Baxter Village

TRAFFIC IMPACT ANALYSIS

CITY OF WILDOMAR

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
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
E+P	Existing Plus Project
HCM	Highway Capacity Manual
HOV	High Occupancy Vehicle
I	Interstate
ITE	Institute of Transportation Engineers
LOS	Level of Service
NCHRP	National Cooperative Highway Research Program
PeMS	Performance Measurement System
PHF	Peak Hour Factor
Project	Baxter Village
RBBD	Road and Bridge Benefit District
RCTC	Riverside County Transportation Commission
RivTAM	Riverside County Transportation Analysis Model
RTA	Riverside Transit Agency
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SHS	State Highway System
TCR	Transportation Concept Report
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
WRCOG	Western Riverside Council of Governments

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Baxter Village ("Project"), which is located north of Baxter Road and east of White Street in the City of Wildomar, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. As the City of Wildomar does not have their own traffic study guidelines, the methodologies described are generally consistent the Riverside County Transportation Department Traffic Impact Analysis Preparation Guide and the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies. (1) (2)

1.1 PROJECT OVERVIEW

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. The Project is proposed to consist of the following uses:

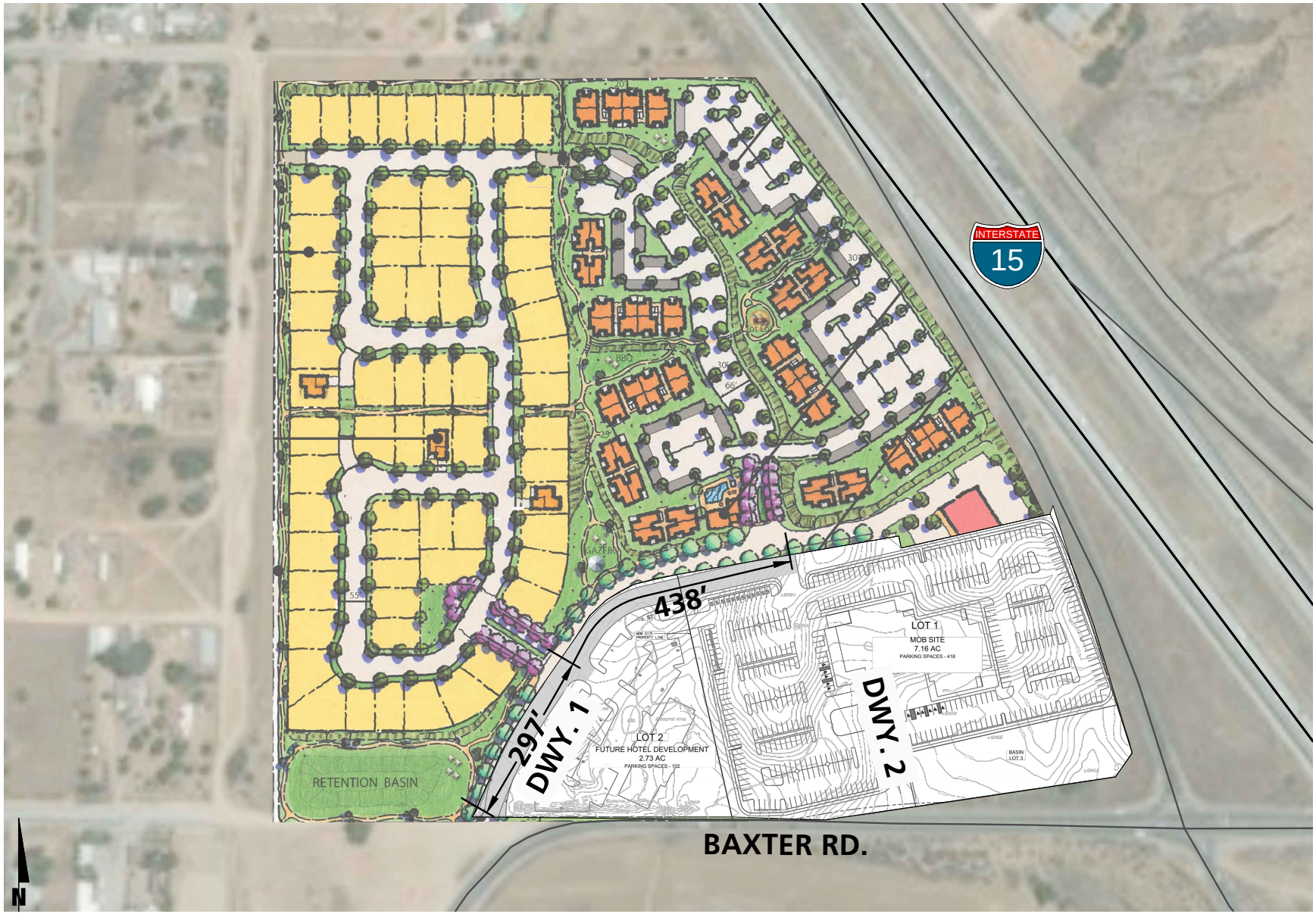
- 66 Dwelling Units of Single Family Detached (ITE Land Use Code 210)
- 204 Dwelling Units of Multi-Family Housing (Mid-Rise, 3-floors) (ITE Land Use Code 221)
- A 102-room hotel (ITE Land Use Code 310)
- 84,000 square feet of Medical-Dental Office (ITE Land Use Code 720)

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (3) The proposed Project is anticipated to generate a total of 5,512 trip-ends per day, with 403 AM peak hour trips and 506 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.

For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development and is anticipated to be fully built and occupied by Year 2021. The Project is proposed to have two driveways along Baxter Road. Driveway 1 (extension of Baxter Road) is proposed for full access while Driveway 2 is proposed for right-in/right-out access only. Regional access to the Project site will be accommodated via the I-15 Freeway at Baxter Road.

The results of this TIA have been compared to the results identified in the Baxter Village Traffic Impact Analysis, prepared by Urban Crossroads, Inc. in March 2015 (Revised) (referred to hereafter as the "2015 Traffic Study").

EXHIBIT 1-1: PRELIMINARY LAND USE PLAN



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1.2 COMPARISON TO 2015 TRAFFIC IMPACT ANALYSIS

1.2.1 INTERSECTION ANALYSIS COMPARISON

A comparison of the intersection analysis from this TIA to the 2015 Traffic Study is shown in Table 1-1. As shown in Table 1-1, the following intersection is anticipated to operate at an acceptable LOS under Existing (2019) and E+P traffic conditions for this TIA as compared to Existing (2013) and E+P traffic conditions from the 2015 Traffic Study:

- Monte Vista Dr. & Bundy Canyon Rd. (#7)

Although the following study area intersection was identified as deficient for Existing (2013) traffic conditions in the 2015 Traffic Study, there is a new deficiency during the PM peak hour (from LOS D to LOS E) for Existing (2019) traffic conditions:

- I-15 Southbound Ramps & Baxter Rd. (#5)

The following intersection is anticipated to operate at an acceptable LOS under Opening Year Cumulative (2021) With Project traffic conditions for this TIA, as compared to Opening Year Cumulative (2018) With Project traffic conditions from the 2015 Traffic Study:

- Monte Vista Dr. & Baxter Rd. (#8)

Although the following study area intersection was identified as deficient for Opening Year Cumulative (2018) With Project traffic conditions in the 2015 Traffic Study, there is a new deficiency during the AM peak hour (from LOS D to LOS E) for Opening Year Cumulative (2021) With Project traffic conditions:

- I-15 Northbound Ramps & Baxter Rd. (#6)

It should be noted, the two intersections identified above are anticipated to operate at an acceptable LOS as compared to the 2015 Traffic Study (which showed these locations as deficient) because of changes to the Highway Capacity Manual (HCM) methodology and analysis software (Synchro). At cross-street stop-controlled intersections, the current version of Synchro allows left turn movements from the minor street (stop controlled street) to be broken up into two stages. In other words, vehicles are realistically modeled since they can clear the conflicts for each direction of travel separately. As such, the delay for cross-street stop-controlled intersections decreases compared to the 2015 Traffic Study (where the Traffix analysis software had been utilized using HCM 2000), thus resulting in the intersections identified above as no longer deficient for the noted analysis scenarios.

Table 1-1

Intersection Analysis Comparison

#	Intersection	Traffic Control[2]	2015 TIA[3] Delay (secs.) ICU (v/c)[1] AM	2015 TIA[3] Delay (secs.) ICU (v/c)[1] PM	2015 TIA[3] Level of Service AM	2015 TIA[3] Level of Service PM	Baxter Village TIA Delay (secs.) ICU (v/c)[1] AM	Baxter Village TIA Delay (secs.) ICU (v/c)[1] PM	Baxter Village TIA Level of Service AM	Baxter Village TIA Level of Service PM	New Significant Impact?
			Existing (2013)				**Existing (2019)**				
1	Palomar St. & Central St.	TS	33.2	28.2	C	C	30.1	25.1	C	C	No
2	Driveway 1 & Baxter Rd.		Future Intersection				Future Intersection				--
3	Central St. & Baxter Rd	CSS	26.9	22.9	D	C	21.2	17.2	C	C	No
4	Driveway 2 & Baxter Rd.		Future Intersection				Future Intersection				--
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	25.6	**F**	D	**>50.0**	**40.5**	**F**	**E**	No
6	I-15 NB Ramps & Baxter Rd.	AWS	13.8	16.2	B	C	17.1	18.9	C	C	No
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	27.5	**>50.0**	D	**F**	18.2	24.8	C	C	No[4]
8	Monte Vista Dr. & Baxter Rd.	CSS	22.1	11.5	C	B	17.6	10.9	C	B	No
			E+P				**E+P**				
1	Palomar St. & Central St.	TS	33.7	29.9	C	C	31.9	29.0	C	C	No
2	Driveway 1 & Baxter Rd.	**CSS**	9.3	10.0	A	B	10.0	10.2	B	B	No
3	Central St. & Baxter Rd	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
4	Driveway 2 & Baxter Rd.	**CSS**	12.1	16.2	B	C	13.2	19.0	B	C	No
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
6	I-15 NB Ramps & Baxter Rd.	AWS	16.5	23.5	C	C	25.8	31.1	D	D	No
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	34.4	**>50.0**	D	**F**	20.8	33.7	C	D	No[4]
8	Monte Vista Dr. & Baxter Rd.	CSS	26.5	13.3	D	B	19.8	12.4	C	B	No
			2018 With Project				**2021 With Project**				
1	Palomar St. & Central St.	TS	35.8	31.5	D	C	34.6	35.1	C	D	No
2	Driveway 1 & Baxter Rd.	**CSS**	9.3	10.0	A	A	9.9	10.1	A	B	No
3	Central St. & Baxter Rd	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
4	Driveway 2 & Baxter Rd.	**CSS**	13.1	19.5	B	C	14.0	22.4	B	C	No
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
6	I-15 NB Ramps & Baxter Rd.	AWS	29.0	**>50.0**	D	**F**	**48.5**	**>50.0**	**E**	**F**	No
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
8	Monte Vista Dr. & Baxter Rd.	CSS	**>50.0**	24.8	**F**	C	34.7	17.9	D	C	No[4]
			Post-2035 With Project				**2040 With Project**				
1	Palomar St. & Central St.	TS	**>80.0**	**74.1**	**F**	**E**	**>80.0**	**>80.0**	**F**	**F**	No
2	Driveway 1 & Baxter Rd.	**CSS**	12.7	11.7	B	B	11.1	11.0	B	B	No
3	Central St. & Baxter Rd	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
4	Driveway 2 & Baxter Rd.	**CSS**	15.3	**>50.0**	C	**F**	16.0	**>50.0**	C	**F**	No
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
6	I-15 NB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No
8	Monte Vista Dr. & Baxter Rd.	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**	No

[1] Per the Highway Capacity Manual (HCM) 2000 (2015 TIA) or 6th Edition (2019 TIA), 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] TS = Traffic Signal; CSS = Cross-Street Stop; AWS = All-Way Stop; **CSS** = Improvement

[3] Baxter Village Traffic Impact Analysis, Urban Crossroads, Inc., March 2015 (Revised).

[4] Peak hour operations improve in the 2019 TIA because the latest HCM (6th Edition) allows for 2-stage left-turn maneuvers from the minor street. As such, delay improves in comparison to the 2015 TIA results.

Although the following study area intersection was identified as deficient for Post-2035 With Project traffic conditions in the 2015 Traffic Study, the LOS falls during the PM peak hour (from LOS E to LOS F) for Horizon Year (2040) With Project traffic conditions:

- Palomar St. & Central St. (#1)

The intersection analysis results for General Plan Buildout (2040) With Project traffic conditions for this TIA are consistent with the results of General Plan Buildout (Post-2035) With Project traffic conditions of the 2015 Traffic Study. As shown in Table 1-1, there are no new significant impacts in this TIA as compared to the 2015 Traffic Study. Improvement needs are discussed subsequently in Section 1.6 *Recommendations* of this report.

1.2.2 FREEWAY ANALYSIS COMPARISONS

A comparison of the freeway analysis from the current Baxter Village TIA to the 2015 Traffic Study is shown in Table 1-2. As shown in Table 1-2, the following freeway segment is anticipated to operate at an acceptable LOS under Opening Year Cumulative (2018) With Project traffic conditions in the 2015 Traffic Study, and is now anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2021) With Project traffic conditions in this TIA:

- I-15 Freeway Northbound, South of Baxter Rd. (#8)

However, this freeway segment is anticipated to operate at an unacceptable LOS under General Plan Buildout (Post-2035) With Project from the 2015 Traffic Study and under General Plan Buildout (2040) With Project for this TIA. The deficiency at the freeway segment identified above is not a new deficiency compared to the 2015 Traffic Study, but instead is a deficiency that appears earlier than the 2015 Traffic Study. This is a result of regional growth and higher traffic volumes utilizing the I-15 Freeway, and not as a result of Project traffic.

The freeway analysis results of General Plan Buildout (2040) With Project traffic conditions for the current TIA are consistent with the General Plan Buildout (Post-2035) With Project traffic conditions found in the 2015 Traffic Study. As shown in Table 1-2, there are no new significant impacts in this TIA as compared to the 2015 Traffic Study.

1.3 ANALYSIS SCENARIOS

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

- Existing (2019) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative (2021) Without Project Conditions
- Opening Year Cumulative (2021) With Project Conditions
- General Plan Buildout (2040) Without Project Conditions
- General Plan Buildout (2040) With Project Conditions

Table 1-2

Freeway Analysis Comparison

#	Ramp or Segment	2015 TIA[1]				Baxter Village TIA				New Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]	
		Existing (2013)				**Existing (2019)**				
1	I-15 Freeway SB, North of Baxter Rd.	20.9	C	21.2	C	22.4	C	22.5	C	No
2	I-15 Freeway SB, Off-Ramp at Baxter Rd.	26.2	C	26.4	C	25.8	C	25.8	C	No
3	I-15 Freeway SB, On-Ramp at Baxter Rd.	22.4	C	21.8	C	24.2	C	23.8	C	No
4	I-15 Freeway SB, South of Baxter Rd.	21.7	C	21.5	C	24.0	C	23.7	C	No
5	I-15 Freeway NB, North of Baxter Rd.	19.2	C	25.9	C	20.5	C	29.8	D	No
6	I-15 Freeway NB, Off-Ramp at Baxter Rd.	23.2	C	31.3	D	21.6	C	27.8	C	No
7	I-15 Freeway NB, On-Ramp at Baxter Rd.	20.4	C	25.8	C	23.0	C	31.6	D	No
8	I-15 Freeway NB, South of Baxter Rd.	18.5	C	27.6	D	20.1	C	32.8	D	No
		E+P				**E+P**				
1	I-15 Freeway SB, North of Baxter Rd.	21.0	C	21.4	C	22.6	C	22.9	C	No
2	I-15 Freeway SB, Off-Ramp at Baxter Rd.	26.3	C	26.7	C	26.1	C	26.2	C	No
3	I-15 Freeway SB, On-Ramp at Baxter Rd.	22.7	C	22.0	C	24.6	C	24.2	C	No
4	I-15 Freeway SB, South of Baxter Rd.	22.0	C	21.7	C	24.3	C	24.1	C	No
5	I-15 Freeway NB, North of Baxter Rd.	19.4	C	26.1	D	20.7	C	30.3	D	No
6	I-15 Freeway NB, Off-Ramp at Baxter Rd.	23.3	C	31.6	D	22.0	C	28.2	D	No
7	I-15 Freeway NB, On-Ramp at Baxter Rd.	20.8	C	26.1	C	23.2	C	31.9	D	No
8	I-15 Freeway NB, South of Baxter Rd.	18.6	C	27.9	D	20.3	C	33.3	D	No
		2018 With Project				**2021 With Project**				
1	I-15 Freeway SB, North of Baxter Rd.	23.3	C	25.9	C	23.7	C	24.0	C	No
2	I-15 Freeway SB, Off-Ramp at Baxter Rd.	28.5	D	30.5	D	26.9	C	27.1	C	No
3	I-15 Freeway SB, On-Ramp at Baxter Rd.	25.2	D	26.4	C	25.9	C	25.5	C	No
4	I-15 Freeway SB, South of Baxter Rd.	24.5	C	26.5	D	25.8	C	25.4	C	No
5	I-15 Freeway NB, North of Baxter Rd.	23.4	C	28.8	D	21.7	C	32.2	D	No
6	I-15 Freeway NB, Off-Ramp at Baxter Rd.	27.2	C	33.8	D	22.9	C	29.4	D	No
7	I-15 Freeway NB, On-Ramp at Baxter Rd.	24.5	C	28.2	D	24.3	C	33.2	D	No
8	I-15 Freeway NB, South of Baxter Rd.	22.7	C	31.6	D	21.4	C	**36.2**	**E**	No[5]
		Post-2035 With Project				**2040 With Project**				
1	I-15 Freeway SB, North of Baxter Rd.	29.2	D	--[4]	**F**	**38.4**	**E**	**45.0**	**F**	No
2	I-15 Freeway SB, Off-Ramp at Baxter Rd.	33.2	D	**48.0**	**F**	34.7	D	**58.1**	**F**	No
3	I-15 Freeway SB, On-Ramp at Baxter Rd.	29.5	D	**45.5**	**F**	33.5	D	**55.7**	**F**	No
4	I-15 Freeway SB, South of Baxter Rd.	29.7	D	--[4]	**F**	**39.0**	**E**	**38.4**	**F**	No
5	I-15 Freeway NB, North of Baxter Rd.	--[4]	**F**	**35.3**	**E**	**38.4**	**F**	**42.5**	**F**	No
6	I-15 Freeway NB, Off-Ramp at Baxter Rd.	**42.1**	**F**	**36.2**	**E**	**47.9**	**F**	**35.1**	**F**	No
7	I-15 Freeway NB, On-Ramp at Baxter Rd.	**38.5**	**F**	32.8	D	**51.3**	**F**	**37.6**	**F**	No
8	I-15 Freeway NB, South of Baxter Rd.	--[4]	**F**	**37.0**	**E**	**45.0**	**F**	**45.0**	**F**	No

[1] Baxter Village Traffic Impact Analysis, Urban Crossroads, Inc., March 2015 (Revised).

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

[3] LOS = Level of Service

[4] HCS does not report density for freeway facilities operating at LOS F for the facilities analyzed using HCS Basic Freeway Segment analysis methodology. However, HCS does report density for freeway facilities operating at LOS F for the facilities analyzed using HCS Facility or Merge/Diverge analysis methodology. The 2015 TIA analyzed freeway facilities utilizing HCS Basic Freeway Segment and Merge/Diverge analysis methodology while the current Baxter Village TIA analyzes freeway facilities utilizing the HCS Freeway Facility analysis methodology using the latest HCM methodology (HCM 6th Edition).

[5] This freeway segment is anticipated to operate at an unacceptable LOS under General Plan Buildout (Post-2035) With Project from the 2015 Traffic Study and under General Plan Buildout (2040) With Project for this TIA. The deficiency at the freeway segment identified above is not a new deficiency compared to the 2015 Traffic Study, but instead is a deficiency that appears earlier than the 2015 Traffic Study. This is a result of regional growth and higher traffic volumes utilizing the I-15 Freeway, and not as a result of Project traffic. This applies to both 2021 and 2040 conditions.

1.3.1 EXISTING (2019) CONDITIONS

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

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.

1.3.3 OPENING YEAR CUMULATIVE (2021) CONDITIONS

The Opening Year Cumulative (2021) 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 4.04% (compounded growth of 2 percent per year over 2 years or $1.02^{2 \text{ years}}$) are included for Opening Year Cumulative traffic conditions. The list of cumulative development projects was compiled from information provided by the City of Wildomar, and is consistent with other recent studies in the study area.

1.3.4 GENERAL PLAN BUILDOUT (2040) CONDITIONS

The General Plan Buildout (2040) Without Project traffic conditions forecasts were derived from the Riverside County Transportation Analysis Model (RivTAM) modified to represent the General Plan Buildout of the City of Wildomar using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and General Plan Buildout conditions. The General Plan Buildout (2040) With Project traffic forecasts were determined by adding the Project traffic to the General Plan Buildout (2040) Without Project traffic forecasts from the RivTAM model.

The General Plan Buildout Without and With Project traffic conditions analyses will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee (TUMF), Development Impact Fee (DIF) programs, Southwest Road and Bridge Benefit District (RBBD), or other approved funding mechanism can accommodate the long-range cumulative traffic at the target Level of Service (LOS) identified in the City of Wildomar General Plan. (4)

1.4 STUDY AREA

1.4.1 INTERSECTIONS

The following 8 study area intersections shown on Exhibit 1-2 and listed in Table 1-3, were selected for this TIA based on consultation with City of Wildomar staff.

