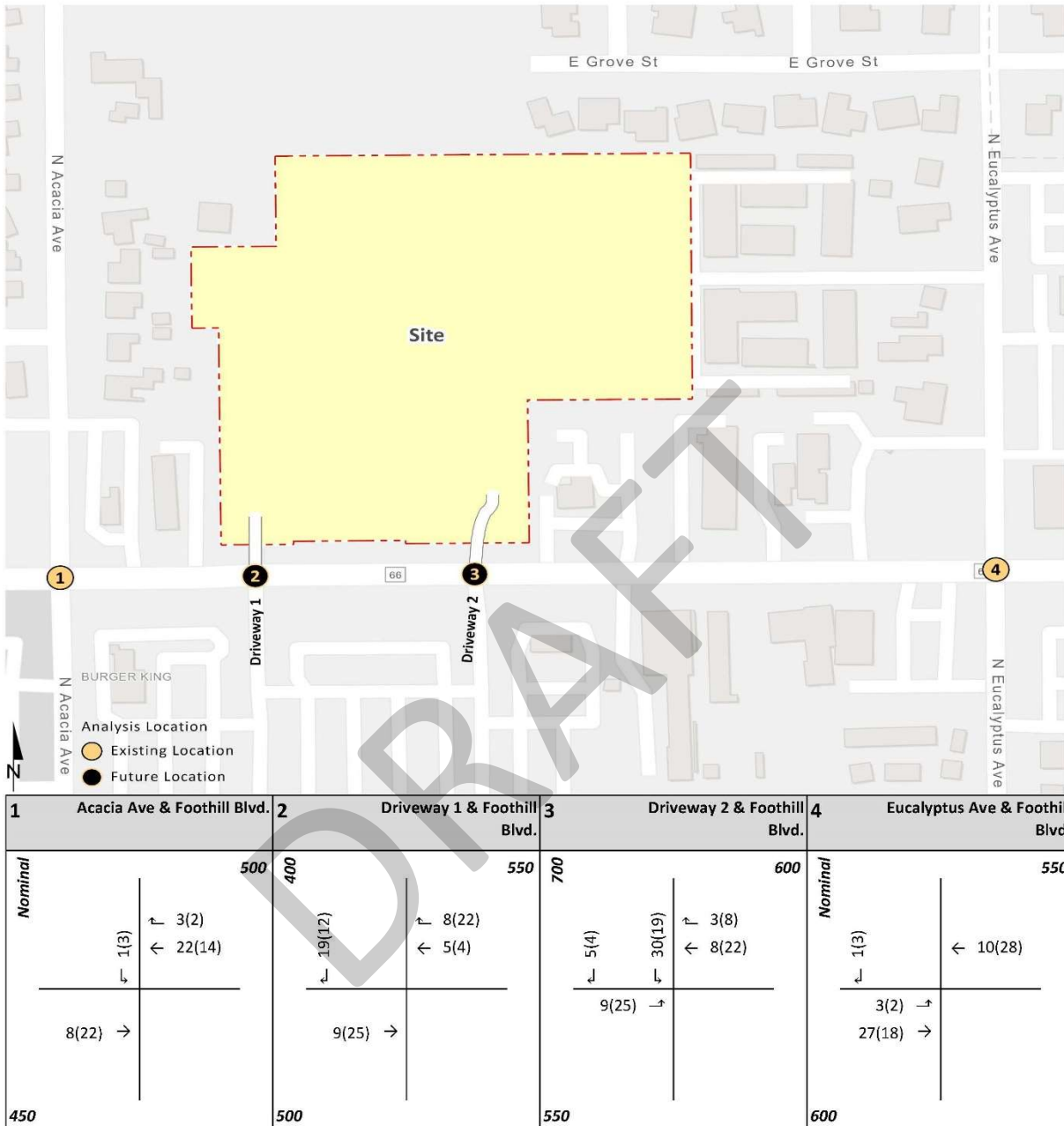
4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon background (ambient) growth at 2.0% per year. The total ambient growth is 2.0% for 2024 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.

