



Appendix I

Traffic Impact Analysis

CURCI PROPERTY TRAFFIC IMPACT ANALYSIS

CITY OF MURRIETA, CALIFORNIA

March 10, 2020 (REVISED)
DECEMBER 24, 2019 (REVISED)
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CURCI PROPERTY TRAFFIC IMPACT ANALYSIS
CITY OF MURRIETA, CALIFORNIA

1.0 INTRODUCTION AND SUMMARY

A. Purpose of the TIA and Study Objectives

The purpose of this traffic impact analysis (TIA) is to evaluate the traffic impact of the proposed Curci Property development. The project is to be developed with approximately 33,650 square feet (sf) of retail/commercial uses (4,000 sf auto related service, 5,000 sf tire store, 11,650 sf retail, 3,000 sf sit down restaurant, 5,000 sf fast food restaurant, and 5,000 sf bank). The project is located north of Clinton Keith Road, east of I-215 freeway in the City of Murrieta. Figure 1-A illustrates the site location and the traffic analysis study area.

Study objectives include the following:

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

Existing + Ambient + Project (EAP 2021). Traffic conditions prior to the time that the proposed development is completed will be estimated by increasing the existing traffic counts by an appropriate growth rate (2%), projected to the year that the project is estimated to be completed (2021). This will be the basis for determining near-term no project-conditions.

Existing + Ambient + Project + Cumulative (EAPC 2021). Traffic generated by the proposed project shall be identified and added to the EAP traffic conditions. This scenario will be analyzed, and a determination made if improvements funded through an approved funding mechanism (TUMF, DIF, CFD, RBBD etc.) can accommodate the cumulative traffic at the target Level of Service (LOS) identified in the General Plan. If the “funded” improvements can provide the target LOS, payment into the fee program will be considered as cumulative mitigation through the conditions of approval. Other improvements needed beyond the “funded” improvements (such as localized improvements to non-TUMF facilities) should be identified as such.

FIGURE 1-A STUDY AREA



LEGEND:

-  = EXISTING INTERSECTION ANALYSIS LOCATION
-  = FUTURE ROAD
-  = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



B. Study Area

The project site is generally located north of Clinton Keith Road and east of I-215 Freeway in the City of Murrieta. Figure 1-A illustrates the site location and the traffic analysis study area. The study area is based on the approved scoping agreement included in Appendix A.

Study Area Intersections	
1.	McElwain Rd. / Clinton Keith Rd.
2.	I-215 SB Ramps / Clinton Keith Rd.
3.	I-215 NB Ramps / Clinton Keith Rd.
4.	Creighton Ave. / Clinton Keith Rd.
5.	Whitewood Rd. / Clinton Keith Rd.
6.	Vista Murrieta HS W. Dwy. / Clinton Keith Rd.
7.	Bronco Wy. / Clinton Keith Rd.
8.	Antelope Rd. / Baxter Rd.

Roadway Segment Locations	
1.	Clinton Keith Road, west of Creighton Ave.
8.	Clinton Keith Road, east of Creighton Ave.

C. Development Project Identification

1. Project Size and Description

The Curci Property Site is proposed to be developed with approximately 33,650 square feet (sf) of retail/commercial uses (4,000 sf auto related service, 5,000 sf tire store, 11,650 sf retail, 3,000 sf sit down restaurant, 5,000 sf fast food restaurant, and 5,000 sf bank). The project is located north of Clinton Keith Road and east of I-215 Freeway in the City of Murrieta.

2. Existing Land Use

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

- North – Vacant/Residential
- South –Residential
- East – Vacant
- West – I-215 Freeway

3. Proposed Land Use

The project will consist of retail/commercial uses.

4. Site Plan of Proposed Project

Figure 1-B illustrates the conceptual land use plan. As shown on Figure 1-B access to the project site is provided via Antelope Road and future northerly extension of Creighton Avenue.