TABLE 1-3: INTERSECTION ANALYSIS LOCATIONS

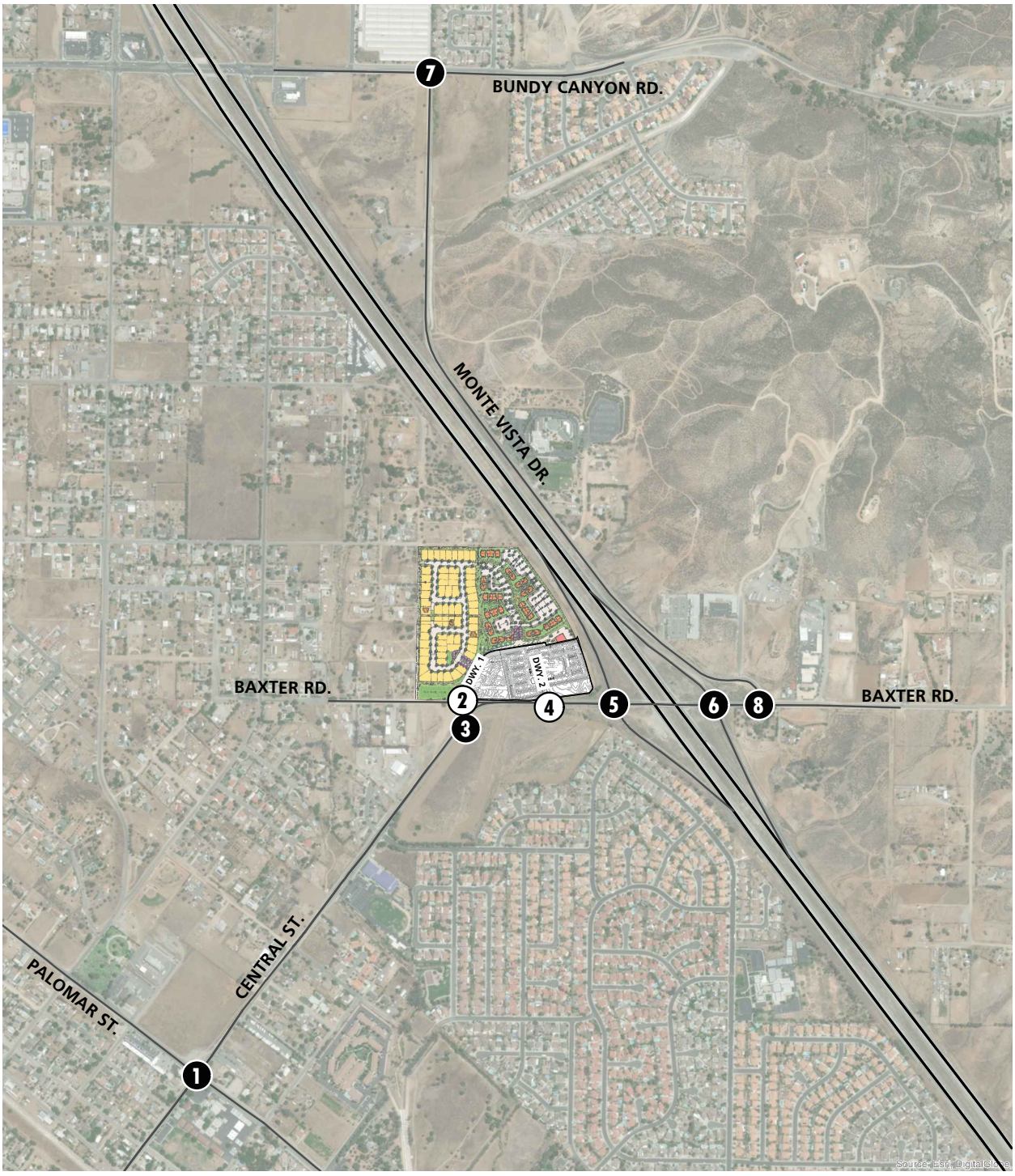
ID	Intersection Location	Jurisdiction	CMP?
1	Palomar St. & Central St.	City of Wildomar	No
2	Driveway 1 & Baxter Rd. – Future Intersection	City of Wildomar	No
3	Central St. & Baxter Rd	City of Wildomar	No
4	Driveway 2 & Baxter Rd. – Future Intersection	City of Wildomar	No
5	I-15 Southbound Ramps & Baxter Rd.	Caltrans, City of Wildomar	No
6	I-15 Northbound Ramps & Baxter Rd.	Caltrans, City of Wildomar	No
7	Monte Vista Dr. & Bundy Canyon Rd.	City of Wildomar	No
8	Monte Vista Dr. & Baxter Rd.	City of Wildomar	No

In general, the study area includes intersections where the Project is anticipated to contribute 50 or more peak hour trips. The "50 peak hour trip" criterion utilized by the City of Wildomar is consistent with the methodology employed by the County of Riverside, and generally represents a minimum number of trips at which a typical intersection would have the potential to be substantively impacted 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 impact (i.e., study area).

Although there are more than 50 peak hour trips that are anticipated north and south of Central Street on Palomar Street, the proposed medical office use is anticipated to interact with existing residential uses along Palomar Street such that there would be fewer than 50 peak hour trips at Gruwell Street (Orange Street) and Clinton Keith Road. Gruwell Street is the first General Plan roadway to the north on Palomar Street and Clinton Keith Road is the first General Plan roadway to the south along Palomar Street. For this reason, additional study area intersections have not been evaluated for the purposes of this TIA.

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 impacts, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. The County of Riverside CMP became effective with the passage of Proposition 111 in 1990 and updated most recently updated in 2011. The Riverside County Transportation Commission (RCTC) adopted the 2011 CMP for the County of Riverside in December 2011. (5) There are no intersection analysis locations within the study area that are identified as a CMP intersection.

EXHIBIT 1-2: LOCATION MAP



LEGEND:

0 = EXISTING INTERSECTION ANALYSIS LOCATION

(0) = FUTURE INTERSECTION ANALYSIS LOCATION

N

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URBAN CROSSROADS

1.4.2 FREEWAY MAINLINE AND RAMP JUNCTION ANALYSIS

Study area freeway mainline analysis locations were selected based on Caltrans traffic study guidelines, which may require the analysis of State highway facilities. (2) Consistent with recent Caltrans guidance, and because deficiencies to freeway segments tend to dissipate with distance from the point of State Highway System (SHS) entry, quantitative study of freeway segments beyond those immediately adjacent to the point of entry typically is not required. As such, this study evaluates the following freeway segments adjacent to the point of entry to the SHS, where the Project is anticipated to contribute 50 or more one-way peak hour trips (see Table 1-4):

TABLE 1-4: FREEWAY FACILITY ANALYSIS LOCATIONS

ID	Freeway Facilities
1	I-15 Freeway Southbound, North of Baxter Rd.
2	I-15 Freeway Southbound, Off-Ramp at Baxter Rd.
3	I-15 Freeway Southbound, On-Ramp at Baxter Rd.
4	I-15 Freeway Southbound, South of Baxter Rd.
5	I-15 Freeway Northbound, North of Baxter Rd.
6	I-15 Freeway Northbound, Off-Ramp at Baxter Rd.
7	I-15 Freeway Northbound, On-Ramp at Baxter Rd.
8	I-15 Freeway Northbound, South of Baxter Rd.

1.5 PROJECT DEFICIENCIES

This section provides a summary of Project deficiencies. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions*, Section 6 *Opening Year Cumulative (2021) Traffic Conditions*, and Section 7 *General Plan Buildout (2040) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Exhibit 1-3.

1.5.1 E+P CONDITIONS

Central Street & Baxter Road (#3) – This intersection was found to operate at an acceptable LOS (LOS D or better) during the peak hours under Existing traffic conditions. With the addition of Project traffic, this intersection is anticipated to operate at an unacceptable LOS during the one or more peak hours. Consistent with the City's significance criteria, the impact is considered significant.

I-15 Southbound Ramps & Baxter Road (#5) – This intersection was found to operate at an unacceptable LOS during the peak hours under Existing traffic conditions and is anticipated to continue to operate at an unacceptable LOS during the peak hours with the addition of Project traffic, resulting in a cumulative deficiency.

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

#	Intersection	Existing (2019)	E+P	Opening Year Cumulative (2021) Without Project	Opening Year Cumulative (2021) With Project	General Plan Buildout (2040) Without Project	General Plan Buildout (2040) With Project
1	Palomar St. & Central St.	A-D	A-D	A-D	A-D	F	F
2	Dwy. 1 & Baxter Rd.	NA	A-D	NA	A-D	NA	A-D
3	Central St. & Baxter Rd.	A-D	F	A-D	F	F	F
4	Dwy. 2 & Baxter Rd.	NA	A-D	NA	A-D	NA	A-D
5	I-15 SB Ramps & Baxter Rd.	D-E	F	F	F	F	F
6	I-15 NB Ramps & Baxter Rd.	A-D	A-D	D-E	D-E	F	F
7	Monte Vista Dr. & Bundy Canyon Rd.	A-D	A-D	F	F	F	F
8	Monte Vista Dr. & Baxter Rd.	A-D	A-D	A-D	A-D	F	F

LEGEND:

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

1.5.2 OPENING YEAR CUMULATIVE (2021) CONDITIONS

The following study area intersections are anticipated to operate at a deficient LOS during one or both peak hours for Opening Year Cumulative (2021) Without Project traffic conditions:

- I-15 Southbound Ramps & Baxter Rd. (#5) – LOS F AM and PM peak hours
- I-15 Northbound Ramps & Baxter Rd. (#6) – LOS E PM peak hour only
- Monte Vista Dr. & Bundy Canyon Rd. (#7) – LOS F AM and PM peak hours

The Project is anticipated to contribute to these deficiencies by adding traffic (as measured by 50 or more peak hours trips) to already deficient intersections resulting in an increase to peak hour delays. Cumulative deficiencies are not directly caused by the Project. The Project would, however, contribute traffic to these deficient facilities along with other cumulative development projects. With the addition of Project traffic, the following additional intersection is anticipated to operate at an unacceptable LOS during the peak hours under Opening Year Cumulative (2021) With Project traffic conditions:

- Central St. & Baxter Rd. (#3) – LOS F AM and PM peak hours

1.5.3 GENERAL PLAN BUILDOUT (2040) CONDITIONS

The following study area intersections are anticipated to operate at a deficient LOS during one or both peak hours for General Plan Buildout (2040) Without Project traffic conditions:

- Palomar St. & Central St. (#1) – LOS F AM and PM peak hours
- Central St. & Baxter Rd. (#3) – LOS F AM and PM peak hours
- I-15 Southbound Ramps & Baxter Rd. (#5) – LOS F AM and PM peak hours
- I-15 Northbound Ramps & Baxter Rd. (#6) – LOS F AM and PM peak hours
- Monte Vista Dr. & Bundy Canyon Rd. (#7) – LOS F AM and PM peak hours
- Monte Vista Dr. & Baxter Rd. (#8) – LOS F AM and PM peak hours

The Project is anticipated to contribute to these deficiencies by adding traffic (as measured by 50 or more peak hours trips) to already deficient intersections resulting in an increase to peak hour delays. Cumulative deficiencies are not directly caused by the Project. The Project would, however, contribute traffic to these deficient facilities along with other cumulative development projects. With the addition of Project traffic, the following additional intersection is anticipated to operate at an unacceptable LOS during the peak hours under General Plan Buildout (2040) With Project traffic conditions:

- Driveway 2 & Baxter St. (#4) – LOS F PM peak hour only

1.6 RECOMMENDATIONS

The following improvements are needed to address the cumulative deficiencies identified under E+P, Opening Year Cumulative (2021), and General Plan Buildout (2040) traffic conditions. For those recommended improvements listed in Table 1-5 and not constructed as part of the Project, the Applicant's responsibility for the Project's contributions to deficient traffic conditions is fulfilled by payment of fair share fees and/or payment of TUMF, DIF, and or RBBD fees that would be assigned to construction of the identified recommended improvements.

Mitigation Measure 1.1 – Central Street & Baxter Road (#3) – The following improvements are necessary to reduce the Project's impact to less than significant:

- Project to install a traffic signal.
- Project to restripe the southbound shared through-right turn lane as a left turn lane and construct a right turn lane.
- Project to construct an eastbound left turn lane.
- Project to construct a westbound right turn lane.

Mitigation Measure 2.1 – I-15 Southbound Ramps & Baxter Road (#5) – The following improvement is necessary to reduce the cumulative impact to less than significant:

- The Project shall mitigate through payment of TUMF fees.

The Project Applicant would be required to pay TUMF fees, DIF fees, RBBD fees, and fair share fees consistent with the City requirements for the improvements listed in Table 1-5 that are not constructed by the Project. Please refer to Section 8 *Local and Regional Funding Mechanisms*.

Table 1-5 identifies the improvements recommended for Opening Year Cumulative and Horizon Year traffic conditions are consistent with the improvements recommended in the 2015 Traffic Study for the same analysis scenarios. 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 $80,872. 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 mitigation.

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Table 1-5

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Recommended Improvements					Improvements in DIF, TUMF, etc.[1]	Project Responsibility[2]	Total Cost[4,5]	Project Fair Share[3]	Fair Share Cost[6]
			E+P	2021 With Project	2018 With Project (2015 TIA)	2040 With Project	Post-2035 With Project (2015 TIA)					
1	Palomar St. & Central St.	Wildomar	None	None	Same	Add 2nd NB through lane	Same	Yes (TUMF)	Fees	--	7.7%	--
						Add 2nd SB through lane	Same	Yes (TUMF)	Fees	--		--
						Add EB right turn lane	Same	No	Fair Share	$78,400		$6,057
						Add 2nd WB through lane	Same	Yes (TUMF)	Fees	--		--
										$78,400		**$6,057**
3	Central St. & Baxter Rd	Wildomar	Install a traffic signal	Same	Same	Same	Same	Yes (DIF)	Construct	--	25.2%	--
			Add SB left turn lane	Same	Same	Same	Same	No	Construct	--		--
			Add EB left turn lane	Same	Same	Same	Same	No	Construct	--		--
			Add WB right turn lane	Same	Same	Same	Same	No	Construct	--		--
						Add NB left turn lane	Same	No	Fair Share	$78,400		$19,722
						Add 2nd EB through lane	Same	Yes (TUMF)	Fees	--		--
						Add EB right turn lane	Same	No	Fair Share	$78,400		$19,722
						Add WB left turn lane	Same	No	Fair Share	$78,400		$19,722
						Add 2nd WB through lane	Same	Yes (TUMF)	Fees	--		--
										$235,200		**$59,167**
4	Driveway 2 & Baxter Rd.	Wildomar	None	None	Same	Add 2nd EB through lane	Same	Yes (TUMF)	Fees	--	--	--
						Add 2nd WB through lane	Same	Yes (TUMF)	Fees	--		--
										$0		**$0**
5	I-15 SB Ramps & Baxter Rd.	Wildomar, Caltrans	Install a traffic signal	Same	Same	Same	Same	Yes (TUMF)	Fees	--	--	--
				Add EB right turn lane	Same	Same	Same	Yes (TUMF)	Fees	--		--
						Add 2nd EB through lane	Same	Yes (TUMF)	Fees	--		--
						Add 2nd WB through lane	Same	Yes (TUMF)	Fees	--		--
										$0		**$0**
6	I-15 NB Ramps & Baxter Rd.	Wildomar, Caltrans	None	Install a traffic signal	Same	Same	Same	Yes (TUMF)	Fees	--	--	--
						Add 2nd EB through lane	Same	Yes (TUMF)	Fees	--		--
						Add 2nd WB through lane	Same	Yes (TUMF)	Fees	--		--
						Add WB right turn lane	Same	Yes (TUMF)	Fees	--		--
										$0		**$0**
7	Monte Vista Dr. & Bundy Canyon Rd.	Wildomar	None	Install a traffic signal	Same	Same	Same	Yes (DIF)	Fees	--	2.8%	--
				Add 2nd EB through lane	Same	Same	Same	Yes (TUMF, RBBD)	Fees	--		--
						Add NB left turn lane	Same	Yes (DIF)	Fees	--		--
						Add NB right turn lane	Same	Yes (DIF)	Fees	--		--
						Add 3rd EB through lane	Same	No	Fair Share	$282,240		$7,824
						Add EB right turn lane	Same	Yes (DIF)	Fees	--		--
						Add 2nd WB left turn lane	Same	Yes (DIF)	Fees	--		--
						Add 2nd WB through lane	Same	Yes (TUMF, RBBD)	Fees	--		--
						Add 3rd WB through lane	Same	No	Fair Share	$282,240		$7,824
										$564,480		**$15,648**

Table 1-5
Page 2 of 2

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Recommended Improvements					Improvements in DIF, TUMF, etc.[1]	Project Responsibility[2]	Total Cost[4,5]	Project Fair Share[3]	Fair Share Cost[6]
			E+P	2021 With Project	2018 With Project (2015 TIA)	2040 With Project	Post-2035 With Project (2015 TIA)					
8	Monte Vista Dr. & Baxter Rd.	Wildomar	None	None	Same	Install a traffic signal	Same	Yes (DIF)	Fees	--	--	--
						Add SB right turn lane	Same	Yes (DIF)	Fees	--		--
						Add EB left turn lane	Same	Yes (DIF)	Fees	--		--
						Stripe the WB right turn lane and modify the traffic signal to implement overlap phasing	Same	Yes (DIF)	Fees	--		--
										$0		**$0**
									Total Project Fair Share Contribution to the City of Wildomar[6]	**$878,080**		**$80,872**

[1] Improvements included in Regional TUMF or City of Wildomar DIF programs have been identified as such.

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

[3] Project fair share percentage for the improvements which are not already included in the City-wide DIF/County TUMF/County RBBD.

[4] Costs have been estimated using the data provided in Appendix "G" of the CMP (2003 Update) for preliminary construction costs. Appendix "G" costs escalated by a factor of 1.565 and per City direction Traffic Signals use $600,000. Costs are only calculated for improvements with a fair share responsibility (not for those that are to be constructed by the Project or those covered by fees).

[5] Program improvements constructed by project may be eligible for fee credit. In lieu fee payment is at discretion of City. Represents the fair share percentage for the Project during the most impacted peak hour.

[6] Rough order of magnitude fair share cost estimate.

[6] Total Project fair share contribution consists of the improvements which are not already included in the County's TUMF, City's DIF, or other pre-existing fee program for those intersections wholly or partially located within the City of Wildomar.

1.7 SITE ACCESS RECOMMENDATIONS

The following site adjacent roadway and site access improvements are necessary to facilitate site access. Exhibit 1-4 shows the improvements described below.

1.7.1 SITE ADJACENT ROADWAY RECOMMENDATIONS

Baxter Road – Baxter Road is an east-west oriented roadway located along the Project's southern boundary. Construct Baxter Road at its ultimate half-section width as an Arterial Highway (128-foot right-of-way) between Central Street and the Project's eastern boundary. In addition, construct the extension of Baxter Road to its ultimate cross-section width as a Local Street (60-foot right-of-way) from the edge of Central Avenue/Baxter Road to the Project entrance at Driveway 1. Construct the western extension of Baxter Road from Driveway 1 to White Street to its ultimate half-section as a Local Street (60-foot right-of-way). Improvements along the Project's frontage would be those required by final conditions of approval for the proposed Project and applicable City of Wildomar standards.

White Street – White Street is a north-south oriented roadway located along the Project's western boundary. Construct White Street at its ultimate half-section width as a Local Street (60-foot right-of-way) from the Project's northern boundary to Baxter Road. Improvements along the Project's frontage (east side of White Street) would be those required by final conditions of approval for the proposed Project and applicable City of Wildomar standards.

Wherever necessary, roadways adjacent to the Project, site access points and site-adjacent intersections will be constructed to be consistent with the identified roadway classifications and respective cross-sections in the City of Wildomar General Plan Circulation Element.

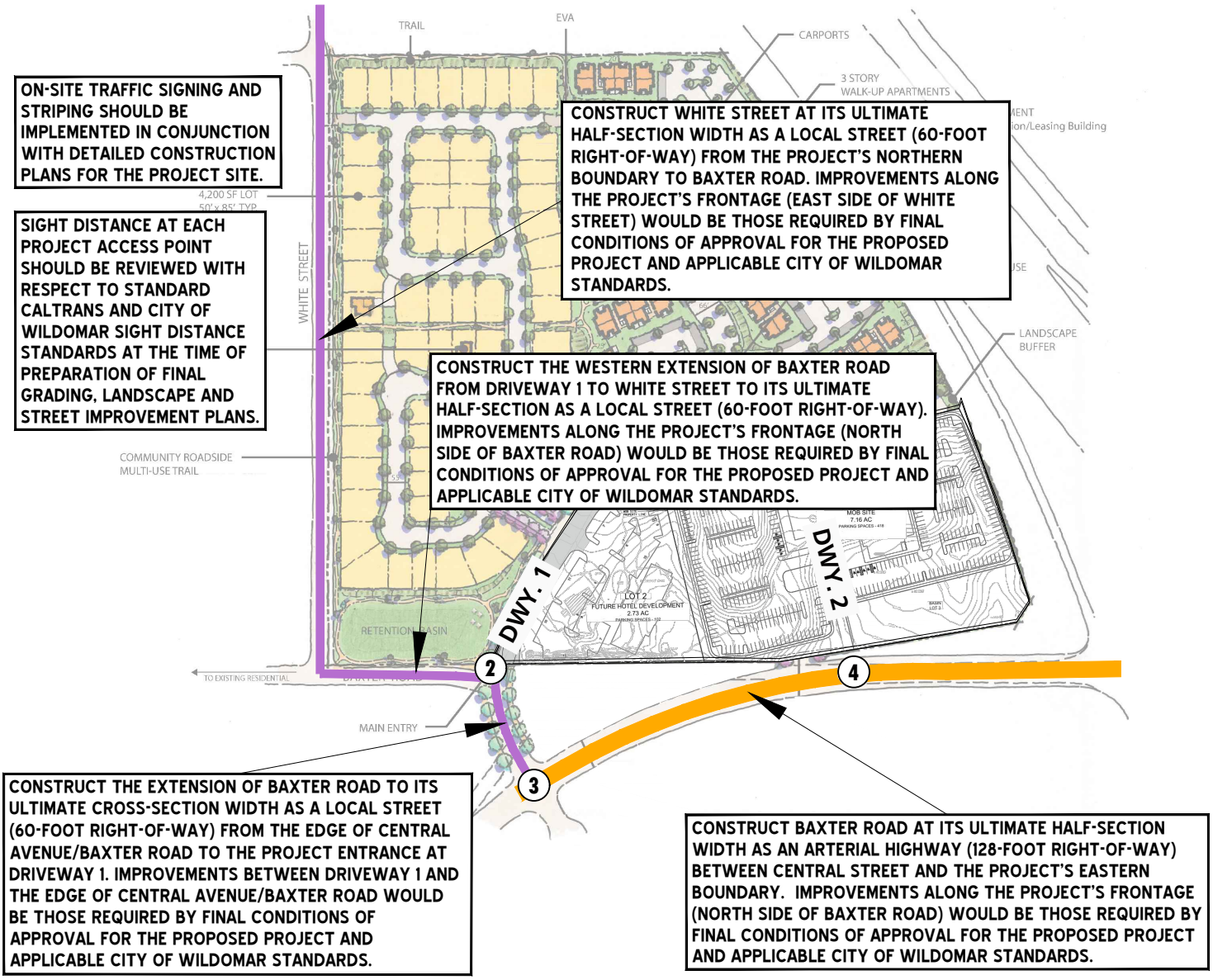
On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

1.7.2 SITE ADJACENT ACCESS RECOMMENDATIONS

Driveway 1 & Baxter Road (#2) – The following improvements are necessary to accommodate site access:

- Install a stop control on the eastbound approach and add an eastbound shared left-right turn lane.
- Add a northbound shared left-through lane.
- Add a southbound shared through-right turn lane.