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

- EAP (2024)
 - Adjusted Existing 2021 volumes
 - Ambient growth traffic (6.12%)
 - Project Traffic
- EAPC (2024)
 - Adjusted Existing 2021 volumes
 - Ambient growth traffic (6.12%)
 - Cumulative Development traffic
 - Project Traffic

EXHIBIT 4-2: PROJECT ONLY TRAFFIC VOLUMES



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

Average Daily Trips

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 4-3 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown on Table 4-3. If applicable, the traffic generated by individual cumulative projects was manually added to the EAPC (2024) forecasts to ensure that traffic generated by the listed cumulative development projects on Table 4-3 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 4-4 for near-term traffic conditions.

TABLE 4-3: CUMULATIVE DEVELOPMENT LAND USE SUMMARY

#	Project Name	Land Use ¹	Quantity Units ¹
R1	70 Townhomes	Townhomes	70 DU
R2	Tract 20199	Single Family Residential	56 DU
R3	Spruce Avenue Commerce Center	Warehouse	86.000 TSF
SB1	CUP 20-07, PCN 20-01 & VAR 20-03	Gas Station	8 VFP
		Convenience Store	2.230 TSF
SB2	Rancho and Rialto Truck Yard	Truck and Trailer Parking	14.48 AC

¹ DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions; AC = Acres

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 (2024) and EAPC (2024) traffic conditions. An ambient growth factor of 6.12% accounts for background (area-wide) traffic increases that occur over time up to the year 2024 from the year 2021 (two percent over a 3-year period). Project traffic is added to assess EAP (2024) and EAPC (2024) traffic conditions, respectively. Traffic volumes generated by cumulative development projects are included to assess the EAPC (2024) traffic conditions. The 2024 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.