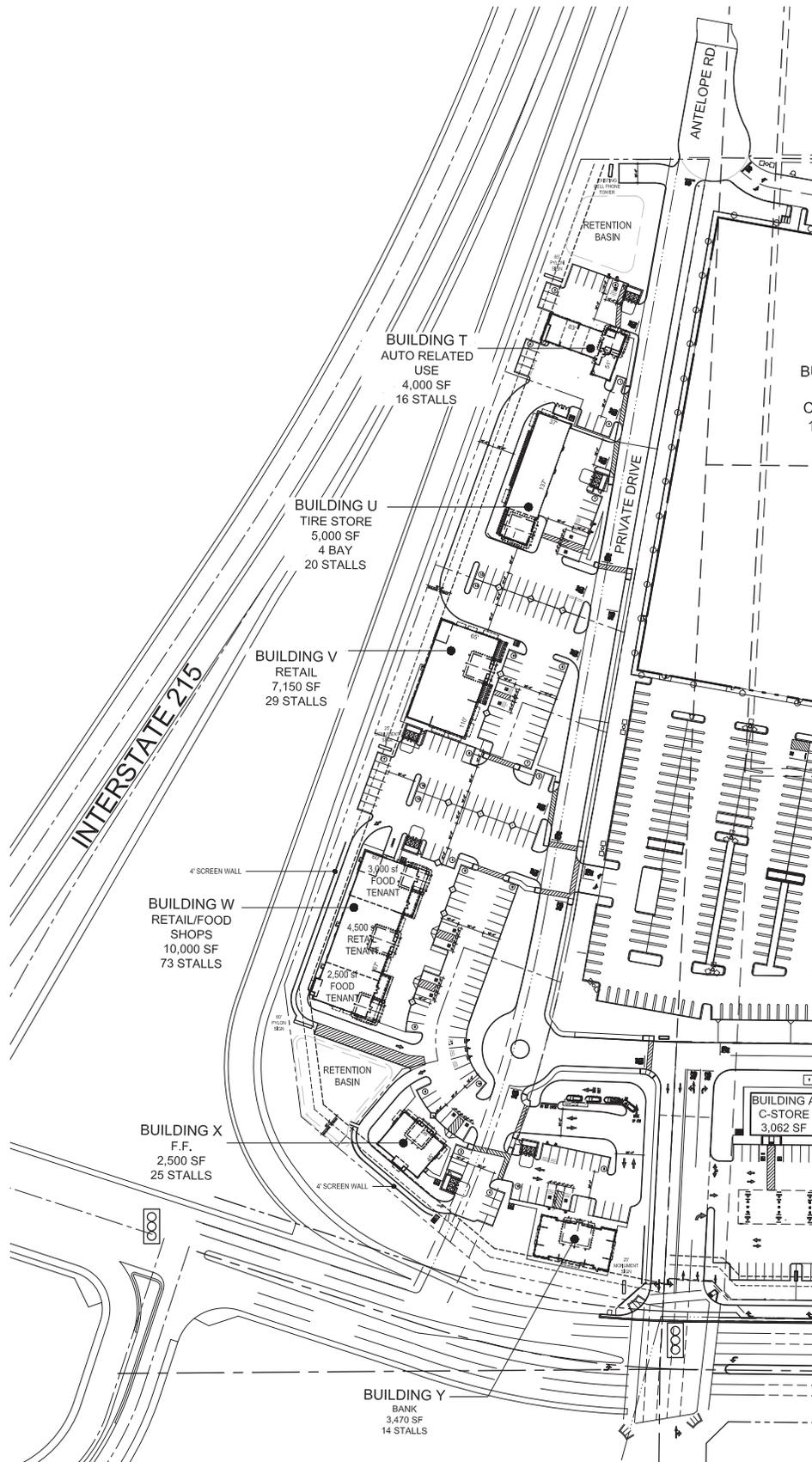
5. Proposed Project Opening Year

The proposed project is anticipated to be completed in 2021. Future traffic analysis has been based upon a 2% annual background (ambient) growth along with traffic generated by other future developments in the surrounding area.