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



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Central Street & Baxter Road (#3) – The following improvements are necessary to accommodate site access:

- Install a traffic signal.
- Add a southbound left turn lane (restripe existing lane) and southbound right turn lane.
- Add an eastbound left turn lane.
- Add a westbound right turn lane.

Driveway 2 & Baxter Road (#4) – The following improvements are necessary to accommodate site access:

- Install a stop control on the southbound approach and add a southbound right turn lane.
- Add a westbound right turn lane.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each Project access point should be reviewed with respect to Caltrans and City of Wildomar sight distance standards at the time of preparation of final grading, landscape, and street improvement plans.

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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. As the City of Wildomar does not have their own traffic study guidelines, the methodologies described are generally consistent the Riverside County Transportation Department Traffic Impact Analysis Preparation Guide. (1)

2.1 LEVEL OF SERVICE

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

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (6) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Wildomar requires signalized intersection operations analysis based on the methodology described in the HCM (6th Edition). (6) 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 in Table 2-1.

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

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 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

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 (6th Edition), 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. (6) In an effort to conduct a conservative analysis, a PHF of 0.92 has been utilized for new intersections.

California Department of Transportation (Caltrans)

Per the Caltrans Guide for the Preparation of Traffic Impact Studies, the traffic modeling and signal timing optimization software package Synchro (Version 10) has also been utilized to analyze signalized intersections under Caltrans' jurisdiction, which consists of the I-15 Freeway & Baxter Road freeway-to-arterial ramp intersections. (2)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Wildomar and Caltrans requires the operations of unsignalized intersections be evaluated using the methodology described in the HCM (6th Edition). (6) 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.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by the Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices *(CA MUTCD)* for all study area intersections. (7)

The signal warrant criteria for Existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The Caltrans CA MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (7) Specifically, this TIA utilizes the Peak Hour Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing study area intersections for all analysis scenarios. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

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

As shown in Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips. Traffic signal warrant analysis has not been conducted at any signalized intersection or any future intersection that is anticipated to have restricted access, such as Driveway 2 on Baxter Road.

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
2	Driveway 1 & Baxter Rd. – Future Intersection	City of Wildomar
3	Central St. & Baxter Rd.	City of Wildomar
5	I-15 Southbound Ramps & Baxter Rd.	City of Wildomar, Caltrans
6	I-15 Northbound Ramps & Baxter Rd.	City of Wildomar, Caltrans
7	Monte Vista Dr. & Bundy Canyon Rd.	City of Wildomar
8	Monte Vista Dr. & Baxter Rd.	City of Wildomar

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analysis for future conditions is presented in Section 5 *E+P Traffic Conditions,* Section 6 *Opening Year Cumulative (2021) Traffic Conditions,* and Section 7 *General Plan Buildout (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 MINIMUM LEVEL OF SERVICE (LOS)

The City of Wildomar defines intersection performance deficiency standards consistent with those of the County of Riverside General Plan Circulation Element.

The definition of an intersection deficiency has been obtained from the County of Riverside General Plan. Riverside County General Plan Policy C 2.1 states that the County will maintain the following County-wide target LOS:

The following minimum target levels of service have been designated for the review of development proposals in the unincorporated areas of Riverside County with respect to transportation impacts on roadways designated in the Riverside County Circulation Plan which are currently County maintained, or are intended to be accepted into the County maintained roadway system:

- *LOS C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well as those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.*
- *LOS D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley,*

Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

- *LOS E may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.*

The applicable minimum LOS utilized for the purposes of this analysis is LOS D per the City-wide target LOS for projects located within a Community Development Area.

2.5 FREEWAY OFF-RAMP QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the I-15 Freeway and Baxter Road interchange. Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the I-15 Freeway mainline from the off-ramps.

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. A Synchro 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.

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. Although only the 95th percentile queue has been reported in the tables, the 50th percentile queue can be found in the appendix alongside the 95th percentile queue for each ramp location. The 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations. 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.

2.6 FREEWAY MAINLINE SEGMENT ANALYSIS METHODOLOGY

Consistent with recent Caltrans guidance, the traffic study has evaluated the freeway segments on either side of Baxter Road where the Project is anticipated to contribute 50 or more peak hour one-way trips, in an effort to conduct a conservative analysis and overstate as opposed to understand potential deficiencies.

The freeway system in the study area has been broken into segments defined by the freeway-to-arterial interchange locations. The freeway segments have been evaluated in this TIA based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in the HCM and performed using HCS7 software. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile

per lane. Table 2-4 illustrates the freeway segment LOS descriptions for each density range utilized for this analysis.

TABLE 2-4: DESCRIPTION OF FREEWAY MAINLINE LOS

Level of Service	Description	Density Range (pc/mi/ln)[1]
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0 – 11.0
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly and flows, and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 – 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

[1] pc/mi/ln = passenger cars per mile per lane. Source: HCM (6th Edition)

The number of lanes for existing baseline conditions has been obtained from field observations conducted by Urban Crossroads in June 2019. These existing freeway geometrics have been utilized for Existing, E+P, Opening Year Cumulative (2021), and General Plan Buildout (2040) traffic conditions.

The I-15 Freeway mainline volume data was obtained from the Caltrans Performance Measurement System (PeMS) website for the segments of the I-15 Freeway south of Baxter Road. The data was obtained from October 2013. To replicate Existing (2019) traffic conditions, an ambient growth rate of 9.34 percent (1.5 percent per year, compounded annually – consistent with the methodology for Existing intersection counts) was utilized from the 2013 freeway volumes. It should be noted, Caltrans PeMS data for 2019 is unreliable and only based on historical data as opposed to actual traffic volumes, as the detectors on the I-15 freeway report 0 percent observed. (8)

2.7 FREEWAY MERGE/DIVERGE RAMP JUNCTION ANALYSIS

The freeway system in the study area has been broken into segments defined by freeway-to-arterial interchange locations where the Project is anticipated to contribute 50 or more peak hour trips at the I-15 Freeway and Baxter Road interchange (see Table 1-4). Although the HCM indicates the influence area for a merge/diverge junction is 1,500 feet, the analysis presented in this traffic study has been performed at all ramp locations with respect to the nearest on or off-

ramp at each interchange in an effort to be consistent with Caltrans guidance/comments on other projects Urban Crossroads has worked on in the region.

The freeway facility analysis is performed using the HCS7 software and analyzes the freeway facility as a whole, including both freeway segments and ramp junctions. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off-ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. Table 2-5 presents the merge/diverge area level of service descriptions for each density range utilized for this analysis.

TABLE 2-5: DESCRIPTION OF FREEWAY MERGE AND DIVERGE LOS

Level of Service	Density Range (pc/mi/ln)[1]
A	≤10.0
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand Exceeds Capacity

[1] pc/mi/ln = passenger cars per mile per lane. Source: HCM (6th Edition)

Similar to the basic freeway segment analysis, the I-15 Freeway volume data was obtained from the Caltrans maintained PeMS website for the segments of the I-15 Freeway south of Baxter Road. The ramp data (per the count data presented in Appendix 3.1) was then utilized to flow conserve the mainline volumes to determine the remaining I-15 Freeway mainline segment volumes. Flow conservation checks ensure that traffic flows from north to south (and vice versa) of the interchange area with no unexplained loss of vehicles. The data was obtained from October 2013. As stated in Section 2.6 *Freeway Mainline Segment Analysis Methodology*, since the 2019 PeMS data is based only on historical data instead of currently observed traffic volumes, an ambient growth rate of 9.34 percent (1.5 percent per year, compounded annually) was applied to the 2013 freeway volumes to reflect Existing (2019) traffic conditions. (8)

2.8 THRESHOLDS OF SIGNIFICANCE

To determine whether the addition of project-related traffic at a study intersection would result in a significant project-related impact, the following thresholds of significance will be utilized:

- A significant project-related impact occurs at a study intersection if the addition of project-generated trips reduces the peak hour level of service of the study intersection to change from acceptable "pre-project" operation (LOS A, B, C or D) to deficient operation (LOS E or F);
- A significant project-related impact occurs at a study intersection if the addition of project-generated trips changes the pre-project delay by the value shown below in Table 2-6.

TABLE 2-6: CITY OF WILDOMAR INTERSECTION TRAFFIC LEVEL OF SERVICE STANDARD

Pre-Project LOS	Project-Related Delay Increase	Mitigation Measure
E or F	More than 5.0 seconds	Reduce delay increase to within 5.0 seconds

2.9 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the TUMF, RBBD, and/or DIF will be identified as such. For improvements that do not appear to be in either of the pre-existing fee programs, a fair share financial contribution based on the Project's proportional share may be imposed in order to mitigate the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the City Traffic Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval).

If the intersection is currently operating at acceptable LOS under Existing traffic conditions, the Project's fair share cost of improvements would be determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (2040 Total Traffic – Existing (2019) Traffic)

3 AREA CONDITIONS

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

3.1 EXISTING CIRCULATION NETWORK

The study area includes a total of 8 existing and future intersections as shown previously on Exhibit 1-2. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 GENERAL PLAN CIRCULATION AND INFRASTRUCTURE ELEMENT

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

3.3 BICYCLE & PEDESTRIAN FACILITIES

Exhibit 3-4 shows the City of Wildomar General Plan Trails Map, which shows there is a future Community Trail along Baxter Road within the study area. Field observations indicate nominal pedestrian and bicycle activity within the study area. Existing pedestrian facilities within the study area are shown on Exhibit 3-5. There are limited areas with existing sidewalks within the study area and there are no bike lanes/paths.

3.4 TRANSIT SERVICE

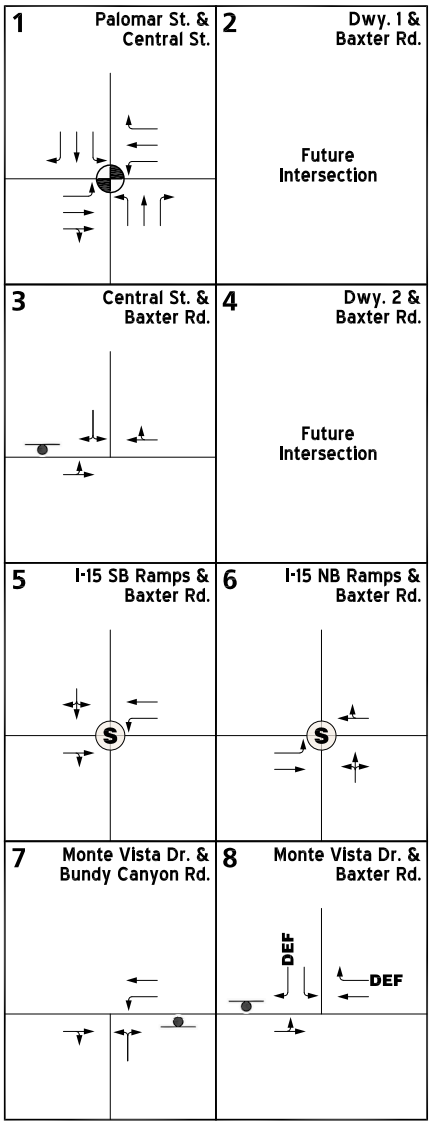
The study area is currently served by the Riverside Transit Agency (RTA). Exhibit 3-6 shows the existing transit routes. The study area is currently served by RTA Routes 8 and 23 along Palomar Street and Central Street. However, the Project site is not currently served by any RTA routes. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate.

3.5 EXISTING (2019) TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in May 2019, while local schools were in session, for the following intersections:

- Central Street & Baxter Road
- I-15 Southbound Ramps & Baxter Road
- I-15 Northbound Ramps & Baxter Road

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

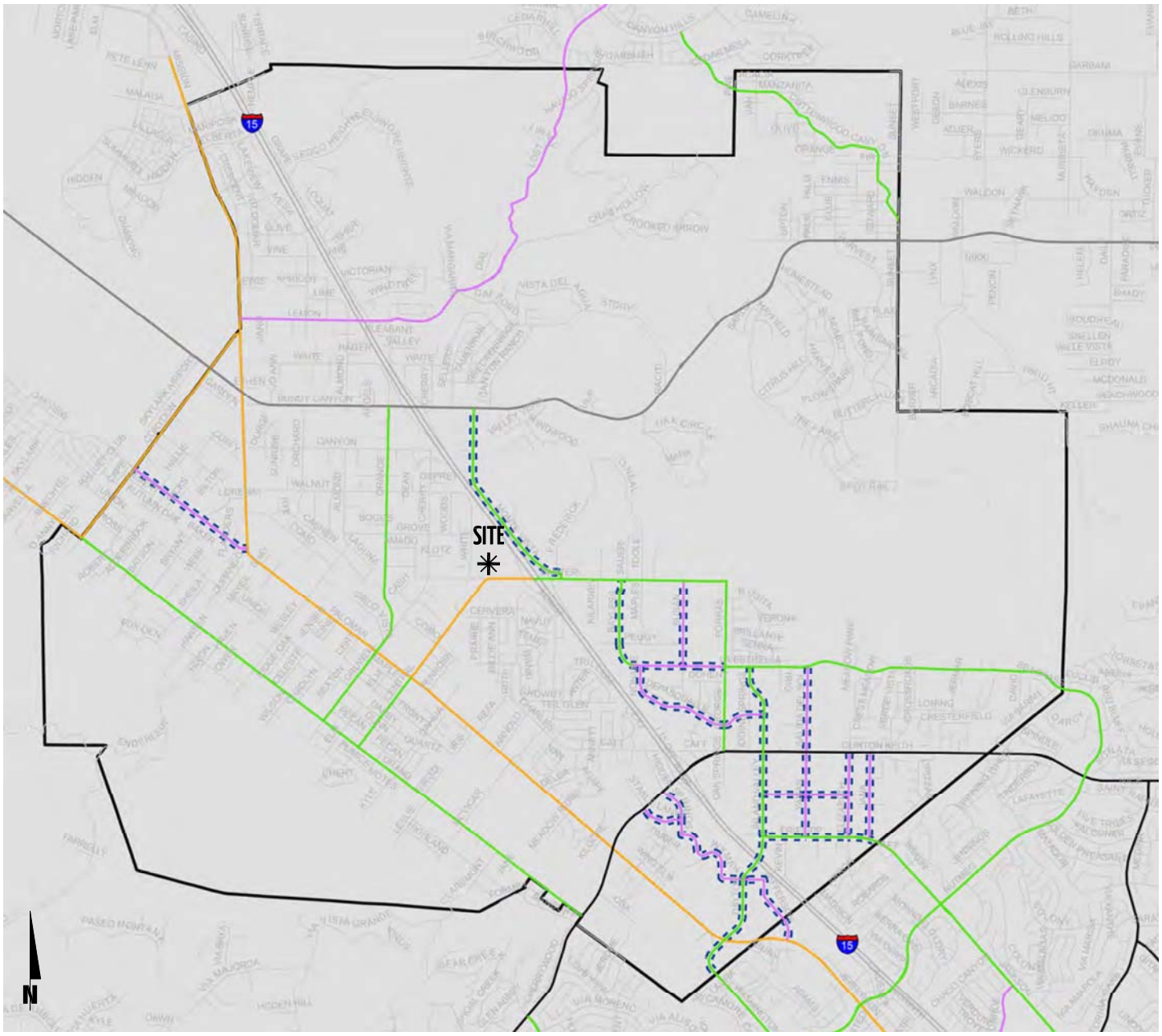


LEGEND:

- = TRAFFIC SIGNAL
- = ALL WAY STOP
- = STOP SIGN
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN

N

EXHIBIT 3-2: CITY OF WILDOMAR GENERAL PLAN CIRCULATION AND INFRASTRUCTURE ELEMENT

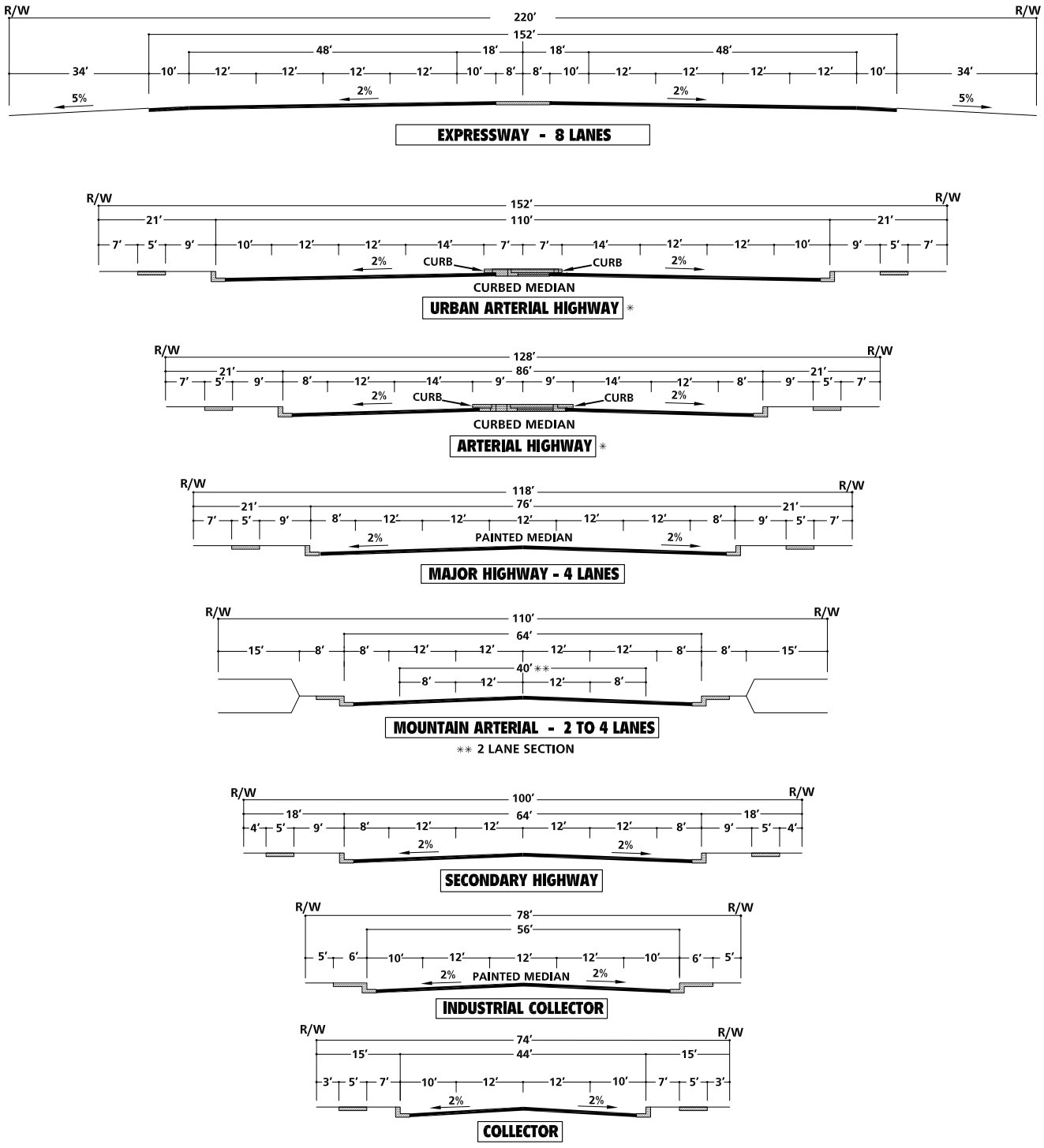


LEGEND:

- URBAN ARTERIAL
- ARTERIAL
- MAJOR
- SECONDARY
- COLLECTOR
- WILDOMAR CITY BOUNDARIES

NOTE: CITY OF WILDOMAR DRAFT GENERAL PLAN UPDATE JANUARY 2015

EXHIBIT 3-3: CITY OF WILDOMAR GENERAL PLAN ROADWAY CROSS-SECTIONS



* *IMPROVEMENTS MAY BE RECONFIGURED TO ACCOMMODATE EXCLUSIVE TRANSIT LANES OR ALTERNATIVE LANE ARRANGEMENTS ADDITIONAL RIGHT OF WAY MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE ULTIMATE IMPROVEMENTS FOR STATE HIGHWAYS SHALL CONFORM TO CALTRANS DESIGN STANDARDS.*

NOTE: THE CITY OF WILDOMAR HAS ADOPTED THE COUNTY OF RIVERSIDE'S GENERAL PLAN AND STANDARDS

EXHIBIT 3-4: CITY OF WILDOMAR GENERAL PLAN TRAILS MAP

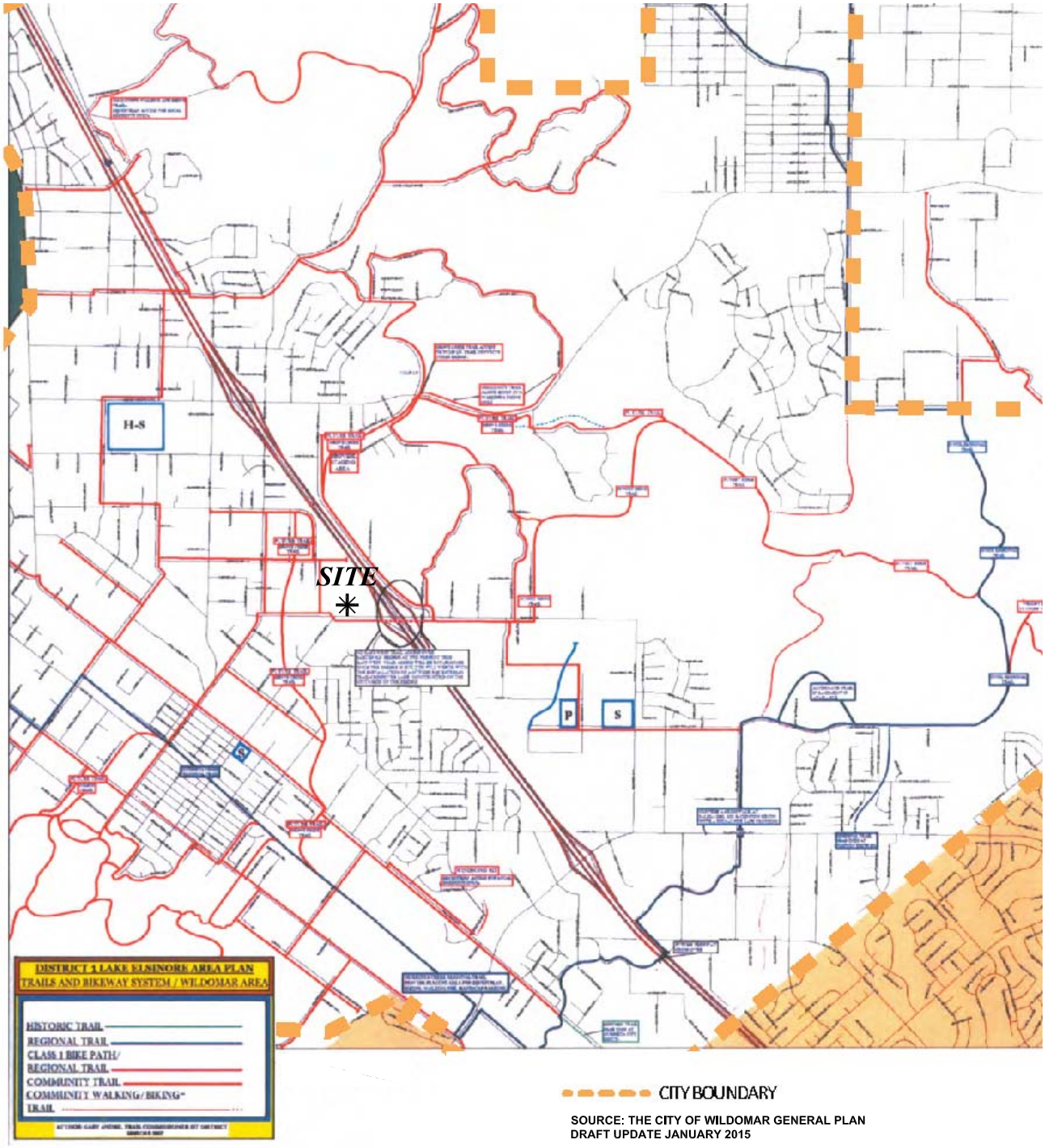


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EXHIBIT 3-5: EXISTING PEDESTRIAN FACILITIES