EXHIBIT 4-3: CUMULATIVE DEVELOPMENT LOCATION MAP

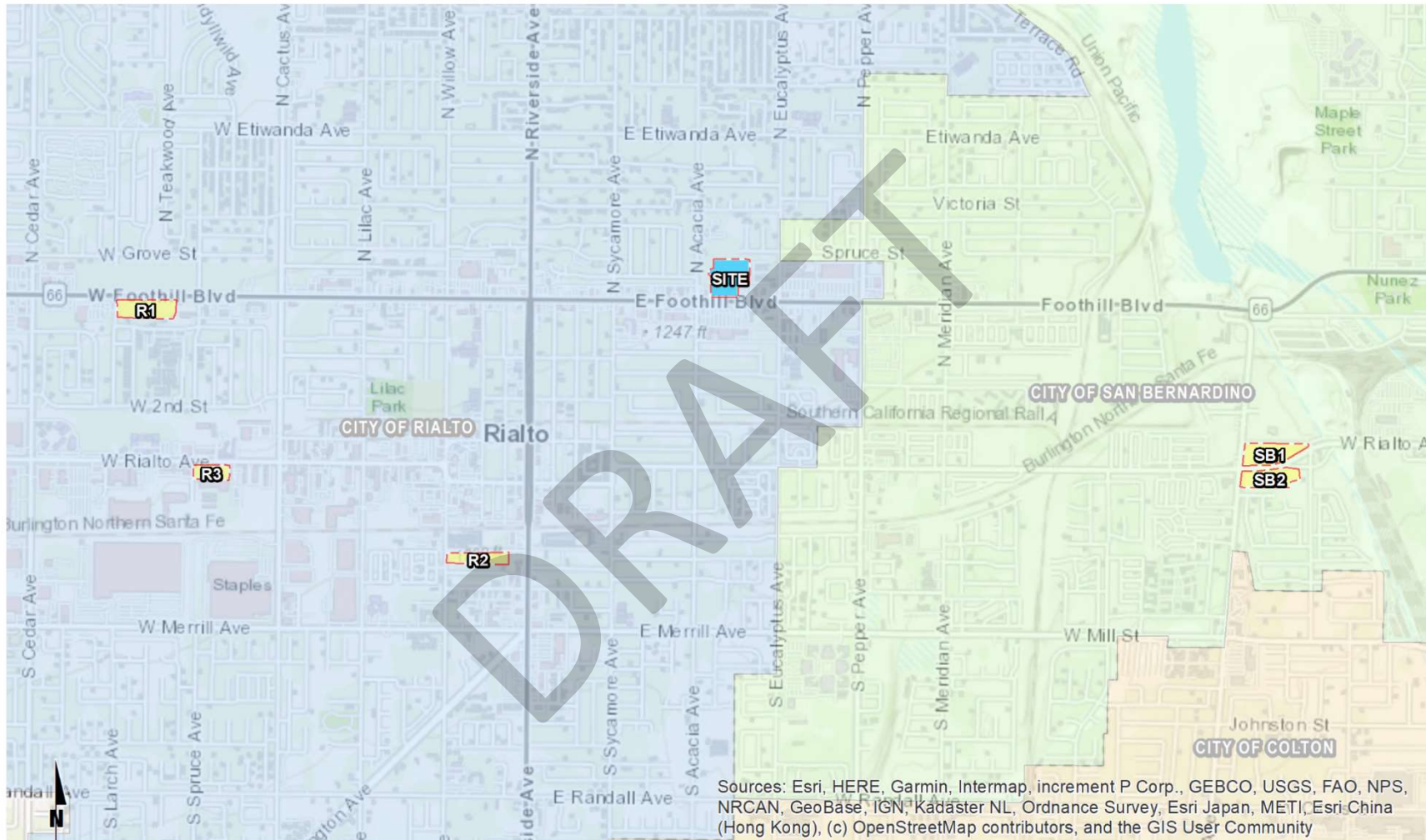
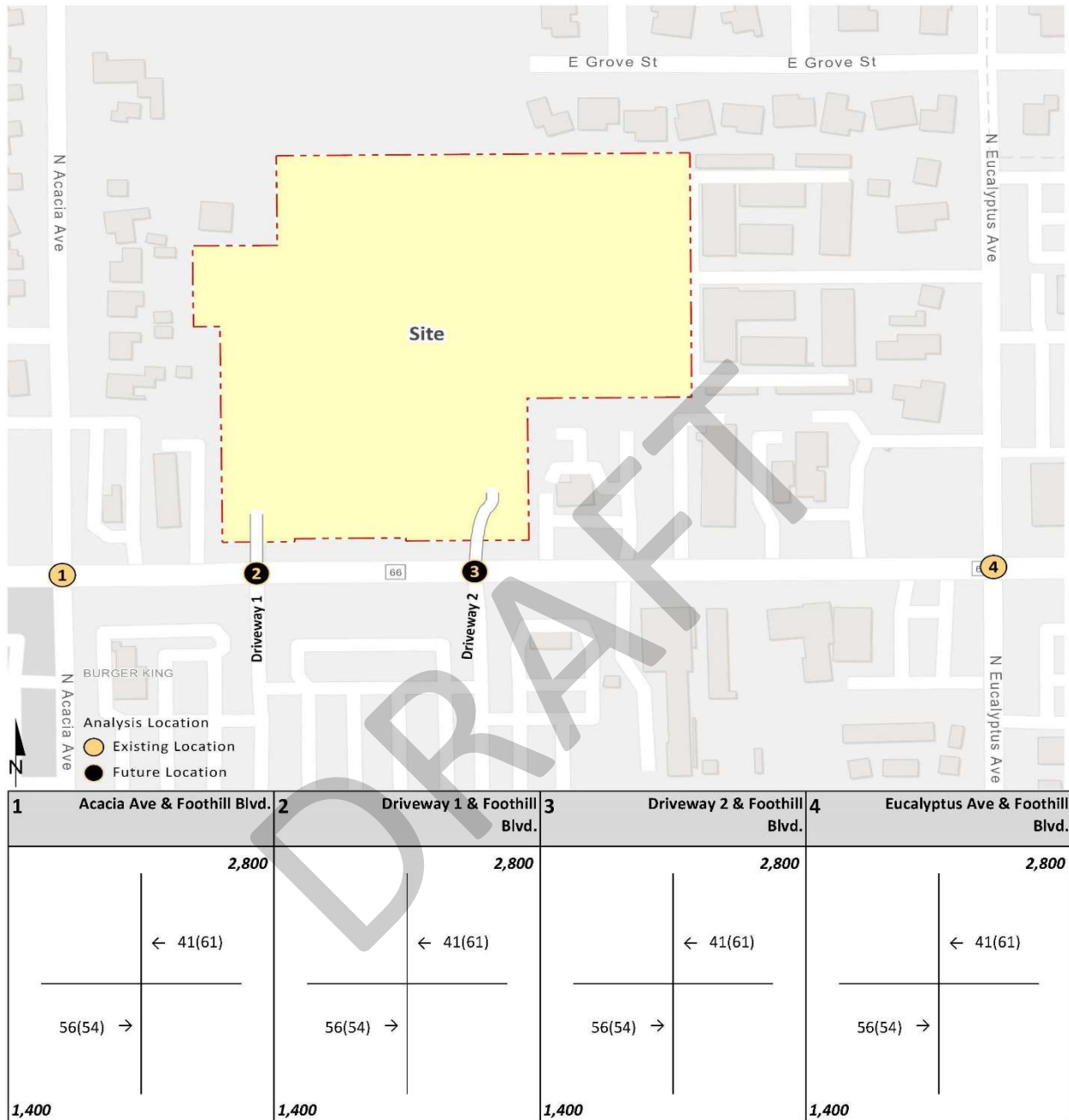