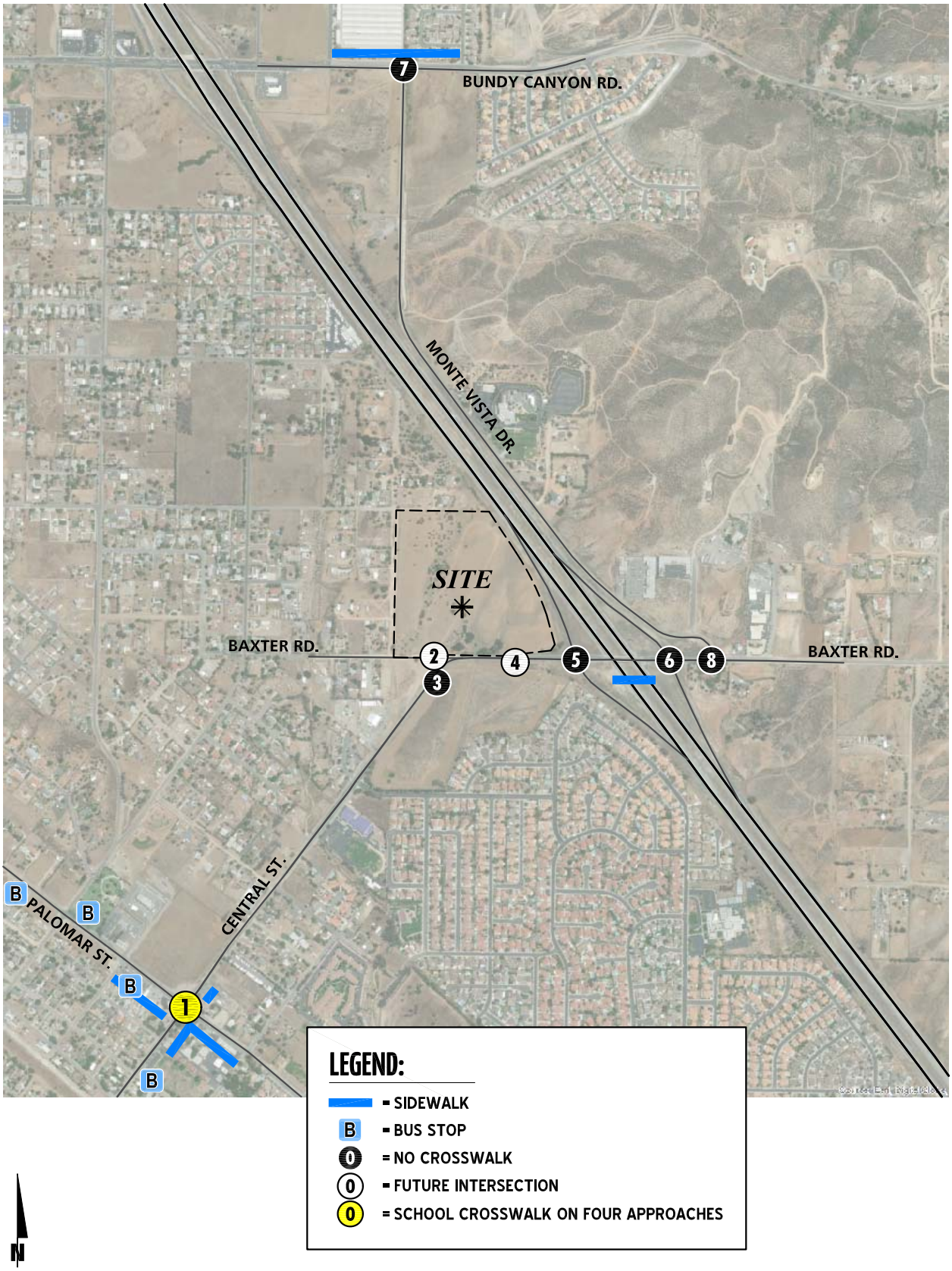
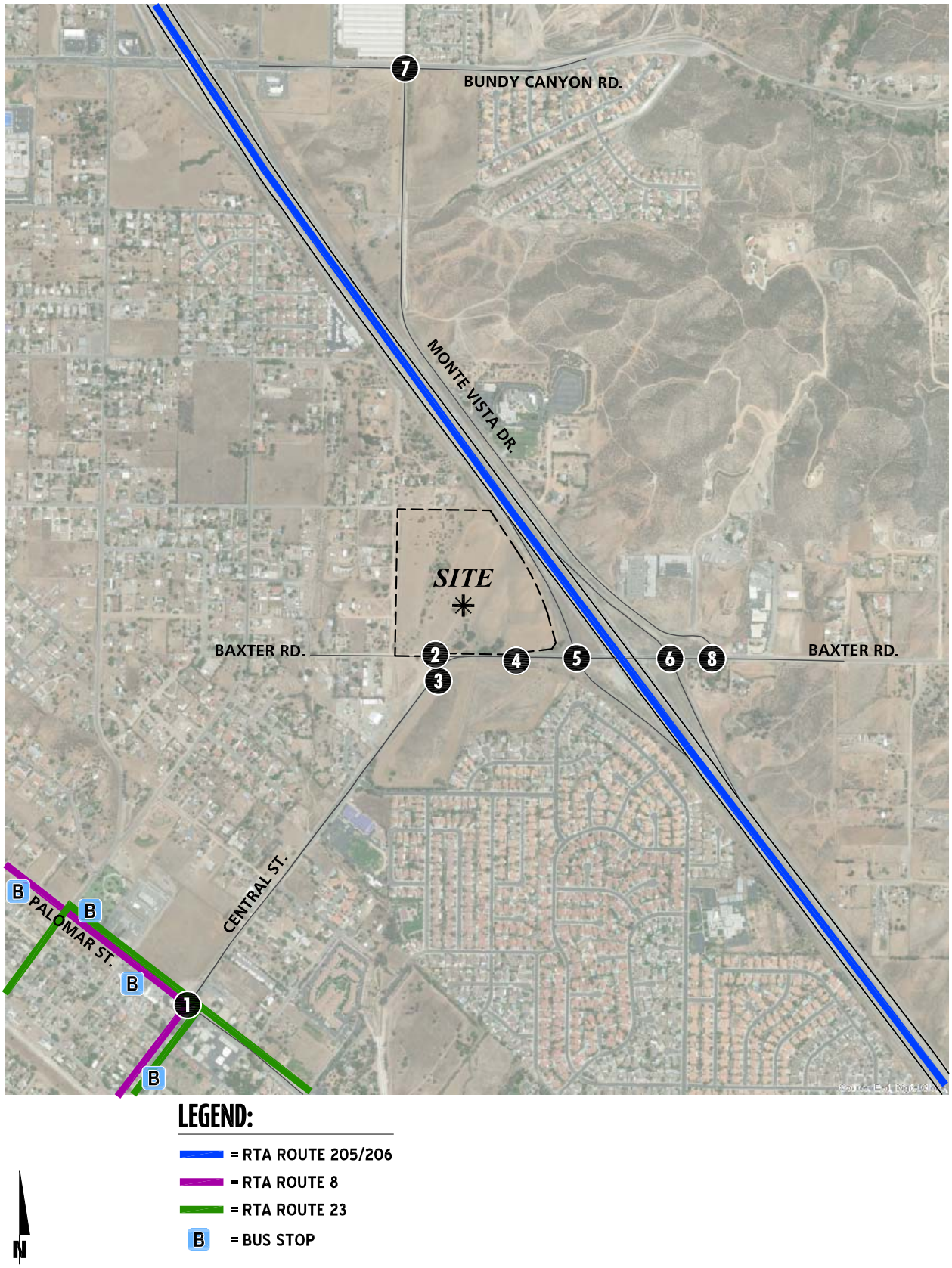


EXHIBIT 3-6: EXISTING TRANSIT ROUTES



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The following peak hours were selected for analysis:

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

The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. 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. The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic (e.g., between ramp-to-arterial intersections, etc.).

A comparison of the 2019 count data and the 2013 count data was conducted for the 3 surveyed locations. It was determined that the traffic counts grew on average 1.5 percent per year. As such, an ambient growth rate of 1.5 percent per year, compounded annually, was applied to the remaining 2013 traffic counts to reflect Existing (2019) baseline traffic conditions at all analysis locations.

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Exhibit 3-7. Existing ADT volumes are based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 9.93 = 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 10.07 percent. As such, the above equation utilizing a factor of 9.93 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 10.07 percent (i.e., 1/0.1007 = 9.93) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and PM traffic volumes are also shown on Exhibit 3-7.

3.6 EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS

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

- I-15 Southbound Ramps & Baxter Rd. (#5) – LOS F AM peak hour; LOS E PM peak hour

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions are shown on Exhibit 3-8. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

EXHIBIT 3-7: EXISTING (2019) TRAFFIC VOLUMES

1 Palomar St. & Central St.	2 Dwy. 1 & Baxter Rd.
128(72) 338(188) 227(137) → 138(232) ← 217(289) ← 68(67) 136(50) → 321(257) → 100(20) ↓ 67(54) ↑ 295(258) ↑ 83(70) ↓	Future Intersection
3 Central St. & Baxter Rd.	**4 Dwy. 2 & Baxter Rd.**
3(5) 3(2) → 10(9) ← 512(700) 3(3) → 817(566) →	Future Intersection
5 I-15 SB Ramps & Baxter Rd.	**6 I-15 NB Ramps & Baxter Rd.**
192(175) 1(3) 136(64) → 331(536) ← 90(41) 346(193) → 473(379) →	146(57) ← 197(127) 246(126) → 236(131) → 224(450) 0(6) 64(44) ↑
7 Monte Vista Dr. & Bundy Canyon Rd.	**8 Monte Vista Dr. & Baxter Rd.**
738(558) ← 167(66) 403(994) → 95(20) → 25(13) 65(46) ↓	146(92) 130(38) → 61(21) ← 196(91) 119(60) → 180(115) →

LEGEND:

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

N

EXHIBIT 3-8: EXISTING (2019) SUMMARY OF LOS

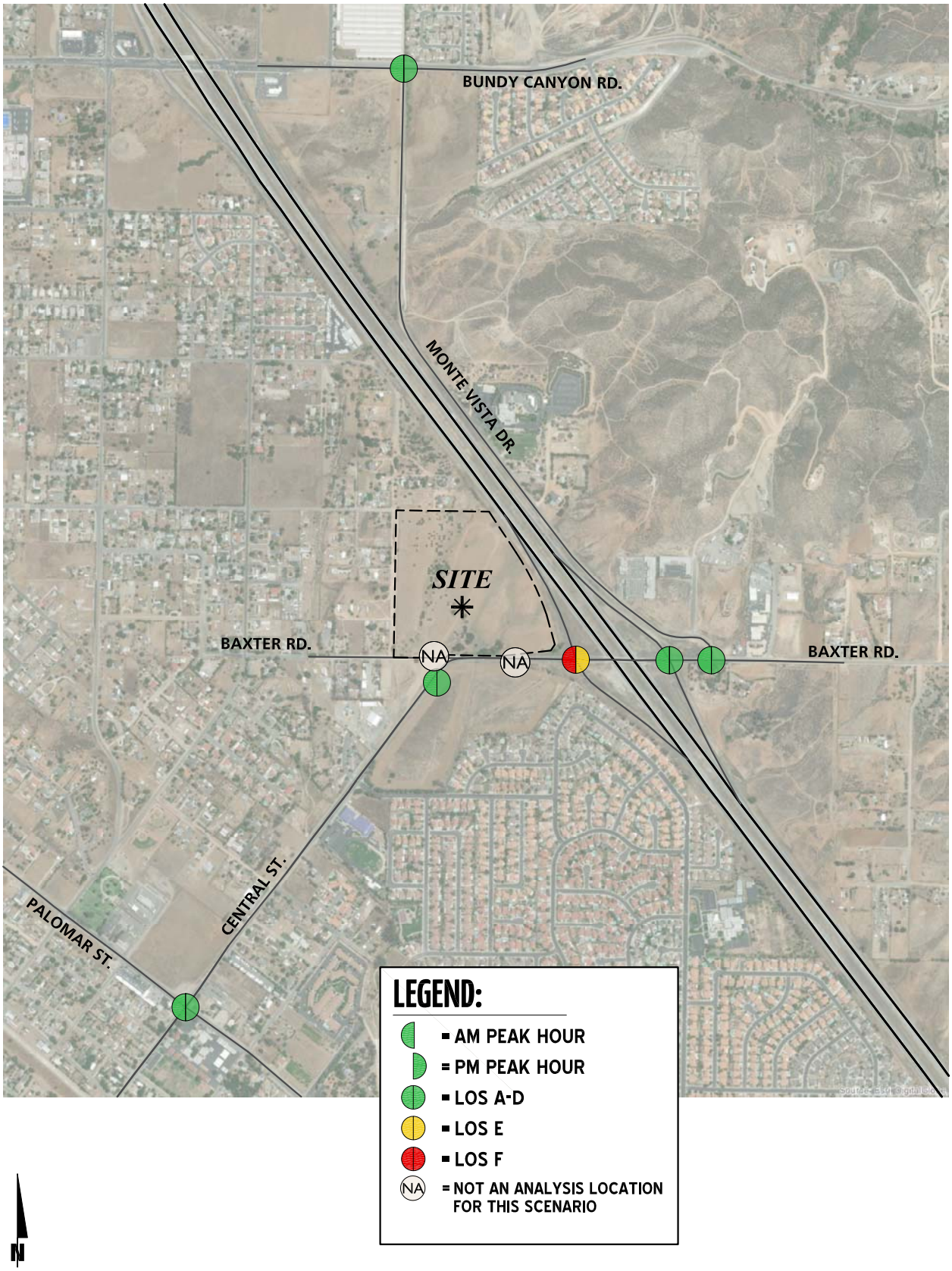

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Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Existing (2019)[2]			
			Northbound			Southbound			Eastbound			Westbound			Delay[2] (secs.)		Level of Service	
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Palomar St. & Central St.	TS	1	1	1	1	1	1	1	2	0	1	1	1	30.1	25.1	C	C
2	Driveway 1 & Baxter Rd.		Future Intersection															
3	Central St. & Baxter Rd	CSS	0	0	0	0	1	0	0	1	0	0	1	0	21.2	17.2	C	C
4	Driveway 2 & Baxter Rd.		Future Intersection															
5	I-15 SB Ramps & Baxter Rd.	AWS	0	0	0	0	1	0	0	1	0	1	1	0	**>100.0**	**40.5**	**F**	**E**
6	I-15 NB Ramps & Baxter Rd.	AWS	0	1	0	0	0	0	1	1	0	0	1	0	17.1	18.9	C	C
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	0	1	0	0	0	0	0	1	0	1	1	0	18.2	24.8	C	C
8	Monte Vista Dr. & Baxter Rd.	CSS	0	0	0	1	0	d	0	1	0	0	1	d	17.6	10.9	C	B

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

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

L = Left; T = Through; R = Right; d = Defacto Right Turn Lane

A through lane shown opposite of a non-existent intersection leg denotes a shared left-right turn lane rather than an actual through lane.

2 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal. 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. Delay and level of service calculated using the following analysis software:

Synchro 10 (HCM 6th Edition) for signalized and unsignalized intersections.

3 AWS = All-Way Stop; CSS = Cross Street Stop; TS = Traffic Signal

3.7 TRAFFIC SIGNAL WARRANTS ANALYSIS

The following unsignalized intersections currently warrant a traffic signal, based on Existing (2019) peak hour traffic volumes (see Appendix 3.3):

- I-15 Southbound Ramps & Baxter Rd. (#5)
- I-15 Northbound Ramps & Baxter Rd. (#6)
- Monte Vista Dr. & Bundy Canyon Rd. (#7)
- Monte Vista Dr. & Baxter Rd. (#8)

3.8 EXISTING (2019) OFF-RAMP QUEUING ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Baxter Road interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 3-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-2, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for Existing traffic conditions off-ramp queuing analysis are provided in Appendix 3.4.

3.9 EXISTING (2019) FREEWAY FACILITY ANALYSIS

Existing (2019) mainline directional volumes for the AM and PM peak hours are provided on Exhibit 3-9. As shown in Table 3-3, the study area freeway segments and merge/diverge ramp junctions analyzed for this study are currently operating at an acceptable LOS (i.e., LOS D or better) during the peak hours for Existing (2019) traffic conditions. Existing (2019) freeway facility analysis worksheets are provided in Appendix 3.5.

Table 3-2

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

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
I-15 SB Ramps & Baxter Rd.	SBL/T/R	1,300	128	60	Yes	Yes
I-15 NB Ramps & Baxter Rd.	NBL/T/R	1,650	93	188	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.

Table 3-3

Freeway Facility Analysis for Existing (2019) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	AM Peak Hour		PM Peak Hour	
				Density[2]	LOS[3]	Density[2]	LOS[3]
I-15	Southbound	North of Baxter Rd.	3	22.4	C	22.5	C
		Off-Ramp at Baxter Rd.	3	25.8	C	25.8	C
		On-Ramp at Baxter Rd.	3	24.2	C	23.8	C
		South of Baxter Rd.	3	24.0	C	23.7	C
	Northbound	North of Baxter Rd.	3	20.5	C	29.8	D
		On-Ramp at Baxter Rd.	3	21.6	C	27.8	C
		Off-Ramp at Baxter Rd.	3	23.0	C	31.6	D
		South of Baxter Rd.	3	20.1	C	32.8	D

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

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

[3] LOS = Level of Service

EXHIBIT 3-9: EXISTING (2019) FREEWAY MAINLINE VOLUMES

LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

N

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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 following uses:

- 66 Dwelling Units of Single Family Detached (ITE Land Use Code 210)
- 204 Dwelling Units of Multi-Family Housing (Mid-Rise, 3-floors) (ITE Land Use Code 221)
- A 102-room hotel (ITE Land Use Code 310)
- 84,000 square feet of Medical-Dental Office (ITE Land Use Code 720)

For the purposes of this analysis, it is assumed that the Project will be constructed within a single phase of development and is anticipated to be fully built and occupied by Year 2021. The Project is proposed to have two driveways along Baxter Road. Driveway 1 is proposed for full access while Driveway 2 is proposed for right-in/right-out access only. Regional access to the Project site is provided via the I-15 Freeway at Baxter Road.

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development.

Trip generation rates and Project trip generation estimates are shown in Table 4-1. The trip generation rates used for this analysis are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017. As shown in Table 4-1, the Project is anticipated to generate a total of 5,512 weekday trip-ends per day, with 403 AM peak hour trips and 506 PM peak hour trips.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. The Project trip distribution was developed based on anticipated travel patterns to and from the Project site. There are no potential traffic impacts anticipated to local residential streets as project-related traffic is anticipated to primarily utilize the City's arterials (e.g., no cut-through traffic).

Project travel patterns were derived for each of the proposed land uses. Exhibit 4-1 shows the residential trip distribution patterns for the Project. Exhibit 4-2 shows the office trip distribution patterns for the Project, while Exhibit 4-3 shows the hotel trip distribution patterns for the Project.

Table 4-1

Project Trip Generation Summary

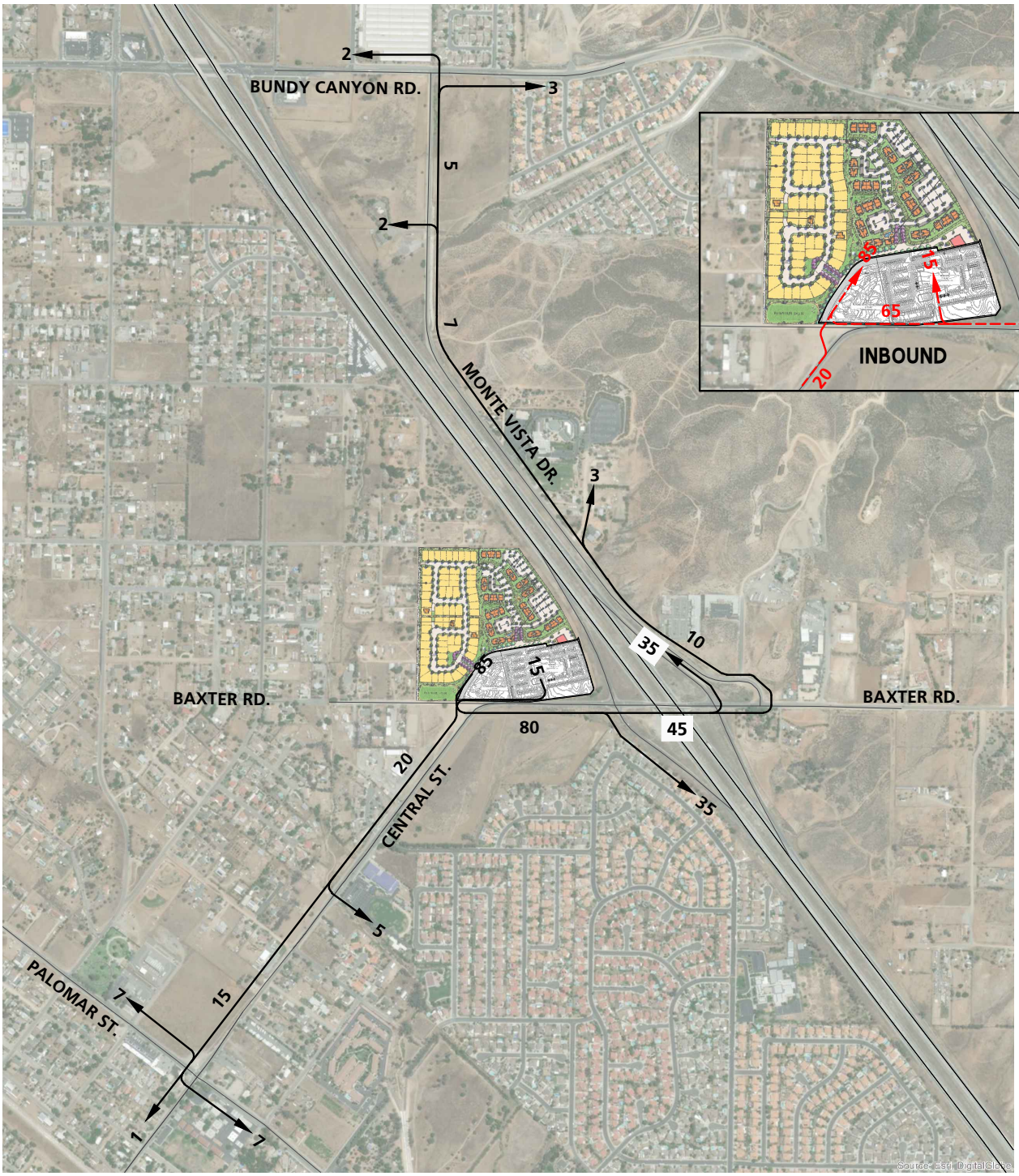
Project Trip Generation Rates									
	ITE LU		AM Peak Hour			PM Peak Hour			
Land Use[1]	Code	Units[2]	In	Out	Total	In	Out	Total	Daily
Single Family Detached Residential	210	DU	0.19	0.56	0.74	0.62	0.37	0.99	9.44
Multi-Family Housing (Mid-Rise, 3-floors)	221	DU	0.09	0.27	0.36	0.27	0.17	0.44	5.44
Hotel	310	RMS	0.28	0.19	0.47	0.31	0.29	0.60	8.36
Medical-Dental Office	720	TSF	2.17	0.61	2.78	0.97	2.49	3.46	34.80

Project Trip Generation									
			AM Peak Hour			PM Peak Hour			
Project	Quantity	Units[2]	In	Out	Total	In	Out	Total	Daily
Baxter Village Development									
Single Family Detached Residential	66	DU	12	37	49	41	24	65	623
Multi-Family Housing (Mid-Rise, 3-floors)	204	DU	19	54	73	55	35	90	1,110
Residential Subtotal:			*31*	*91*	*122*	*96*	*59*	*155*	*1,733*
Medical-Dental Office	84.000	TSF	182	51	233	81	209	290	2,924
Hotel	102	RMS	28	20	48	31	30	61	854
Medical Office and Hotel Subtotal:			*210*	*71*	*281*	*112*	*239*	*351*	*3,778*
Total Proposed Project:			***241***	***162***	***403***	***208***	***298***	***506***	***5,511***

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

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

EXHIBIT 4-1: PROJECT (RESIDENTIAL) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

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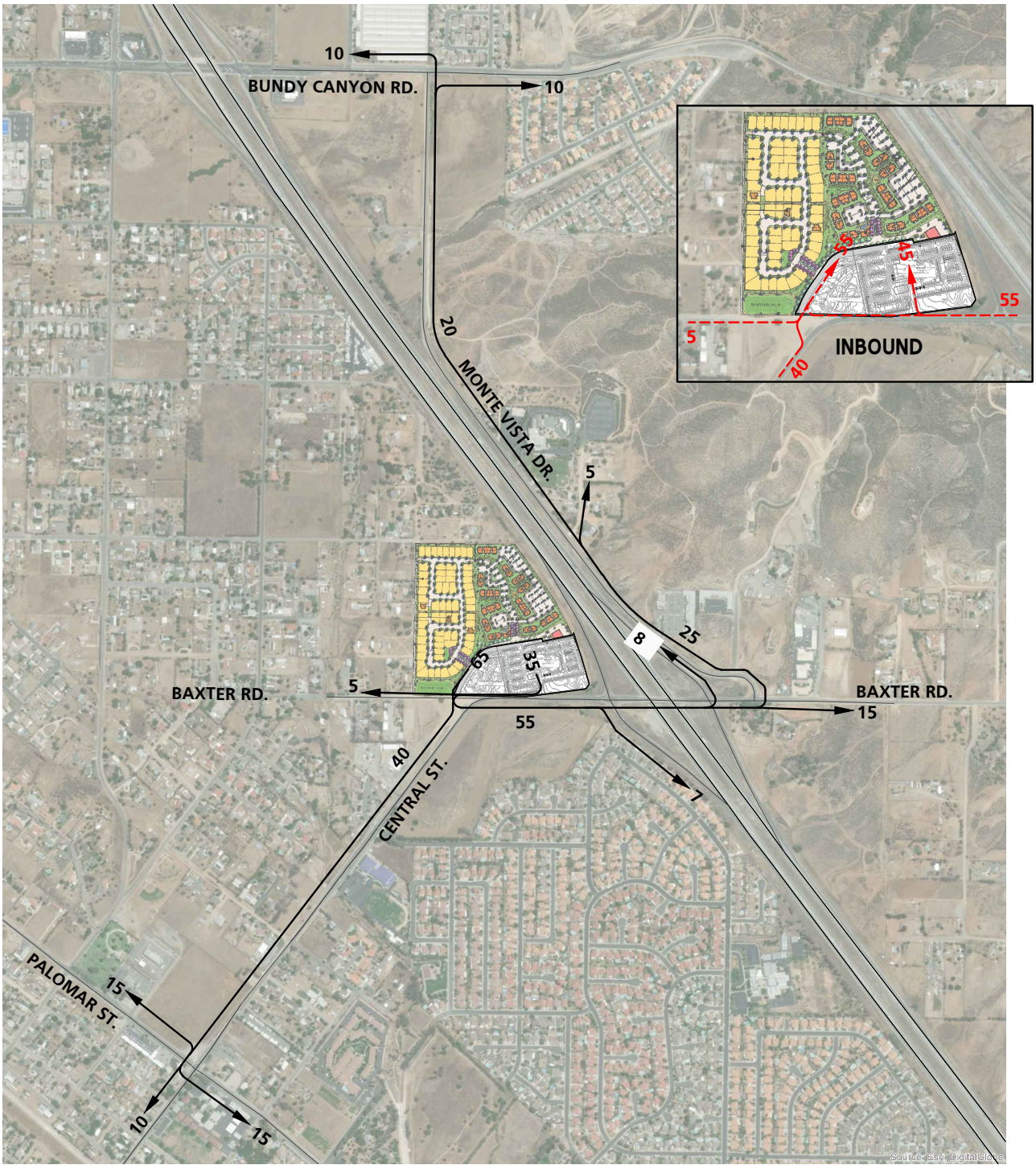
EXHIBIT 4-2: PROJECT (OFFICE) TRIP DISTRIBUTION

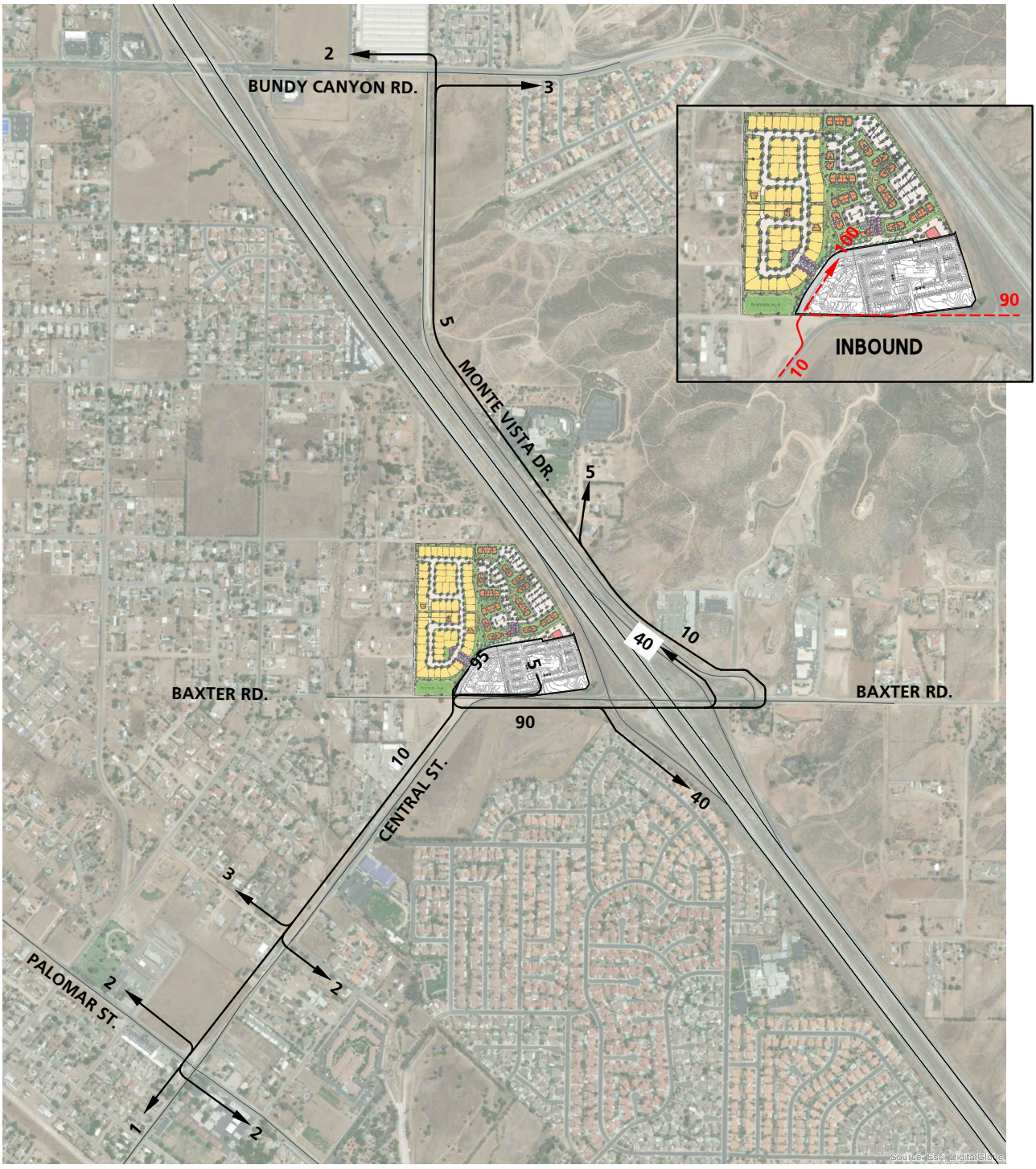


LEGEND:

10 = PERCENT TO/FROM PROJECT
= OUTBOUND
= INBOUND

N

EXHIBIT 4-3: PROJECT (HOTEL) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

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4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking or bicycling have not been considered in this TIA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes.

4.4 PROJECT TRIP ASSIGNMENT

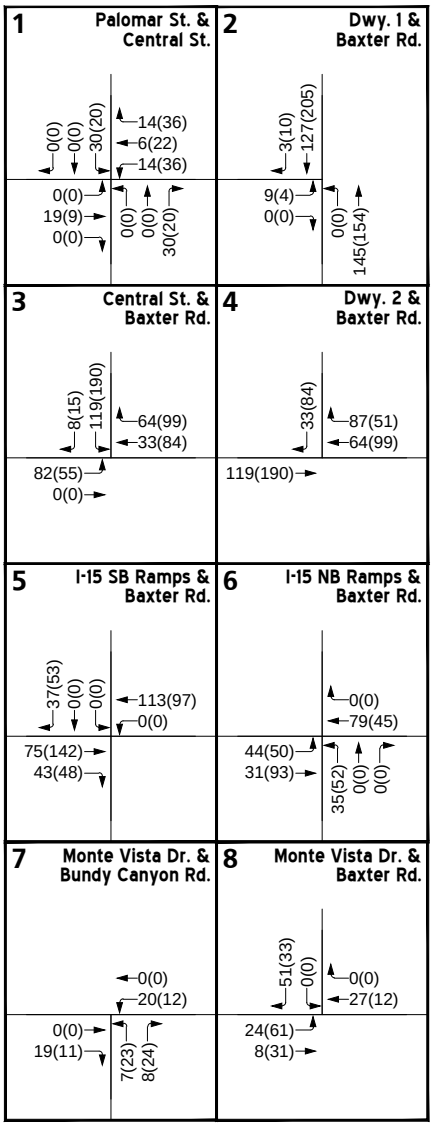
The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project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

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon two years of background (ambient) growth at 2 percent per year for 2021 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. The total ambient growth is 4.04 percent for 2021 traffic conditions (compounded growth of 2 percent per year over 2 years or $1.02^{2\ years}$). This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

The currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for the City of Wildomar identifies projected growth in population of 33,000 in 2012 to 56,200 in 2040, or a 70.3 percent increase over the 28-year period. (9) The change in population equates to roughly a 1.92 percent growth rate per year, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 79.2 percent, or a 2.11 percent growth rate per year, compounded annually. Finally, growth in employment over the same 28-year period is projected to increase by 170.0 percent, or a 3.61 percent growth rate per year, compounded annually.

EXHIBIT 4-4: PROJECT ONLY TRAFFIC VOLUMES



LEGEND:

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

N

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Based on a comparison of Existing (2019) traffic volumes to the General Plan Buildout (2040) forecasts, the average growth rate is estimated at approximately 5.29 percent compounded annually between Existing (2019) and General Plan Buildout (2040) traffic conditions. The annual growth rate at each individual intersection is not lower than 3.99 percent (compounded annually) to as high as 6.46 percent (compounded annually) over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Wildomar for General Plan Buildout (2040) traffic conditions, especially when considered along with the addition of project-related traffic. As such, the growth in traffic volumes assumed in this traffic impact analysis would tend to overstate, as opposed to understate, the potential impacts to traffic and circulation.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

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

Exhibit 4-5 illustrates the cumulative development location map. A summary of cumulative development projects and their proposed land uses are shown in Table 4-2. If applicable, the traffic generated by individual cumulative projects was manually added to the Opening Year Cumulative forecasts to ensure that traffic generated by the listed cumulative development projects in Table 4-2 are reflected as part of the background traffic. Cumulative ADT and peak hour intersection turning movement volumes are shown on Exhibits 4-6.

4.7 NEAR-TERM TRAFFIC FORECASTS

To provide a comprehensive assessment of potential transportation network deficiencies, a "buildup" analysis method was performed in support of this work effort. The "buildup" method was used to approximate E+P and Opening Year Cumulative traffic conditions and is intended to identify the near-term deficiencies on both the existing and planned near-term circulation system. The Opening Year Cumulative traffic condition includes background traffic, traffic generated by other cumulative development projects within the study area and the traffic generated by the proposed Project.

EXHIBIT 4-5: CUMULATIVE DEVELOPMENT LOCATION MAP

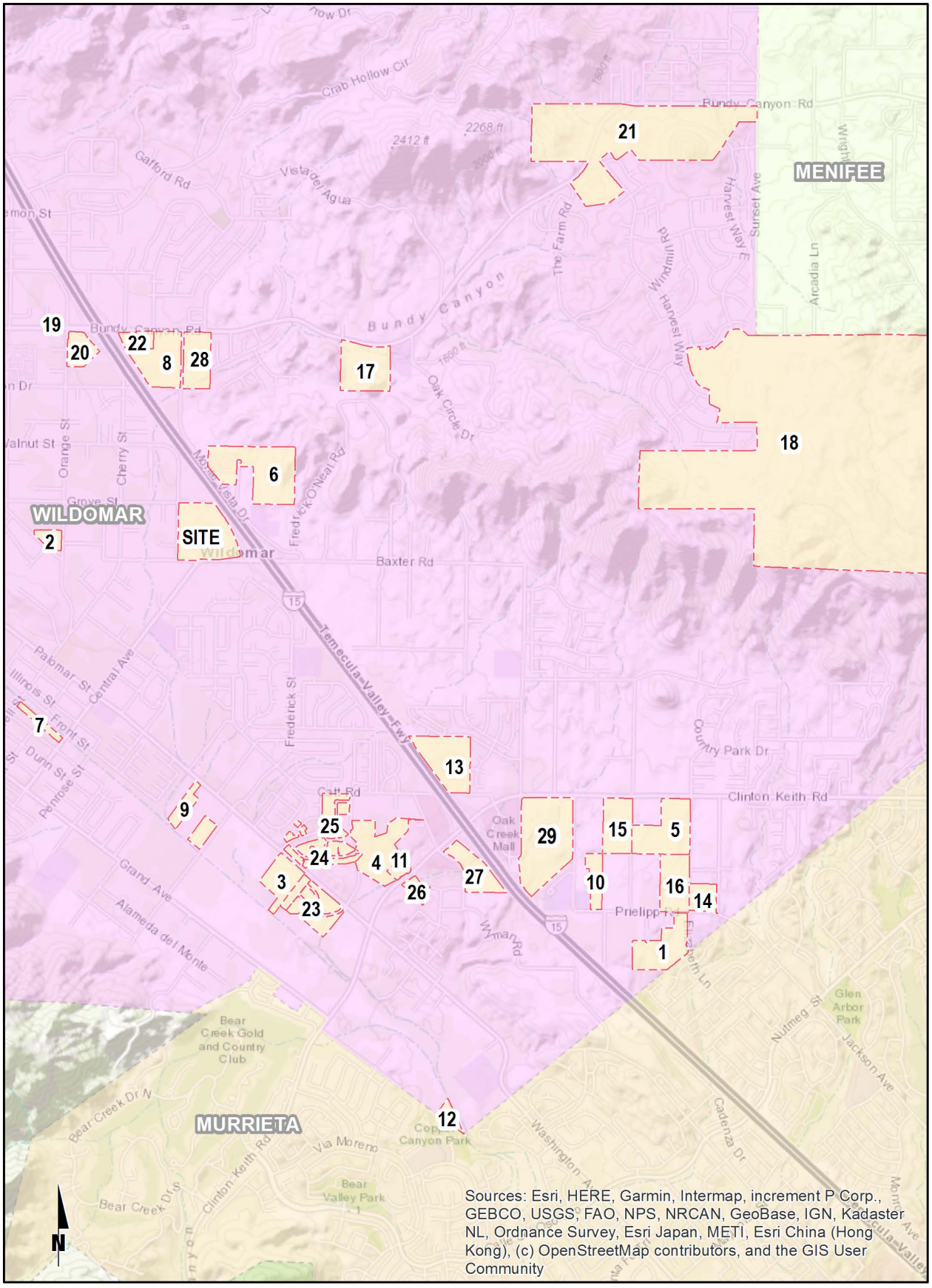
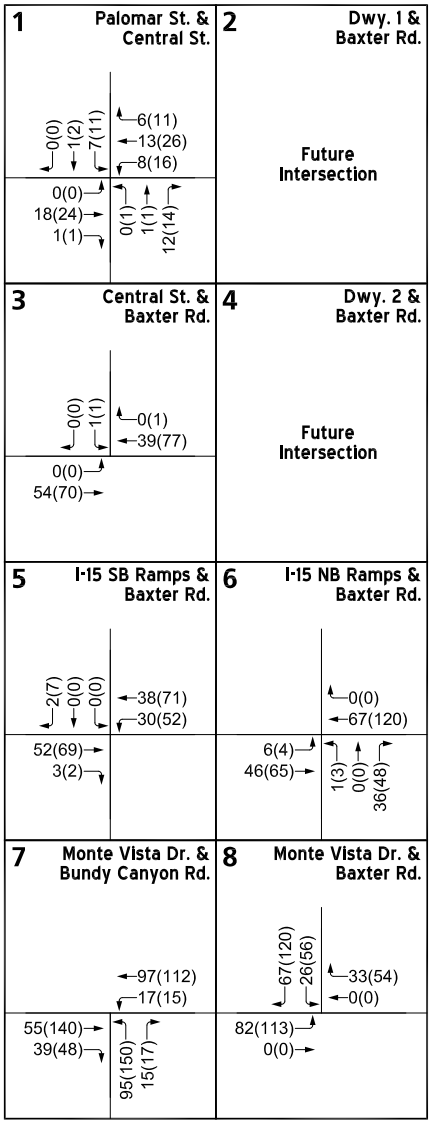


EXHIBIT 4-6: CUMULATIVE ONLY TRAFFIC VOLUMES



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

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Table 4-2
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Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
	CITY OF WILDOMAR			
1	Lennar Residential (TTM 36497, APN:380-280-004, 380-280-009 to 380-280-012)	SFDR	67	DU
2	Lesle Tract Map (TTM 36519, APN:367-170-029)	SFDR	10	DU
3	CV Communities (TTM 25122, TTM 32078, APN: 380-080-008,380-080-009, 380-140-001)	SFDR	157	DU
4	CV Communities (TTM 32535, APN:380-110-005, 380-110-006, 380-120-001, 380-120-002, 380-100-006, 380-100-005, 380-130-002, 380-130-018, 380-100-004)	SFDR	84	DU
5	Rancon Medical & Retail Center (PM 36492, APN:380-250-022)[3]	Business Park	267.450	TSF
		General Office	45.000	TSF
		Medical Office	33.400	TSF
		Shopping Center	17.100	TSF
		Fast Food Restaurant w/ Drive Thru	3.000	TSF
6	Cornerstone Church Pre-School Expansion (PUP No. 778)[4]	Pre-School/Day Care	180	STU
7	Elm Street Subdivision (TTM 33840, APN:376-043-027)	SFDR	14	DU
8	Wildomar Walmart	Free-Standing Discount Superstore	200.000	TSF
		Specialty Retail	3.900	TSF
		Fast Food w/Drive Thru	3.900	TSF
9	McVicar Residential Project (TTM 32035, APN:380-040-005, 380-040-007, 380-040-008, 380-040-012)	SFDR	49	DU
10	Inland Valley Medical (Case No. 08-0062, APN:380-250-001, 380-250-012,3 80-250-013, 380-250-013, 380-250-015, 380-250-017)	Medical Office	39.000	TSF
11	Auto Zone Retail Center (Case No. 10-0101, APN: 380-120-003, 380-120-004)	Automobile Parts Sale	29.767	TSF
12	Hoover Ranch Project (TTM 31895, APN:380-160-020)	SFDR	51	DU
13	Westpark Promenade Development (TPM 36122, APN:376-410-013, 376-410-023, 376-410-025)	Apartments	322	DU
		Shopping Center	86.000	TSF
14	Sienna Apartment Project (Case No. 13-0089, APN:380-290-029)	Apartments	180	DU
15	Clinton Keith Mixed-Use Development (APN:380-250-003)	High Turnover Sit-Down Restaurant	12.000	TSF
		Commercial Retail	8.000	TSF
		Medical Office	35.000	TSF
		Apartments	162	DU
16	Prielipp Residential Development (APN 380-250-023)	Condo/Townhomes	138	DU
		Assisted Living	54	Beds
		Skilled Nursing	32	Beds
17	Sehremelis PAR (TTM 29426, APN:367-250-007)	SFDR	80	DU
18	Spring Meadow Ranch PAR (Case No. 12-0399)	SFDR	1,192	DU
		Community Center Area	5.0	AC
		Open Space	42.0	AC
19	Subway (Case No. 10-0222, APN:366-390-026, 366-390-027)	Specialty Retail	10.500	TSF
20	Orange Bundy (TPM 30522, APN: 367-100-024, 367-100-026)	Retail	79.497	TSF
		Fast Food w/Drive Thru	1.500	TSF
		Gas Station w/ Market	6	VFP
21	Oak Creek Canyon (Case No. 11-0261, TTM 36388)	SFDR	275	DU
		Pharmacy	14.469	TSF
		Gas Station w/ Market/Car Wash	8	VFP
		Specialty Retail	2.550	TSF
22	Bundy Canyon Plaza (Case No. 08-0179, TPM 32257, APN:367-100-019)	Retail	33.800	TSF
		Fast Food w/Drive Thru	6.200	TSF
		Gas Station w/ Market	12	VFP
23	Lennar Homes Andalusia I (Case No. 12-0015, TTM 30839, 30939)	SFDR	55	DU
24	Meritage Homes (Case No. 11-0099, TTM 31499)	SFDR	74	DU
25	Lennar Homes Andalusia 2 (Case No. 12-0401, TTM 31837, APN: 380-410-001 to 380-410-019, 380-411-001 to 380-411-025)	SFDR	44	DU

Cumulative Development Land Use Summary

#	Project/Location	Land Use[1]	Quantity	Units[2]
26	Stable Lanes Retail Center (Case No. 08-0166, APN:380-120-012, 380-120-013)	Commercial/Retail	20.894	TSF
		Daycare Facility	9.305	TSF
27	Wildomar Square Retail Center (Case No. 08-0072, PM 36080, APN:380-110-045)	Shopping Center	46.600	TSF
28	Rancon Monte Vista Residential (TTM No. 31409, APN: 367-110-007, 367-110-008)	SFDR	126	DU
29	Oak Springs Ranch Specific Plan No. 340	SFDR	103	DU
		Apartments	312	DU

[1] SFDR = Single Family Detached Residential

[2] AC = Acres; DU = Dwelling Units; TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions; STU = Students

[3] Source: Rancon Medical Education Center (Plot Plan 21603), Albert A. Webb Associates, April 2012.