EXHIBIT 4-4: CUMULATIVE ONLY TRAFFIC VOLUMES



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

Average Daily Trips

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5 EAP (2024) TRAFFIC CONDITIONS

This section discusses the traffic forecasts for Existing plus Ambient Growth plus Project (EAP) conditions and the resulting intersection operations analysis.

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 (2024) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 6.12% and the addition of Project traffic. The weekday ADT, weekday AM, and PM peak hour volumes which can be expected for EAP (2024) traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

EAP (2024) 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 (2024) traffic conditions, which shows the following study area intersection is anticipated to operate at an unacceptable LOS during one or more peak hours under EAP (2024) traffic conditions:

- Driveway 2 & Foothill Boulevard (#3) – LOS E AM and PM peak hours

The intersection operations analysis worksheets for EAP (2024) traffic conditions are included in Appendix 5.1 of this TA.

TABLE 5-1: INTERSECTION ANALYSIS FOR EAP (2024) CONDITIONS

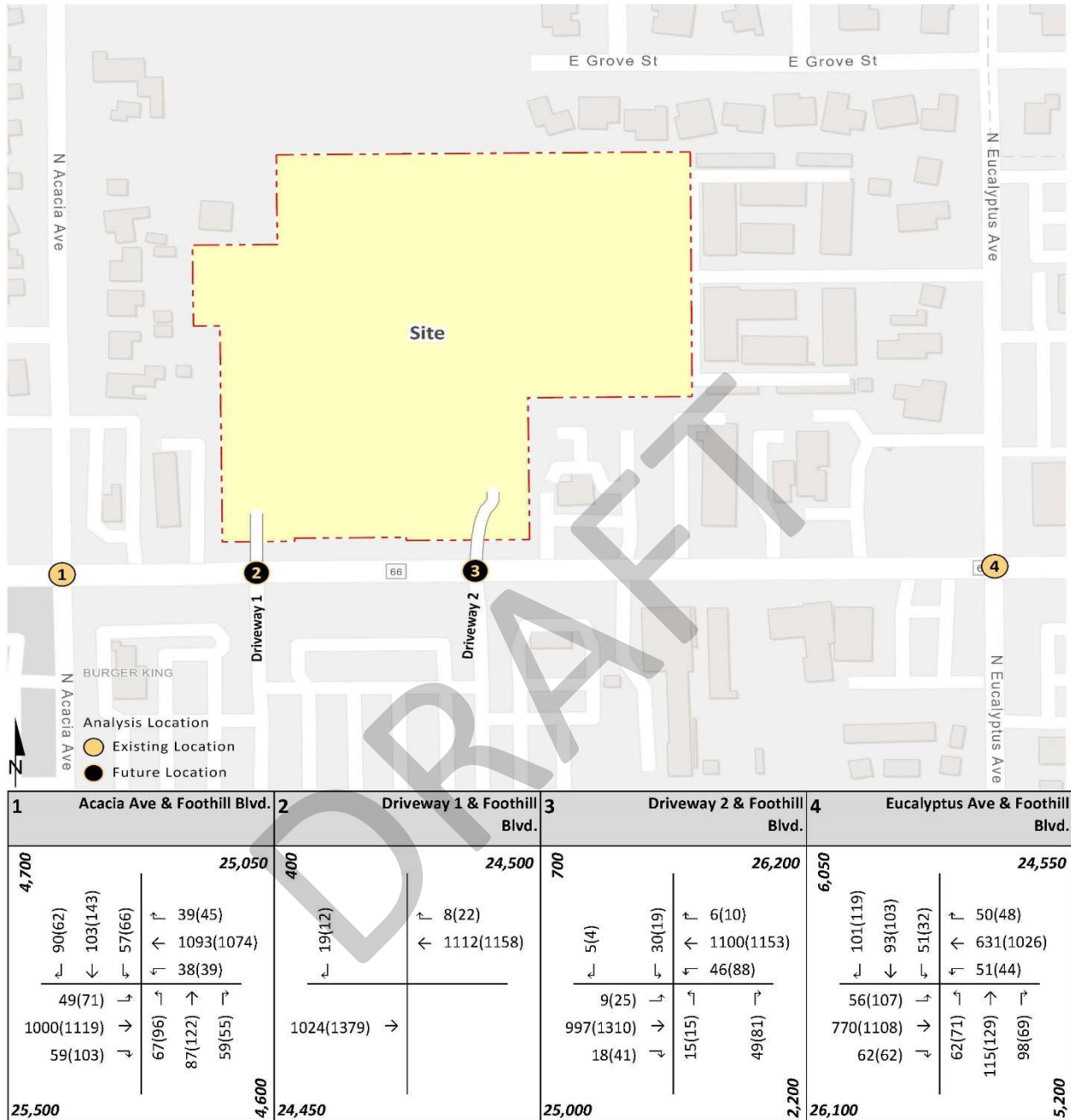
#	Intersection	Traffic Control ²	Existing (2021)				EAP (2024)			
			Delay ¹ (secs.)		Level of Service		Delay ¹ (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Acacia Ave. & Foothill Blvd.	TS	16.1	15.0	A	B	18.2	16.0	B	B
2	Driveway 1 & Foothill Blvd.	CSS	Intersection		0.0	0.0	13.7	13.8	B	B
3	Driveway 2 & Foothill Blvd.	CSS	18.3	26.2	C	D	35.5	44.4	E	E
4	Eucalyptus Ave. & Foothill Blvd.	TS	12.8	13.4	B	B	13.0	13.8	B	B

* **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. HCM delay reported in seconds.

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

EXHIBIT 5-1: EAP (2024) TRAFFIC VOLUMES



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

Average Daily Trips

5.4 RECOMMENDED IMPROVEMENTS

While the intersection of Driveway 2 & Foothill Boulevard (#3) is anticipated to operate at an unacceptable LOS during EAP (2024) conditions and is warranted for a traffic signal under Existing (2021) conditions, installing a traffic signal or additional lane improvements beyond those to be implemented by the Project, have not been recommended. Installing a traffic signal would improve the intersection to an acceptable LOS and it would serve both the Project as well as the existing commercial retail property to the south, but it is important to note that the deficiency of the intersection is entirely caused by the high side street delays of vehicles waiting to turn onto Foothill Boulevard at the Project driveway (Driveway 2) and the southern property's driveway. The through traffic on Foothill Boulevard will not be affected under EAP (2024) traffic conditions and as delays increase, traffic at these locations may opt to utilize a different driveway (and will operate with acceptable LOS). As such, no improvements have been recommended for the purposes of this TA.