[4] Source: Cornerstone Pre-School Expansion TIA (Revised), Urban Crossroads, Inc., September 2012.

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2021 traffic conditions. An ambient growth factor of 4.04 percent accounts for background (area-wide) traffic increases that occur over time up to the year 2021 from the year 2019 (compounded 2 percent per year growth over a 2-year period). Traffic volumes generated by cumulative development projects are then added to assess the Opening Year Cumulative traffic conditions. Lastly, Project traffic is added to assess "With Project" traffic conditions. The 2021 roadway network is similar to the existing conditions roadway network with the exception of intersections proposed to be developed by the Project.

- Opening Year Cumulative Without Project
    - Existing 2019 volumes
    - Ambient growth traffic (4.04%)
    - Cumulative Development Project traffic
- Opening Year Cumulative With Project
    - Existing 2019 volumes
    - Ambient growth traffic (4.04%)
    - Cumulative Development Project traffic
    - Project traffic

4.8 GENERAL PLAN BUILDOUT (2040) VOLUME DEVELOPMENT

The General Plan Buildout (2040) With Project traffic conditions were derived from the RivTAM modified to represent General Plan Buildout conditions for the City of Wildomar using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and General Plan Buildout 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 General Plan Buildout With Project peak hour forecasts were refined using the model derived long-range forecasts, along with existing peak hour traffic count data collected at each analysis location in May 2019, while local schools were in session, or adjusted from 2013 to reflect 2019 traffic 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 General Plan Buildout With Project peak hour forecasts.

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 255), 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.

Typically, the model growth is prorated and is subsequently added to the existing (base validation) traffic volumes to represent Long Range traffic conditions. However, review of the resulting model growth indicates negative growth for several study area intersections. In an effort to conduct a conservative analysis, reductions to traffic forecasts from either Existing (2019) or Opening Year Cumulative traffic conditions were not assumed as part of this analysis. Additional growth has also been applied on a movement-by-movement basis, where applicable, to estimate reasonable General Plan Buildout forecasts. General Plan Buildout turning volumes were compared to Opening Year Cumulative volumes in order to ensure a minimum growth as a part of the refinement process. The minimum growth includes any additional growth between Opening Year Cumulative and General Plan Buildout traffic conditions that is not accounted for by the traffic generated by cumulative development projects and ambient growth rates assumed between Existing (2019) and Opening Year Cumulative traffic 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 General Plan Buildout peak hour forecasts.

The future General Plan Buildout Without Project peak hour turning movements were then reviewed by Urban Crossroads 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 freeway ramp 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. Post-processing worksheets are provided in Appendix 4.1.

5 E+P TRAFFIC CONDITIONS

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

5.1 ROADWAY IMPROVEMENTS

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

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

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The ADT volumes and weekday AM and PM peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibit 5-1.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that the following intersection is anticipated to operate at an unacceptable LOS with the addition of Project:

- Central St. & Baxter Rd. (#3) – LOS F AM and PM peak hours

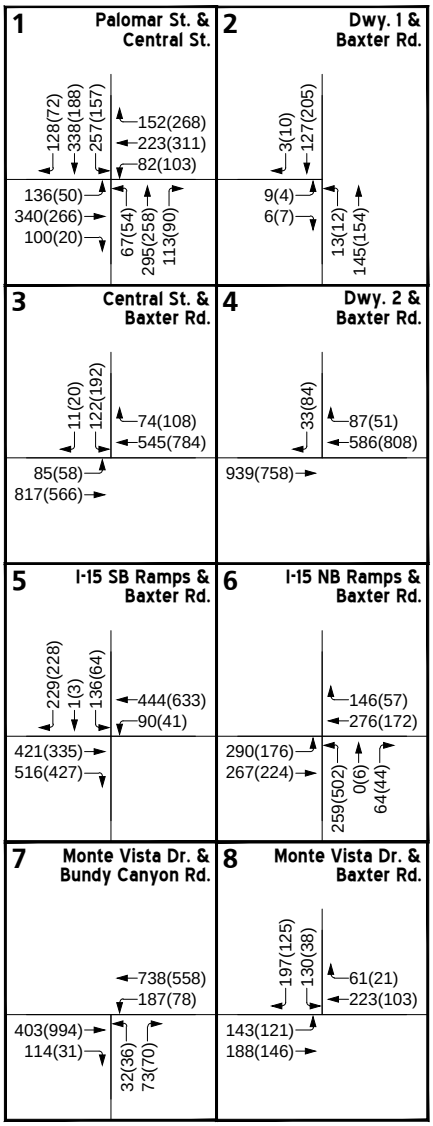
A summary of the peak hour intersection LOS for E+P conditions are shown on Exhibit 5-2. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1 of this TIA.

5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for E+P traffic conditions are based on existing peak hour intersection turning volumes and the addition of Project traffic. For E+P traffic conditions, with the addition of Project traffic, the following study area intersection is anticipated to meet the planning level daily volume warrant under E+P conditions (see Appendix 5.2):

- Central St. & Baxter Rd. (#3)

EXHIBIT 5-1: E+P TRAFFIC VOLUMES



LEGEND:

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

N

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EXHIBIT 5-2: E+P SUMMARY OF LOS

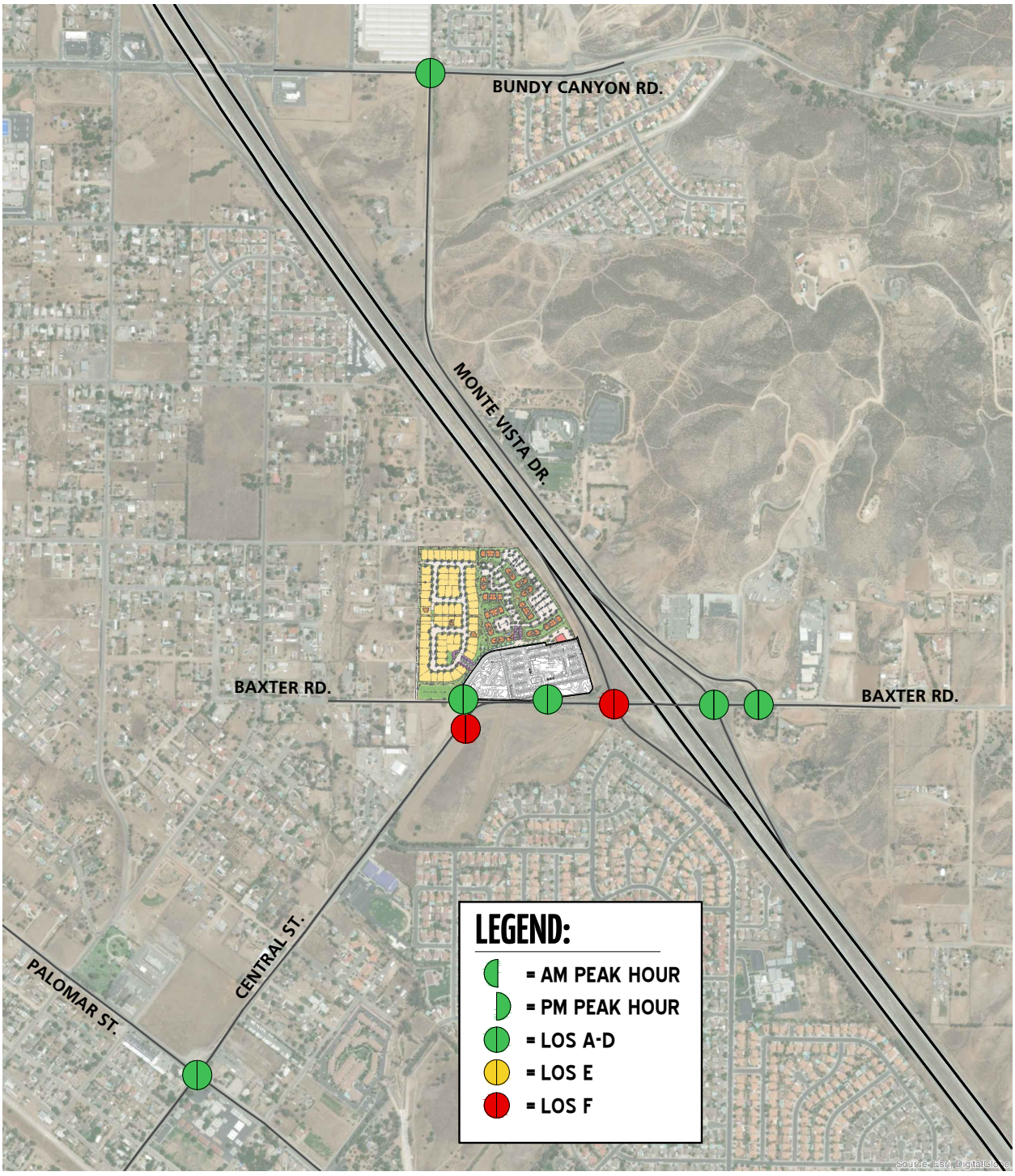

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Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019)				E+P			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Palomar St. & Central St.	TS	30.1	25.1	C	C	31.9	29.0	C	C
2	Driveway 1 & Baxter Rd.	**CSS**	Future Intersection				10.0	10.2	B	B
3	Central St. & Baxter Rd	CSS	21.2	17.2	C	C	**>50.0**	**>50.0**	**F**	**F**
4	Driveway 2 & Baxter Rd.	**CSS**	Future Intersection				13.2	19.0	B	C
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	**40.5**	**F**	**E**	**>50.0**	**>50.0**	**F**	**F**
6	I-15 NB Ramps & Baxter Rd.	AWS	17.1	18.9	C	C	25.8	31.1	D	D
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	18.2	24.8	C	C	20.8	33.7	C	D
8	Monte Vista Dr. & Baxter Rd.	CSS	17.6	10.9	C	B	19.8	12.4	C	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. 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. Delay and level of service calculated using the following analysis software:

Synchro 10 (HCM 6th Edition) for signalized and unsignalized intersections.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; **CSS** = Improvement

5.5 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for E+P are presented in Table 5-2. As shown in Table 5-2 and consistent with Existing (2019) traffic conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic. Worksheets for E+P traffic conditions off-ramp queuing analysis are provided in Appendix 5.3.

5.6 FREEWAY FACILITY ANALYSIS

E+P mainline directional volumes for the AM and PM peak hours are provided on Exhibit 5-3. As shown in Table 5-3 and consistent with Existing (2019) traffic conditions, all study area freeway mainline segments and merge/diverge ramp junctions are anticipated to continue to operate at an acceptable LOS (i.e., LOS D or better) during the peak hours for E+P traffic conditions. E+P freeway facility analysis worksheets are provided in Appendix 5.4.

5.7 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the City of Wildomar deficiency criteria discussed in Section 2.8 *Thresholds of Significance*, the following intersections were found to be deficient. Improvements necessary to reduce project-related traffic deficiencies are also discussed below.

5.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the proposed recommended improvements is presented in Table 5-4 for E+P traffic conditions traffic conditions. The intersection operations analysis worksheets for E+P traffic conditions, with improvements, are included in Appendix 5.5 of this TIA.

Central Street & Baxter Road (#3) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a southbound left turn lane.
- Add an eastbound left turn lane.
- Add a westbound right turn lane.

I-15 Southbound Ramps & Baxter Road (#5) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.

Table 5-2

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

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)				E+P			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak	PM Peak	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
I-15 SB Ramps & Baxter Rd.	SBL/T/R	1,300	128	60	Yes	Yes	173	88	Yes	Yes
I-15 NB Ramps & Baxter Rd.	NBL/T/R	1,650	93	188	Yes	Yes	135	318	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.

Table 5-3

Freeway Facility Analysis for E+P Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	Existing (2019)				E+P			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]
I-15	Southbound	North of Baxter Rd.	3	22.4	C	22.5	C	22.6	C	22.9	C
		Off-Ramp at Baxter Rd.	3	25.8	C	25.8	C	26.1	C	26.2	C
		On-Ramp at Baxter Rd.	3	24.2	C	23.8	C	24.6	C	24.2	C
		South of Baxter Rd.	3	24.0	C	23.7	C	24.3	C	24.1	C
	Northbound	North of Baxter Rd.	3	20.5	C	29.8	D	20.7	C	30.3	D
		On-Ramp at Baxter Rd.	3	21.6	C	27.8	C	22.0	C	28.2	D
		Off-Ramp at Baxter Rd.	3	23.0	C	31.6	D	23.2	C	31.9	D
		South of Baxter Rd.	3	20.1	C	32.8	D	20.3	C	33.3	D

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

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

[3] LOS = Level of Service

Table 5-4

Intersection Analysis for E+P Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
3	Central St. & Baxter Rd																	
	-Without Improvements	CSS	0	0	0	0	1	0	0	1	0	0	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	0	0	**1**	**0**	**1**	**1**	1	0	0	1	**1**	12.5	14.8	B	B
5	I-15 SB Ramps & Baxter Rd.																	
	-Without Improvements	AWS	0	0	0	0	1	0	0	1	0	1	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	0	0	0	1	0	0	1	0	1	1	0	51.2	37.1	D	D

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

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

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

[2] Per 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] CSS = Cross-Street Stop; AWS = All-Way Stop; TS = Traffic Signal; **TS** = Improvement

EXHIBIT 5-3: E+P FREEWAY MAINLINE VOLUMES

LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

N

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5.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 5-2, there are no anticipated peak hour queuing issues at the I-15 Freeway and Baxter Road interchange for E+P traffic conditions. As such, no improvements have been recommended.

5.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

As shown previously in Table 5-3, the study area freeway mainline segments or merge/diverge ramp junctions are anticipated to operate at an acceptable LOS during the peak hours for E+P traffic conditions. As such, no improvements have been recommended.

6 OPENING YEAR CUMULATIVE (2021) TRAFFIC CONDITIONS

This section discusses the methods used to develop Opening Year Cumulative (2021) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, and freeway facility operations analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).

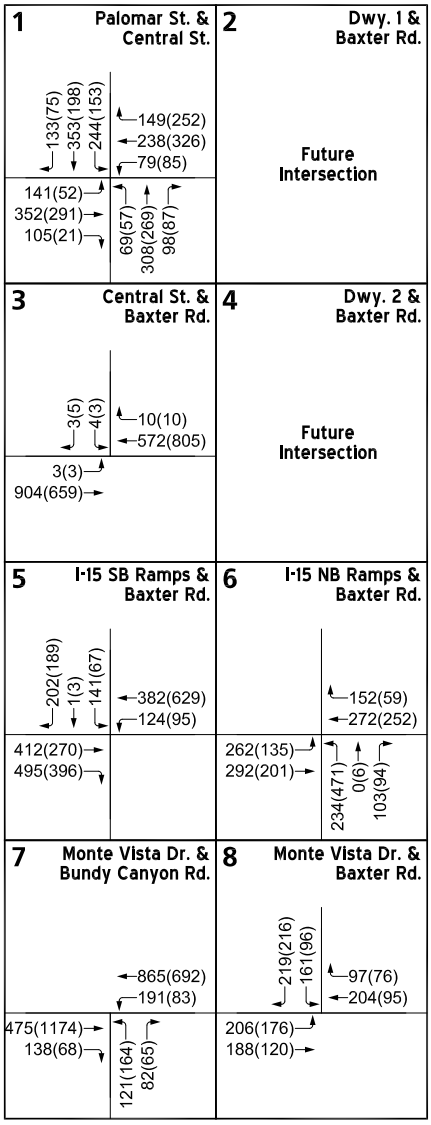
6.2 OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus an ambient growth factor of 4.04% plus traffic from pending and approved but not yet constructed known development projects in the area. The weekday ADT, weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2021) Without Project traffic conditions are shown on Exhibit 6-1.

6.3 OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes, an ambient growth factor of 4.04%, traffic from pending and approved but not yet constructed known development projects in the area and the addition of Project traffic. The weekday ADT, weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2021) With Project traffic conditions are shown on Exhibit 6-2.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC VOLUMES

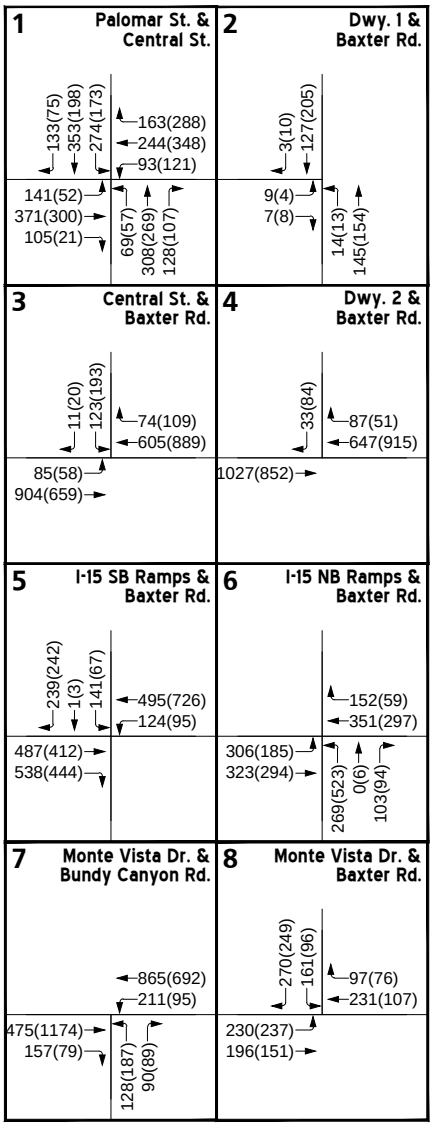


LEGEND:

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

N

EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC VOLUMES



LEGEND:

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

N

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6.4 INTERSECTION OPERATIONS ANALYSIS

6.4.1 OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC CONDITIONS

LOS calculations were conducted for the study intersections to evaluate their operations under Opening Year Cumulative (2021) Without Project conditions with roadway and intersection geometrics consistent with Section 6.1 *Roadway Improvements*. As shown in Table 6-1, the following study area intersections are anticipated to operate at an unacceptable LOS under Opening Year Cumulative (2021) Without Project traffic conditions:

- I-15 Southbound Ramps & Baxter Rd. (#5) – LOS F AM and PM peak hours
- I-15 Northbound Ramps & Baxter Rd. (#6) – LOS E PM peak hour only
- Monte Vista Dr. & Bundy Canyon Rd. (#7) – LOS F AM and PM peak hours

A summary of the peak hour intersection LOS for Opening Year Cumulative (2021) Without Project conditions is shown on Exhibit 6-3. The intersection operations analysis worksheets for Opening Year Cumulative (2021) Without Project traffic conditions are included in Appendix 6.1 of this TIA.

6.4.2 OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 6-1 and illustrated on Exhibit 6-4, there following additional study area intersection is anticipated to operate at an unacceptable LOS with the addition of Project traffic, in addition to those intersections previously identified under Opening Year Cumulative (2021) Without Project traffic conditions:

- Central St. & Baxter Rd. (#3) – LOS F AM and PM peak hours

The intersection operations analysis worksheets for Opening Year Cumulative (2021) With Project traffic conditions are included in Appendix 6.2 of this TIA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For Opening Year Cumulative (2021) Without Project conditions, all unsignalized study area intersections have previously met a traffic signal warrant under Existing (2019) or E+P traffic conditions. With the addition of Project traffic, there are no future intersections anticipated to warrant a traffic signal (see Appendix 6.3).

6.6 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for Opening Year Cumulative (2021) Without and With Project traffic conditions are shown in Table 6-2. As shown in Table 6-2 and consistent with Existing (2019) traffic conditions, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Opening Year Cumulative (2021) Without and With Project traffic conditions. Worksheets for Opening Year Cumulative (2021) Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 6.4 and 6.5, respectively.