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6 EAPC (2024) TRAFFIC CONDITIONS

This section discusses the methods used to develop Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2024) traffic forecasts, and the resulting intersection operations analysis.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for EAPC (2024) 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).

6.2 EAPC (2024) TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 6.12% 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 (2024) traffic conditions are shown on Exhibit 6-1.

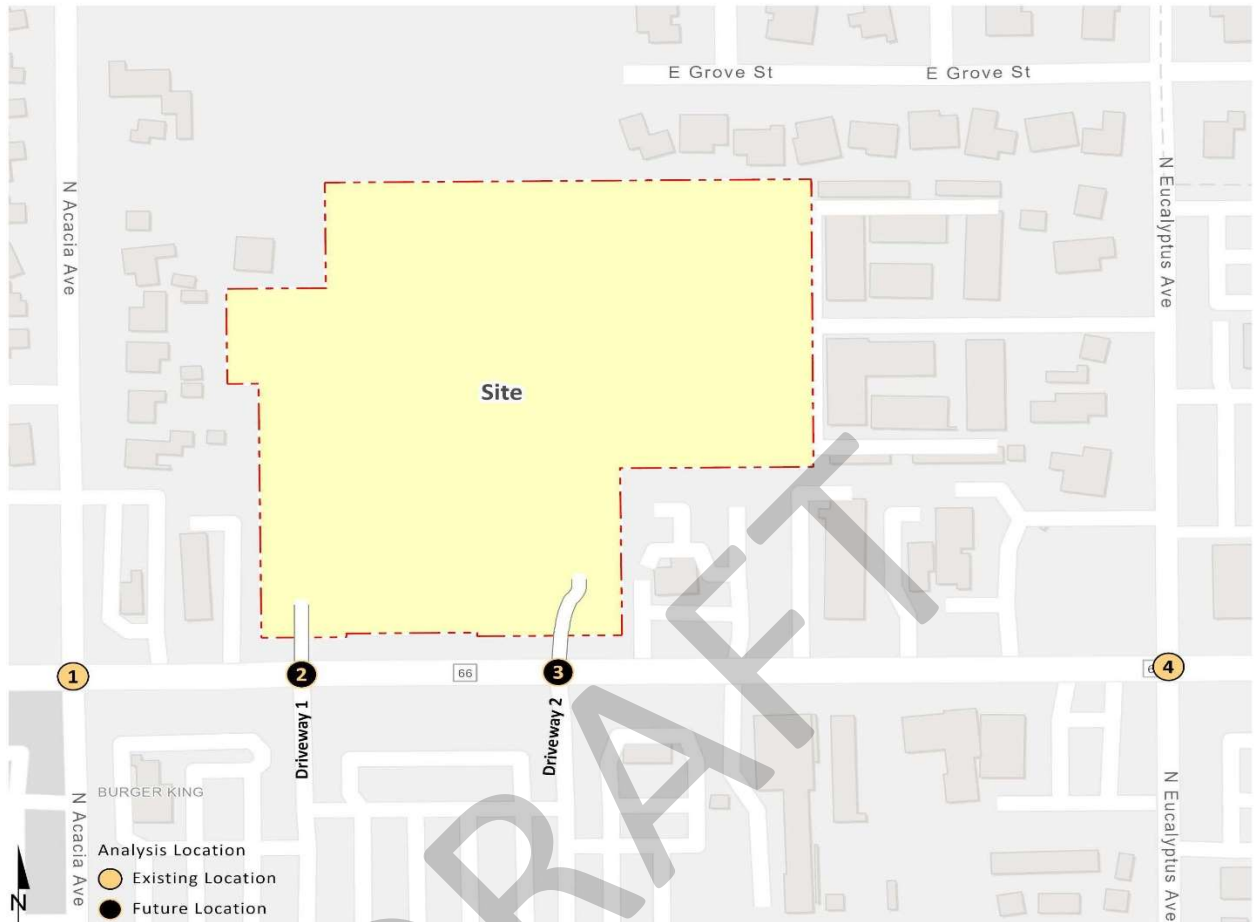
6.3 INTERSECTION OPERATIONS ANALYSIS

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC (2024) traffic conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown on Table 6-1, the following study area intersection is anticipated to operate at an unacceptable LOS under EAPC (2024) traffic conditions:

- Driveway 2 & Foothill Boulevard (#3) – LOS E AM and PM peak hours

The intersection operations analysis worksheets for EAPC (2024) traffic conditions are included in Appendix 6.1.

EXHIBIT 6-1: EAPC (2024) TRAFFIC VOLUMES



1	2	3	4
Acacia Ave & Foothill Blvd.	Driveway 1 & Foothill Blvd.	Driveway 2 & Foothill Blvd.	Eucalyptus Ave & Foothill Blvd.
4,700 27,800 4,600 26,900 90(62) 103(143) 57(66) 39(45) 1134(1135) 38(39) 49(71) 1056(1173) 59(103) 67(96) 87(122) 59(55)	400 27,300 4,600 25,850 19(12) 8(22) 1153(1219) 1080(1433)	700 28,950 2,200 26,350 5(4) 30(19) 6(10) 1141(1214) 46(88) 9(25) 1053(1364) 18(41) 15(15) 49(81)	6,050 27,350 5,200 27,500 101(119) 93(103) 51(32) 50(48) 672(1087) 51(44) 56(107) 826(1162) 62(62) 62(71) 115(129) 98(69)

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

Average Daily Trips

TABLE 6-1: INTERSECTION ANALYSIS FOR EAPC (2024) CONDITIONS

#	Intersection	Traffic Control ²	Delay ¹ (secs.)		Level of Service	
			AM	PM	AM	PM
1	Acacia Ave. & Foothill Blvd.	TS	19.7	17.1	B	B
2	Driveway 1 & Foothill Blvd.	CSS	14.1	14.3	B	B
3	Driveway 2 & Foothill Blvd.	CSS	38.3	49.1	E	E
4	Eucalyptus Ave. & Foothill Blvd.	TS	13.1	14.1	B	B

* **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. HCM delay reported in seconds.