Table 6-1

Intersection Analysis for Opening Year Cumulative (2021) Conditions

#	Intersection	Traffic Control[2]	2021 Without Project				2021 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Palomar St. & Central St.	TS	32.0	28.0	C	C	34.6	35.1	C	D
2	Driveway 1 & Baxter Rd.	**CSS**	Future Intersection				9.9	10.1	A	B
3	Central St. & Baxter Rd	CSS	26.9	21.9	D	C	**>50.0**	**>50.0**	**F**	**F**
4	Driveway 2 & Baxter Rd.	**CSS**	Future Intersection				14.0	22.4	B	C
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**
6	I-15 NB Ramps & Baxter Rd.	AWS	27.0	**39.0**	D	**E**	**48.5**	**>50.0**	**E**	**F**
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**
8	Monte Vista Dr. & Baxter Rd.	CSS	29.7	14.8	D	B	34.7	17.9	D	C

* **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. 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. Delay and level of service calculated using the following analysis software:

Synchro 10 (HCM 6th Edition) for signalized and unsignalized intersections.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; **CSS** = Improvement

Table 6-2

Peak Hour Freeway Off-Ramp Queuing Summary for Opening Year Cumulative (2021) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2021 Without Project				2021 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak	PM Peak	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
I-15 SB Ramps & Baxter Rd.	SBL/T/R	1,300	145	70	Yes	Yes	188	98	Yes	Yes
I-15 NB Ramps & Baxter Rd.	NBL/T/R	1,650	148	378	Yes	Yes	205	563	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.

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT SUMMARY OF LOS

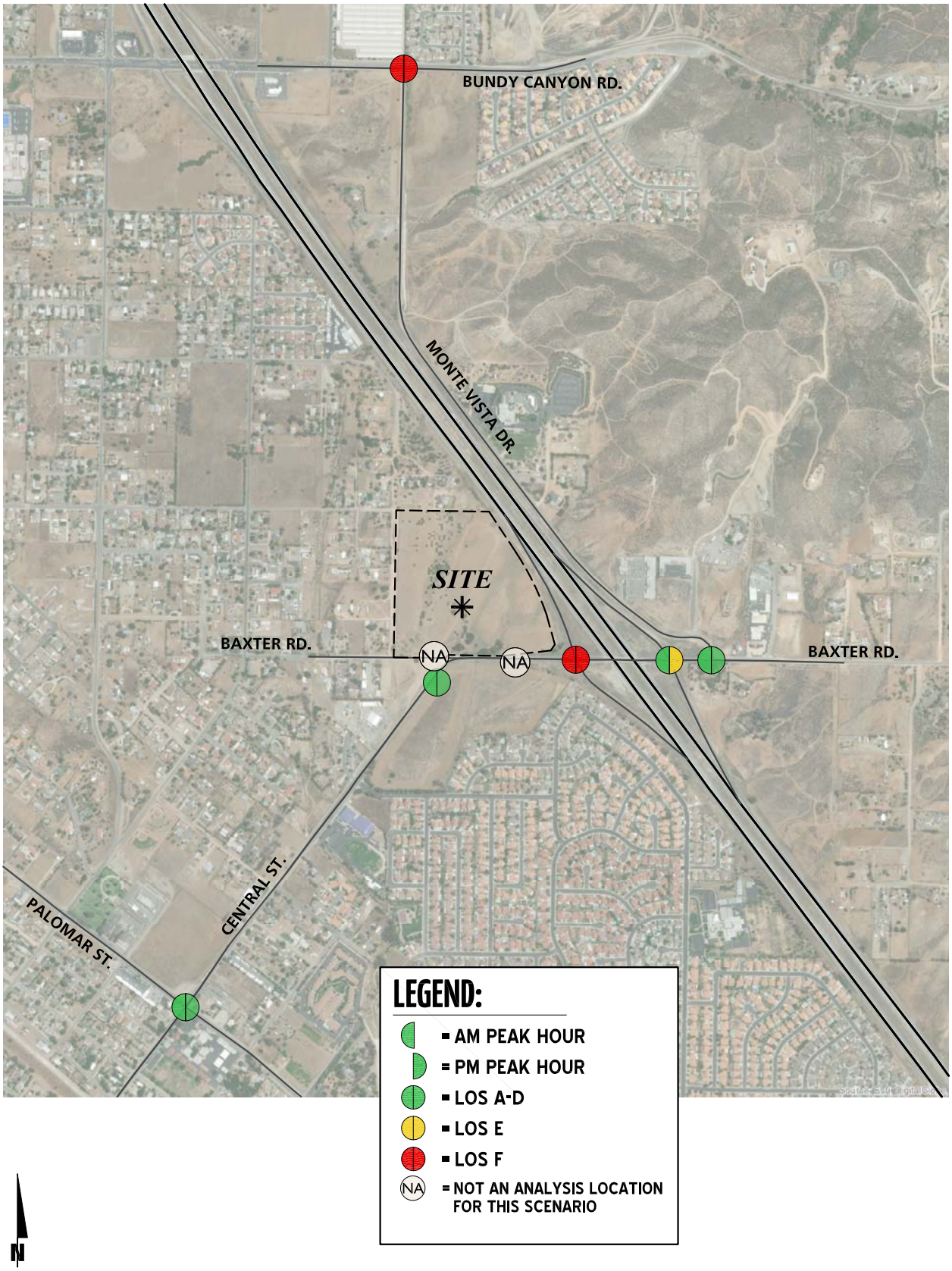
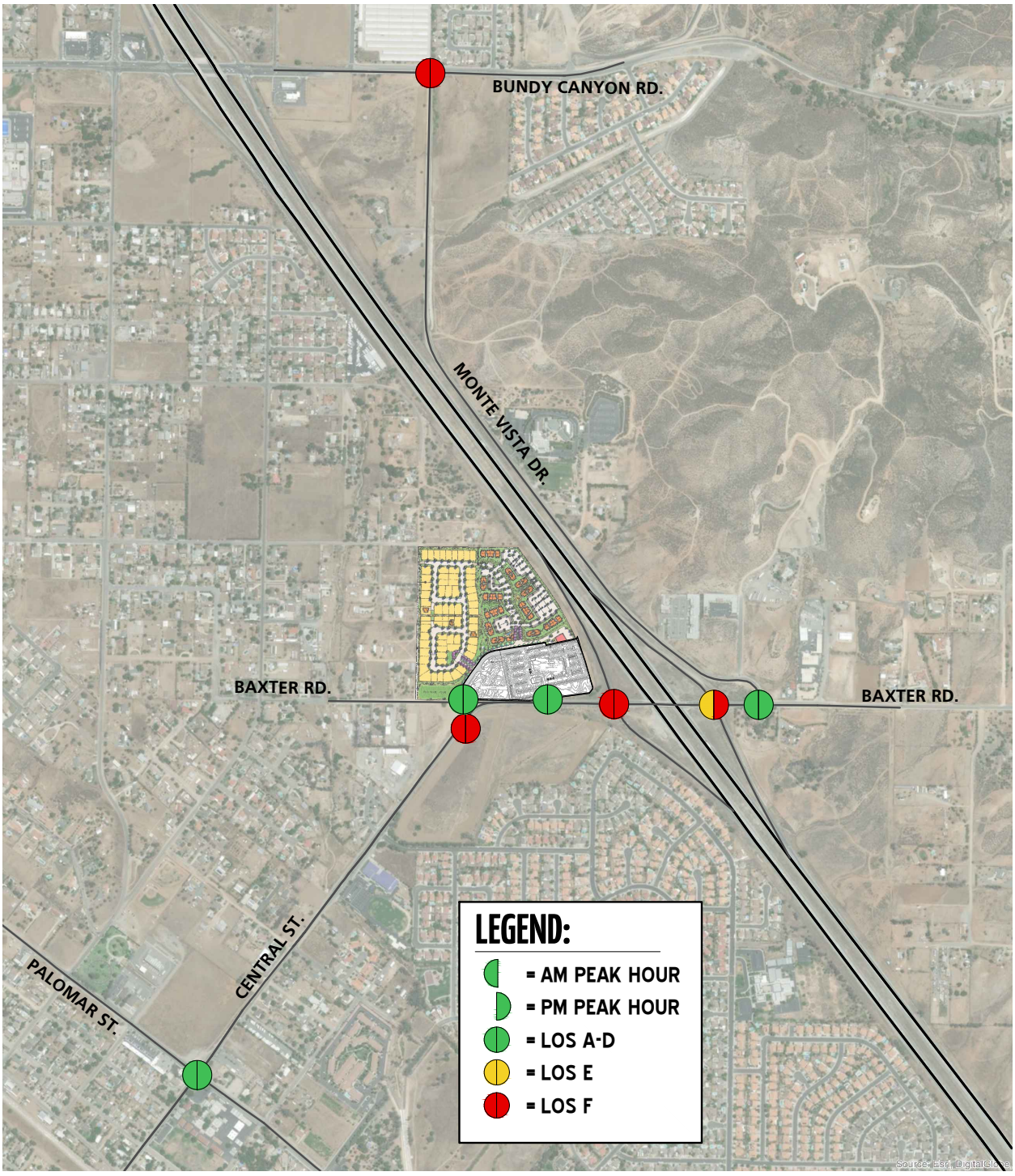


EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2021) WITH PROJECT SUMMARY OF LOS



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6.7 FREEWAY FACILITY ANALYSIS

Opening Year Cumulative (2021) Without Project and With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibits 6-5 and 6-6, respectively. As shown in Table 6-3, the following freeway mainline segment is anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Opening Year Cumulative (2021) Without Project traffic conditions:

- I-15 Freeway Northbound, South of Baxter Road (#8) – LOS E PM peak hour only

With the addition of Project traffic, there are no additional freeway mainline segments or merge/diverge ramp junctions anticipated to operate at an unacceptable LOS, in addition to the facilities previously identified under Opening Year Cumulative (2021) Without Project traffic conditions. Opening Year Cumulative (2021) Without Project and With Project freeway facility analysis worksheets are provided in Appendix 6.6 and 6.7, respectively.

6.8 PROJECT DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the City of Wildomar deficiency criteria discussed in Section 2.8 *Thresholds of Significance*, the following intersections were found to be deficient. Improvements necessary to reduce project-related traffic deficiencies are also discussed below.

6.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as deficient in an effort to reduce each location's peak hour delay and improve the associated LOS grade to acceptable LOS. The effectiveness of the recommended improvement strategies discussed below to address Opening Year Cumulative (2021) traffic deficiencies are presented in Table 6-4 and described below.

Central Street & Baxter Road (#3) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a southbound left turn lane.
- Add an eastbound left turn lane.
- Add a westbound right turn lane.

I-15 Southbound Ramps & Baxter Road (#5) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add an eastbound right turn lane.

EXHIBIT 6-5: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES

LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

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EXHIBIT 6-6: OPENING YEAR CUMULATIVE (2021) WITH PROJECT FREEWAY MAINLINE VOLUMES

LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

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Table 6-3

Freeway Facility Analysis for Opening Year Cumulative (2021) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	2021 Without Project				2021 With Project			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]
I-15	Southbound	North of Baxter Rd.	3	23.4	C	23.6	C	23.7	C	24.0	C
		Off-Ramp at Baxter Rd.	3	26.7	C	26.7	C	26.9	C	27.1	C
		On-Ramp at Baxter Rd.	3	25.5	C	25.2	C	25.9	C	25.5	C
		South of Baxter Rd.	3	25.4	C	25.3	C	25.8	C	25.4	C
	Northbound	North of Baxter Rd.	3	21.4	C	31.7	D	21.7	C	32.2	D
		On-Ramp at Baxter Rd.	3	22.5	C	29.0	D	22.9	C	29.4	D
		Off-Ramp at Baxter Rd.	3	24.1	C	32.8	D	24.3	C	33.2	D
		South of Baxter Rd.	3	21.2	C	**35.6**	**E**	21.4	C	**36.2**	**E**

* **BOLD** = Unacceptable Level of Service

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

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

[3] LOS = Level of Service

Table 6-4

Intersection Analysis for Opening Year Cumulative (2021) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
3	Central St. & Baxter Rd																	
	-Without Improvements	CSS	0	0	0	0	1	0	0	1	0	0	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	0	0	**1**	**0**	**1**	**1**	1	0	0	1	**1**	13.1	16.3	B	B
5	I-15 SB Ramps & Baxter Rd.																	
	-Without Improvements	AWS	0	0	0	0	1	0	0	1	0	1	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	0	0	0	1	0	0	1	**1**	1	1	0	29.1	38.3	C	D
6	I-15 NB Ramps & Baxter Rd.																	
	-Without Improvements	AWS	0	1	0	0	0	0	1	1	0	0	1	0	**48.5**	**>50.0**	**E**	**F**
	-With Improvements	**TS**	0	1	0	0	0	0	1	1	0	0	1	0	44.1	53.6	D	D
7	Monte Vista Dr. & Bundy Canyon Rd.																	
	-Without Improvements	CSS	0	1	0	0	0	0	0	1	0	1	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	1	0	0	0	0	0	**2**	0	1	1	0	23.8	24.3	C	C

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

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

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

[2] Per 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] CSS = Cross-Street Stop; AWS = All-Way Stop; TS = Traffic Signal; **TS** = Improvement

I-15 Northbound Ramps & Baxter Road (#6) – The following improvement is necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.

Monte Vista Drive & Bundy Canyon Road (#7) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a 2nd eastbound through lane.

Worksheets for Opening Year Cumulative (2021) With Project LOS With Improvements are provided in Appendix 6.8.

6.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON OFF-RAMP QUEUES

As shown previously in Table 6-2, there are no anticipated peak hour queuing issues at the I-15 Freeway and Baxter Road interchange for Opening Year Cumulative (2021) traffic conditions. As such, no improvements have been recommended.

6.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

As shown previously in Table 6-3, there is one study area freeway mainline segment that is anticipated to operate at an unacceptable LOS during the peak hours for Opening Year Cumulative (2021) traffic conditions.

At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Wildomar (or other neighboring jurisdictions) on SHS roadway segments. As such, no improvements have been recommended to address the Opening Year Cumulative (2021) traffic conditions deficiencies on the SHS, because there is no feasible mitigation available.

7 GENERAL PLAN BUILDOUT (2040) TRAFFIC CONDITIONS

This section discusses the methods used to develop General Plan Buildout (2040) Without and With Project traffic forecasts, and the resulting intersection operations, traffic signal warrant, and freeway facility operations analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for General Plan Buildout (2040) 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 General Plan Buildout 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 General Plan Buildout conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).
- The south leg of the intersection of Central Street and Baxter Road is assumed to be completed.

7.2 GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT TRAFFIC VOLUME FORECASTS

This scenario includes the refined post-processed volumes obtained from the RivTAM. For additional information on the development of the General Plan Buildout (2040) Without Project traffic forecasts, see Section 4.8 *General Plan Buildout (2040) Volume Development* of this TIA. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for General Plan Buildout (2040) Without Project traffic conditions are shown on Exhibit 7-1.

7.3 GENERAL PLAN BUILDOUT (2040) WITH PROJECT TRAFFIC VOLUME FORECASTS

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

EXHIBIT 7-1: GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT TRAFFIC VOLUMES

1 Palomar St. & Central St. 142(80) 835(560) 260(164) 163(270) 255(349) 145(153) 151(62) 377(335) 168(61) 143(128) 974(977) 187(262)	**2 Dwy. 1 & Baxter Rd.** Future Intersection
3 Central St. & Baxter Rd. 76(16) 95(93) 161(18) 48(217) 610(880) 66(225) 0(25) 970(837) 11(61) 49(19) 64(110) 208(102)	**4 Dwy. 2 & Baxter Rd.** Future Intersection
5 I-15 SB Ramps & Baxter Rd. 257(289) 4(3) 308(87) 455(1107) 160(178) 758(366) 448(597)	**6 I-15 NB Ramps & Baxter Rd.** 198(324) 384(796) 301(184) 765(269) 231(489) 4(6) 244(143)
7 Monte Vista Dr. & Bundy Canyon Rd. 1415(1373) 322(421) 797(1736) 271(276) 208(381) 375(427)	**8 Monte Vista Dr. & Baxter Rd.** 237(686) 344(255) 306(581) 346(434) 531(245) 479(158)

LEGEND:

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

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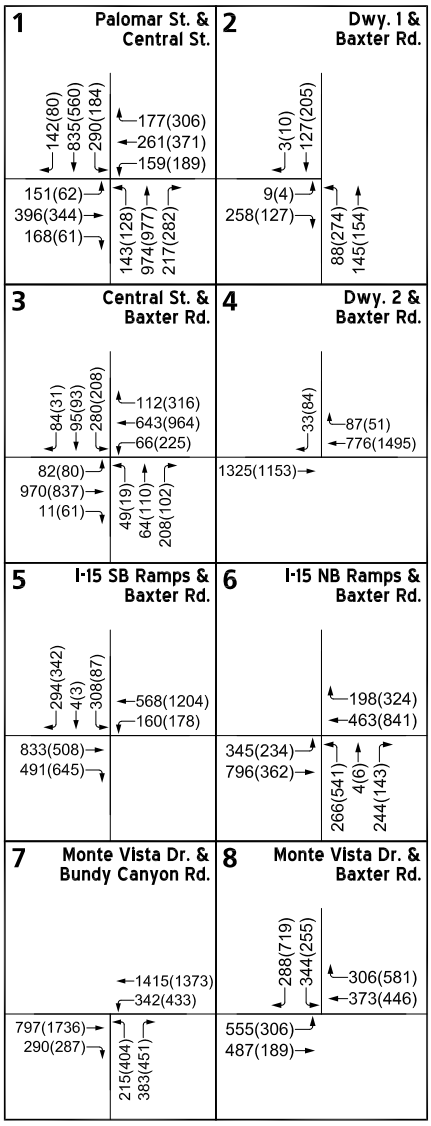
EXHIBIT 7-2: GENERAL PLAN BUILDOUT (2040) WITH PROJECT TRAFFIC VOLUMES



LEGEND:

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

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7.4 INTERSECTION OPERATIONS ANALYSIS

7.3.1 GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT TRAFFIC CONDITIONS

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

- Palomar St. & Central St. (#1) – LOS F AM and PM peak hours
- Central St. & Baxter Rd. (#3) – LOS F AM and PM peak hours
- I-15 Southbound Ramps & Baxter Rd. (#5) – LOS F AM and PM peak hours
- I-15 Northbound Ramps & Baxter Rd. (#6) – LOS F AM and PM peak hours
- Monte Vista Dr. & Bundy Canyon Rd. (#7) – LOS F AM and PM peak hours
- Monte Vista Dr. & Baxter Rd. (#8) – LOS F AM and PM peak hours

A summary of the peak hour intersection LOS for General Plan Buildout (2040) Without Project conditions are shown on Exhibit 7-3. The intersection operations analysis worksheets for General Plan Buildout (2040) Without Project traffic conditions are included in Appendix 7.1.

7.3.2 GENERAL PLAN BUILDOUT (2040) WITH PROJECT TRAFFIC CONDITIONS

As shown in Table 7-1 and illustrated on Exhibit 7-4, with the addition of Project traffic, the following intersection is anticipated to result in an unacceptable LOS in addition to the intersections previously identified under General Plan Buildout (2040) Without Project traffic conditions:

- Driveway 2 & Baxter Rd. (#4) – LOS F PM peak hour only

The intersection operations analysis worksheets for General Plan Buildout (2040) With Project traffic conditions are included in Appendix 7.2 of this TIA.

7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

For General Plan Buildout (2040) Without Project conditions, all existing unsignalized study area intersections have previously met a traffic signal warrant under Existing (2019) or E+P traffic conditions. With the addition of Project traffic, there are no future intersections anticipated to warrant a traffic signal (see Appendix 7.3).

Table 7-1

Intersection Analysis for General Plan Buildout (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project			
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM
1	Palomar St. & Central St.	TS	**>80.0**	**>80.0**	**F**	**F**	**>80.0**	**>80.0**	**F**	**F**
2	Driveway 1 & Baxter Rd.	**CSS**	Future Intersection				11.1	11.0	B	B
3	Central St. & Baxter Rd	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**
4	Driveway 2 & Baxter Rd.	**CSS**	Future Intersection				16.0	**>50.0**	C	**F**
5	I-15 SB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**
6	I-15 NB Ramps & Baxter Rd.	AWS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**
7	Monte Vista Dr. & Bundy Canyon Rd.	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**F**	**F**
8	Monte Vista Dr. & Baxter Rd.	CSS	**>50.0**	**>50.0**	**F**	**F**	**>50.0**	**>50.0**	**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. 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. Delay and level of service calculated using the following analysis software:

Synchro 10 (HCM 6th Edition) for signalized and unsignalized intersections.

[2] CSS = Cross-street Stop; AWS = All-Way Stop; TS = Traffic Signal; **CSS** = Improvement

EXHIBIT 7-3: GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT SUMMARY OF LOS

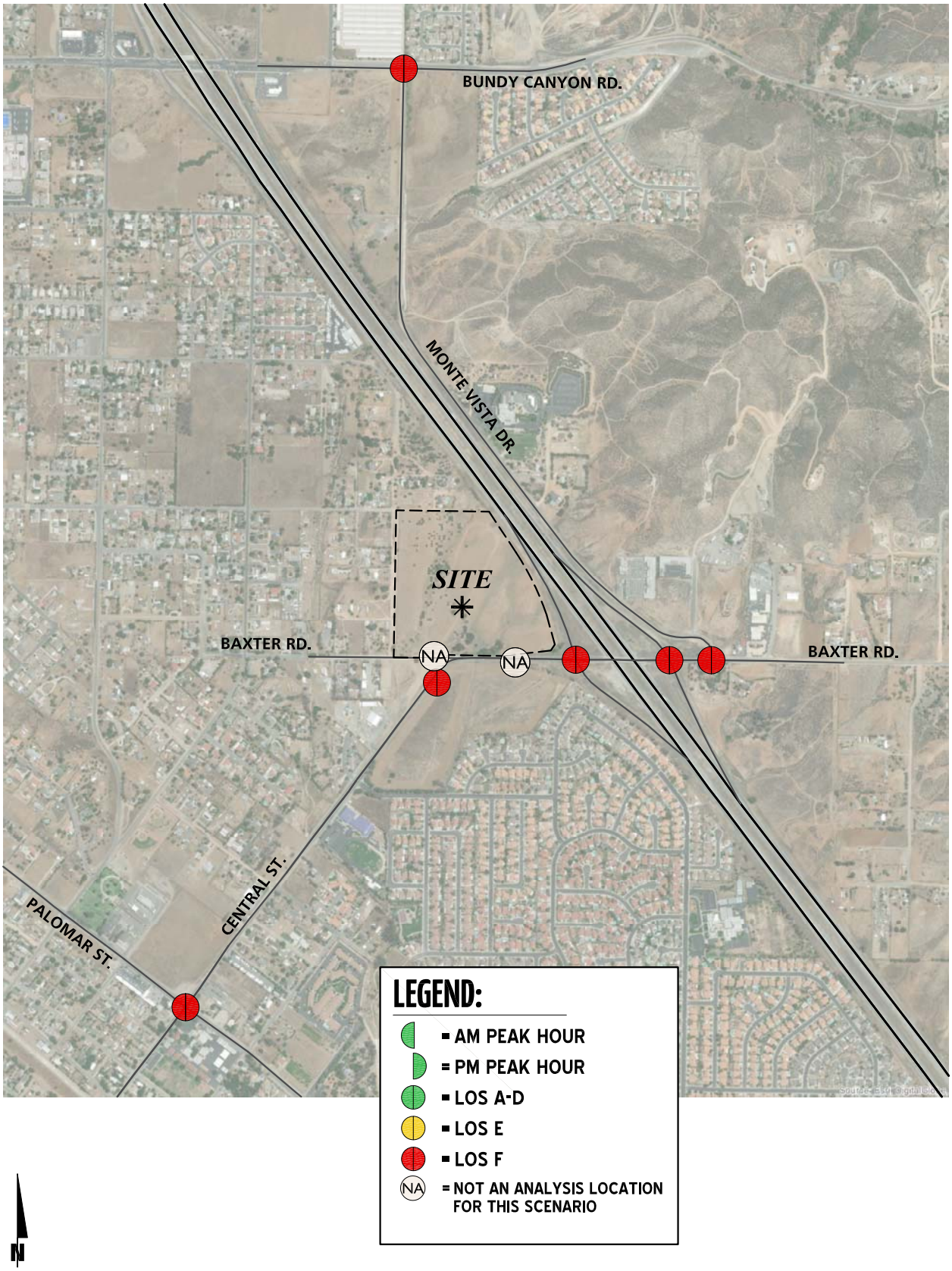
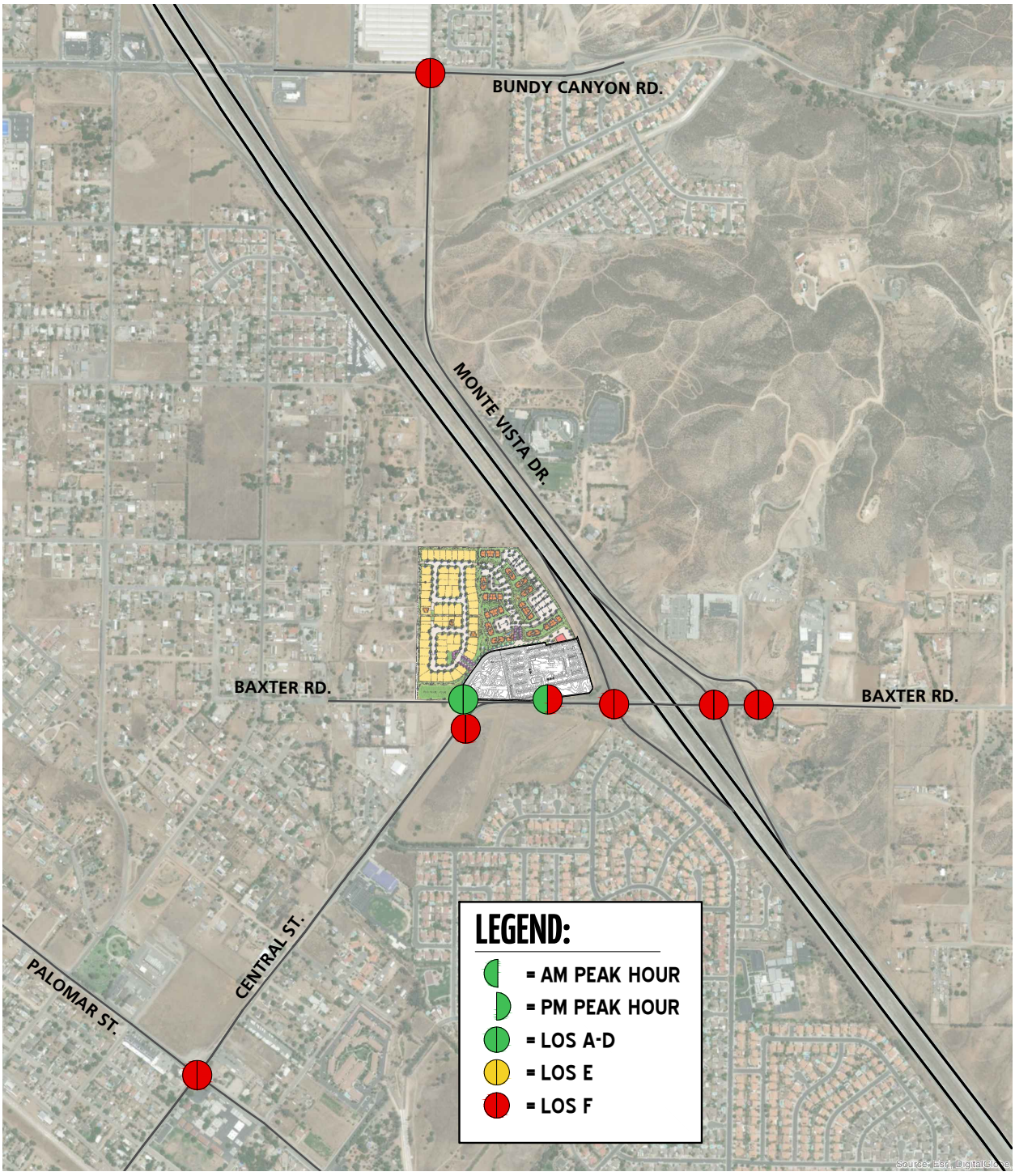


EXHIBIT 7-4: GENERAL PLAN BUILDOUT (2040) WITH PROJECT SUMMARY OF LOS



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7.6 OFF-RAMP QUEUING ANALYSIS

Queuing analysis findings for General Plan Buildout (2040) traffic conditions are presented in Table 7-2. As shown in Table 7-2, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for General Plan Buildout (2040) Without and With Project traffic conditions. Worksheets for General Plan Buildout (2040) Without and With Project traffic conditions off-ramp queuing analysis are provided in Appendices 7.4 and 7.5, respectively.

7.7 FREEWAY FACILITY ANALYSIS

General Plan Buildout (2040) Without Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 7-5. As shown in Table 7-3, the following freeway segments or merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for General Plan Buildout (2040) Without Project traffic conditions:

- I-15 Freeway Southbound, North of Baxter Rd. (#1) – LOS E AM peak hour; LOS F PM peak hour
- I-15 Freeway Southbound, Off-Ramp at Baxter Rd. (#2) – LOS F PM peak hour only
- I-15 Freeway Southbound, On-Ramp at Baxter Rd. (#3) – LOS F PM peak hour only
- I-15 Freeway Southbound, South of Baxter Rd. (#4) – LOS E AM peak hour; LOS F PM peak hour
- I-15 Freeway Northbound, North of Baxter Rd. (#5) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, On-Ramp at Baxter Rd. (#6) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, Off-Ramp at Baxter Rd. (#7) – LOS F AM and PM peak hours
- I-15 Freeway Northbound, South of Baxter Rd. (#8) – LOS F AM and PM peak hours

General Plan Buildout (2040) With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 7-6. There are no additional study area freeway segments anticipated to operate at an unacceptable LOS with the addition of Project traffic under General Plan Buildout (2040) With Project traffic conditions. General Plan Buildout (2040) Without Project and With Project freeway facility analysis worksheets are provided in Appendix 7.6 and 7.7, respectively.

7.8 GENERAL PLAN BUILDOUT (2040) DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of Project deficiencies and recommended improvements. Based on the City of Wildomar deficiency criteria discussed in Section 2.8 *Thresholds of Significance*, the following intersections were found to be deficient. Improvements necessary to reduce project-related traffic deficiencies are also discussed below.

Table 7-2

Peak Hour Freeway Off-Ramp Queuing Summary for General Plan Buildout (2040) Conditions

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	PM Peak	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
I-15 SB Ramps & Baxter Rd.	SBL/T/R	1,300	453	98	Yes	Yes	523	193	Yes	Yes
I-15 NB Ramps & Baxter Rd.	NBL/T/R	1,650	330	563	Yes	Yes	400	665	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.

Table 7-3

Freeway Facility Analysis for General Plan Buildout (2040) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	2040 Without Project				2040 With Project			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]	Density[2]	LOS[3]
I-15	Southbound	North of Baxter Rd.	3	**37.9**	**E**	**45.0**	**F**	**38.4**	**E**	**45.0**	**F**
		Off-Ramp at Baxter Rd.	3	34.5	D	**57.6**	**F**	34.7	D	**58.1**	**F**
		On-Ramp at Baxter Rd.	3	33.2	D	**55.3**	**F**	33.5	D	**55.7**	**F**
		South of Baxter Rd.	3	**38.5**	**E**	**38.4**	**F**	**39.0**	**E**	**38.4**	**F**
	Northbound	North of Baxter Rd.	3	**38.4**	**F**	**42.5**	**F**	**38.4**	**F**	**42.5**	**F**
		On-Ramp at Baxter Rd.	3	**47.6**	**F**	**35.0**	**F**	**47.9**	**F**	**35.1**	**F**
		Off-Ramp at Baxter Rd.	3	**51.0**	**F**	**37.6**	**F**	**51.3**	**F**	**37.6**	**F**
		South of Baxter Rd.	3	**45.0**	**F**	**45.0**	**F**	**45.0**	**F**	**45.0**	**F**

* **BOLD** = Unacceptable Level of Service

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

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

[3] LOS = Level of Service

EXHIBIT 7-5: GENERAL PLAN BUILDOUT (2040) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES

LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

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EXHIBIT 7-6: GENERAL PLAN BUILDOUT (2040) WITH PROJECT FREEWAY MAINLINE VOLUMES

LEGEND:

⟵ 100/200 = AM/PM PEAK HOUR VOLUMES

NOTE: VOLUMES IN ACTUAL VEHICLES (NOT PCE)

N

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URBAN CROSSROADS

7.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

Improvement strategies have been recommended at intersections that have been identified as cumulatively impacted in an effort to reduce each location's peak hour delay and improve the associated LOS grade to acceptable LOS. The effectiveness of the recommended improvement strategies discussed below to address General Plan Buildout (2040) traffic deficiencies are presented in Table 7-4 and described below.

Palomar Street & Central Street (#1) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Add a 2nd northbound through lane.
- Add a 2nd southbound through lane.
- Add an eastbound right turn lane.
- Add a 2nd westbound through lane.

Central Street & Baxter Road (#3) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a northbound left turn lane.
- Add a southbound left turn lane.
- Add an eastbound left turn lane.
- Add a 2nd eastbound through lane.
- Add an eastbound right turn lane.
- Add a westbound left turn lane.
- Add a 2nd westbound through lane.
- Add a westbound right turn lane.

Driveway 2 & Baxter Road (#4) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Add a 2nd eastbound through lane.
- Add a 2nd westbound through lane.

It should be noted, the improvements at the intersection of Driveway 2 and Baxter Road are a continuation of the improvements at the adjacent intersections. These improvements should not be considered intersection improvements exclusive to this Project driveway, but rather as a roadway improvement recommended for General Plan Buildout (2040) traffic conditions.

Table 7-4

Intersection Analysis for General Plan Buildout (2040) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	Palomar St. & Central St.																	
	-Without Improvements	TS	1	1	1	1	1	1	1	2	0	1	1	1	**>80.0**	**>80.0**	**F**	**F**
	-With Improvements	TS	1	**2**	1	1	**2**	1	1	2	**1**	1	**2**	1	49.2	32.9	D	C
3	Central St. & Baxter Rd																	
	-Without Improvements	CSS	0	**1**	0	0	1	0	0	1	0	0	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	**1**	**1**	0	**1**	1	0	**1**	**2**	**1**	**1**	**2**	**1**	39.2	46.4	D	D
4	Driveway 2 & Baxter Rd.																	
	-Without Improvements	CSS	0	0	0	0	0	**1**	0	1	0	0	1	0	16.0	**>50.0**	C	**F**
	-With Improvements[4]	CSS	0	0	0	0	0	**1**	0	**2**	0	0	**2**	0	12.1	21.5	B	C
5	I-15 SB Ramps & Baxter Rd.																	
	-Without Improvements	AWS	0	0	0	0	1	0	0	1	0	1	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	0	0	0	1	0	0	**2**	**1**	1	**2**	0	48.9	53.7	D	D
6	I-15 NB Ramps & Baxter Rd.																	
	-Without Improvements	AWS	0	1	0	0	0	0	1	1	0	0	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	1	0	0	0	0	1	**2**	0	0	**2**	**1**	48.1	43.5	D	D
7	Monte Vista Dr. & Bundy Canyon Rd.																	
	-Without Improvements	CSS	0	1	0	0	0	0	0	1	0	1	1	0	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	**1**	1	**1**	0	0	0	0	**3**	**1**	**2**	**3**	0	19.9	28.6	B	C
8	Monte Vista Dr. & Baxter Rd.																	
	-Without Improvements	CSS	0	0	0	1	0	d	0	1	0	0	1	d	**>50.0**	**>50.0**	**F**	**F**
	-With Improvements	**TS**	0	0	0	**0**	**1**	**1**	**1**	1	0	0	1	**1>**	42.6	43.7	D	D

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

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

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

[2] Per 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] CSS = Cross-Street Stop; AWS = All-Way Stop; TS = Traffic Signal; **TS** = Improvement

[4] Improvements are a continuation of the improvements at adjacent intersections and should not be considered intersection improvements exclusive to this Project driveway, but rather as a roadway improvement recommended for General Plan Buildout (2040) traffic conditions.

I-15 Southbound Ramps & Baxter Road (#5) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a 2nd eastbound through lane.
- Add an eastbound right turn lane.
- Add a 2nd westbound through lane.

I-15 Northbound Ramps & Baxter Road (#6) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a 2nd eastbound through lane.
- Add a 2nd westbound through lane.
- Add a westbound right turn lane.

Monte Vista Drive & Bundy Canyon Road (#7) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a northbound left turn lane.
- Add a northbound right turn lane.
- Add a 2nd eastbound through lane.
- Add a 3rd eastbound through lane.
- Add an eastbound right turn lane.
- Add a 2nd westbound left turn lane.
- Add a 2nd westbound through lane.
- Add a 3rd westbound through lane.

Monte Vista Drive & Baxter Road (#8) – The following improvements are necessary to improve the existing deficiency to acceptable levels:

- Install a traffic signal.
- Add a southbound right turn lane.
- Add an eastbound left turn lane.
- Stripe the westbound defacto right turn lane and modify the traffic signal to implement overlap phasing for the westbound right turn lane.

The intersection operations analysis worksheets for General Plan Buildout (2040) With Project traffic conditions, with improvements, are included in Appendix 7.8 of this TIA.

The Project Applicant shall participate in the funding of off-site improvements, including traffic signals that are needed to serve cumulative traffic conditions through the payment of WRCOG TUMF fees, City of Wildomar DIF fees, Southwest RBBD fees, or a fair share contribution as directed by the City. These fees are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected population increases. Each of the improvements discussed above have been identified as being included as part of TUMF fee program, City DIF fee program, Southwest RBBD fee program, or fair share contribution in Section 8 *Local and Regional Funding Mechanisms* of this TIA.

7.8.2 Recommended Improvements To Address Deficiencies On Off-Ramp Queues

As shown previously in Table 7-2, there are no anticipated peak hour queuing issues at the I-15 Freeway and Baxter Road interchange for General Plan Buildout (2040) traffic conditions. As such, no improvements have been recommended.

7.8.3 Recommended Improvements To Address Deficiencies On Freeway Facilities

According to the Caltrans I-15 Transportation Concept Repot (TCR), the I-15 Freeway is anticipated to be constructed to include the addition of a carpool or High Occupancy Vehicle (HOV) lane. (10) For the purposes of this TIA, this improvement has been analyzed. Caltrans typically assumes a reduction of 14 percent to the freeway mainline through volumes in this region to account for vehicles utilizing the HOV lanes. The reduction to the I-15 Freeway mainline volumes has been applied to account for the proposed HOV lanes. The analysis has been performed assuming same on and off-ramp configurations as existing baseline conditions at the I-15 Freeway and Baxter Road interchange.

As shown in Table 7-5, the I-15 Freeway mainline segment operations are anticipated to improve operations with the proposed Caltrans HOV lanes. Worksheets for General Plan Buildout (2040) With Project conditions freeway mainline level of service analysis, with improvements, are provided in Appendix 7.9. Although the improvements have improved freeway facility operations, the following freeway segments and merge/diverge ramp junctions are anticipated to continue to operate at an unacceptable LOS during the weekday AM or PM peak hours with the improvements to the I-15 Freeway:

- I-15 Freeway Southbound, North of Baxter Rd. (#1) – LOS F PM peak hour only
- I-15 Freeway Southbound, Off-Ramp at Baxter Rd. (#2) – LOS F PM peak hour only
- I-15 Freeway Southbound, On-Ramp at Baxter Rd. (#3) – LOS F PM peak hour only
- I-15 Freeway Southbound, South of Baxter Rd. (#4) – LOS F PM peak hour only
- I-15 Freeway Northbound, North of Baxter Rd. (#5) – LOS F AM peak hour; LOS E PM peak hour
- I-15 Freeway Northbound, On-Ramp at Baxter Rd. (#6) – LOS F AM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Baxter Rd. (#7) – LOS F AM peak hour only
- I-15 Freeway Northbound, South of Baxter Rd. (#8) – LOS F AM peak hour; LOS E PM peak hour

Table 7-5

Freeway Facility Analysis for General Plan Buildout (2040) Conditions With Improvements

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	Post-2040 With Project			
				AM Peak Hour		PM Peak Hour	
				Density[2]	LOS[3]	Density[2]	LOS[3]
I-15	Southbound	North of Baxter Rd.	3	30.3	D	**45.0**	**F**
		Off-Ramp at Baxter Rd.	3	31.4	D	**47.4**	**F**
		On-Ramp at Baxter Rd.	3	29.4	D	**46.0**	**F**
		South of Baxter Rd.	3	31.2	D	**38.4**	**F**
	Northbound	North of Baxter Rd.	3	**38.4**	**F**	**38.1**	**E**
		On-Ramp at Baxter Rd.	3	**38.8**	**F**	33.3	D
		Off-Ramp at Baxter Rd.	3	**40.8**	**F**	34.4	D
		South of Baxter Rd.	3	**45.0**	**F**	**39.8**	**E**

* **BOLD** = Unacceptable Level of Service

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

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

[3] LOS = Level of Service

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8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Wildomar are funded through a combination of improvements constructed by the Project, development impact fee programs or fair share contributions, such as the City of Wildomar 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 WILDOMAR DEVELOPMENT IMPACT FEE PROGRAM

The Project will also be subject to City of Wildomar's Development Impact Fee (DIF) program which includes a component for roads and signals. Chapter Three and Four of the City of Wildomar Development Impact Fee Nexus Report (April 2015) discusses the local (as opposed to regional) streets and signal improvements planned for the City through build-out of the existing City limits. (11)

8.2 TRANSPORTATION UNIFORM MITIGATION FEE (TUMF) PROGRAM

The TUMF program is administered by the Western Riverside Council of Governments (WRCOG) based upon a regional Nexus Study most recently updated in 2016 to address major changes in right of way acquisition and improvement cost factors. (12) WRCOG is currently in the process of completing a current Nexus Study update to the program. Final changes to network facilities, network cost allocations, and fee changes were not available at the time this assessment was prepared. This regional program was put into place to ensure that development pays its fair share and that funding is in place for construction of facilities needed to maintain the requisite level of service and critical to mobility in the region.

TUMF fees are imposed on new residential, industrial, and commercial development through application of the TUMF fee ordinance and fees are collected at the building or occupancy permit stage. In addition, an annual inflation adjustment is considered each year in February. In this way, TUMF fees are adjusted upwards on a regular basis to ensure that the development impact fees collected keep pace with construction and labor costs, etc.

Certain facilities forecast to be impacted by the Project are programmed for improvements through the TUMF program. The Project Applicant will be subject to the TUMF fee program and will pay the requisite TUMF fees at the rates then in effect pursuant to the TUMF Ordinance. The Project is located in the Southwest TUMF zone. WRCOG has a successful track record funding and overseeing the construction of improvements funded through the TUMF program. In total, the TUMF program is anticipated to generate nearly $5 billion in transportation projects for Western Riverside County.

8.3 SOUTHWEST ROAD AND BRIDGE BENEFIT DISTRICT (RBBD)

The City of Wildomar is anticipated to experience substantial growth. Extensive improvements are necessitated by new development within the region. In particular, Riverside County recognized the impact of this growth on the vicinity of the study area when it formed the Southwest RBBD. The proposed Project lies within Zone A of the Southwest RBBD. Zone A is generally bounded by the City of Lake Elsinore's southern boundary to the north, Corydon Road/Grand Avenue to the west, Sunset Avenue/Murrieta Road to the east, and the City of Murrieta's northern boundary to the south. As discussed above, the facilities improvements that will be ultimately constructed as a result of the collection of these fees and assessments are significant. They include:

Southwest Road and Bridge Benefits District (Zone A):

- Bundy Canyon Road improvements from Mission Trail to Sunset Avenue

8.4 FAIR SHARE CONTRIBUTION

Project mitigation may include a combination of fee payments to established programs (e.g., TUMF, and/or DIF, and/or RBBD), 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 of Wildomar'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 in Table 8-1 for the applicable deficient intersections shown previously in Table 1-5. Improvements included in a defined program and constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate.

Table 8-1

Project Fair Share Calculations for Intersections

#	Intersection	Existing	Total Project	2040 With Project Volume	Total New Traffic	Project % of New Traffic
1	Palomar St. & Central St.					
	AM:	2,117	113	3,913	1,796	6.3%
	PM:	1,693	143	3,544	1,851	**7.7%**
3	Central St. & Baxter Rd					
	AM:	1,348	306	2,664	1,316	23.3%
	PM:	1,285	443	3,046	1,761	**25.2%**
7	Monte Vista Dr. & Bundy Canyon Rd.					
	AM:	1,494	54	3,442	1,948	**2.8%**
	PM:	1,696	70	4,684	2,988	2.3%

BOLD = Denotes highest fair share percentage.

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9 REFERENCES

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7. **California Department of Transportation.** California Manual on Uniform Traffic Control Devices (MUTCD). [book auth.] California Department of Transportation. *California Manual on Uniform Traffic Control Devices (CAMUTCD).* 2017.
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11. **Colgan Consulting Corporation.** *City of Wildomar Impact Fee Study Update Report.* Wildomar : s.n., April 23, 2015.
12. **Western Riverside Council of Governments.** *TUMF Nexus Study, 2016 Program Update.* July 2017.

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