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

6.4 RECOMMENDED IMPROVEMENTS

While the intersection of Driveway 2 & Foothill Boulevard (#3) is anticipated to operate at an unacceptable LOS during EAPC (2024) conditions and is warranted for a traffic signal under Existing (2021) conditions, installing a traffic signal or additional lane improvements beyond those to be implemented by the Project, have not been recommended. Installing a traffic signal would improve the intersection to an acceptable LOS and it would serve both the Project as well as the existing commercial retail property to the south, but it is important to note that the deficiency of the intersection is entirely caused by the high side street delays of vehicles waiting to turn onto Foothill Boulevard at the Project driveway (Driveway 2) and the southern property's driveway. The through traffic on Foothill Boulevard will not be affected under EAPC (2024) traffic conditions and as delays increase, traffic at these locations may opt to utilize a different driveway (and will operate with acceptable LOS). As such, no improvements have been recommended for the purposes of this TA.

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7 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.

7.1 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.

7.2 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.

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8 REFERENCES

1. **City of Rialto.** *Draft Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment (LOS).* City of Rialto : s.n., May 2021.
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3. **San Bernardino Associated Governments.** *Congestion Management Program for County of San Bernardino.* County of San Bernardino : s.n., Updated June 2016.
4. **Institute of Transportation Engineers (ITE).** *Trip Generation Manual.* 9th Edition. 2012.
5. **Transportation Research Board.** *Highway Capacity Manual (HCM).* 6th Edition. s.l. : National Academy of Sciences, 2016.
6. **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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