6. Proposed Project Phasing

The project is expected to be completed in a single phase. Therefore, traffic recommendations included in this report have not been separated into different development phases.

FIGURE 1-B SITE PLAN



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2.0 TRAFFIC ANALYSIS METHODOLOGIES

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

A. Level of Service Definition

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

- LOS "A": Completely free-flow conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by driver preferences. Maneuverability within the traffic stream is good. Minor disruptions to flow are easily absorbed without a change in travel speed.
- LOS "B": Free flow conditions, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS "A", but drivers have slightly less freedom to maneuver. Minor disruptions are still easily absorbed, although local deterioration in LOS will be more obvious.
- LOS "C": The influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant traffic disruption.
- LOS "D": The ability to maneuver is restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
- LOS "E": Operations at or near capacity, an unstable level. Vehicles are operating with the minimum spacing for maintaining uniform flow.
- LOS "F": Forced or breakdown flow. It occurs either when vehicles arrive at a rate greater than the rate at which they are discharged or when the forecast demand exceeds the computed capacity of a planned facility. Although operations at these points – and on sections immediately downstream – appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

B. Level of Service Criteria

The City of Murrieta has established Level of Service (LOS) “D” as the maximum allowable threshold for the intersection operations. Therefore, LOS “E” or “F” is considered unacceptable and requires improvements measures. For roadway segments, LOS C is deemed acceptable. However, the City’s General Plan indicates that LOS D is allowed in certain areas, including the North Murrieta Business Corridor and Multiple use focus area, which include the Project site and study area roadways. Therefore, LOS D is deemed acceptable for roadway segments along Clinton Keith Road.

C. Intersection Operations Analysis Methodology

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

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

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

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

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

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

Levels of service at the study area intersections have been evaluated using the following HCM intersection analysis program: Synchro 10.0. The signal timing for the intersections have been provided by City of Murrieta and Caltrans staff.

Peak hour factors (PHF), where known from existing traffic counts, have been used to assess intersection operations. Truck percentages along Winchester Road have been included in the analysis.

D. Roadway Segment Analysis Methodology

Roadway Segment analysis has been evaluated based on the Link Volume Capacities/Level of Service for the City of Murrieta Roadways. Roadway segment analysis has been assessed based on average daily traffic (ADT) volumes shown in this report for each analysis scenario. For the purpose of this report, letter grades for each study area roadway segments have been assigned for each analysis scenario based on the following roadway segment capacities for each of the City of Murrieta roadway classifications are summarized below:

LEVEL OF SERVICE	V/C Ratio
A	0.00 to 0.60
B	0.61 to 0.70
C	0.71 to 0.80
D	0.81 to 0.90
E	0.91 to 1.00
F	> 1.00

Roadway segment analysis is suitable for planning purposes and not a precise measure of capacity. The ultimate capacity of a roadway is based upon several factors such as the relationships between peak hour and daily traffic volumes, intersection spacing, configuration, and control features, vehicle mix, and pedestrian/bicycle traffic. Furthermore, where the roadway segment analysis indicates a deficiency (LOS "D" or worse unless this segment is within the zone where LOS "D" is allowed, per GP section 5.6 (CIR-1.3)) a review of the more detailed peak hour intersection analysis is typically undertaken. The intersection analysis explicitly accounts for factors that affect roadway capacity. Therefore, roadway segment widening is typically recommended if the peak hour intersection analysis indicates the need for additional through lanes.

E. Freeway Ramp Analysis

For the purpose of this report, merge/diverge operations analysis methods have been used to evaluate freeway on-ramps and off-ramps. The density and level of service at the I-215/Clinton Keith Road on and off-ramps have been evaluated using the HCS2010 Ramps Version 6.65 software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. The merge/diverge area LOS thresholds for each density range utilized in this report is presented as follows:

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

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

F. Turn Pocket Queuing Evaluation

A queuing deficiency is identified in the no-Project condition if the calculated 95th -percentile queue length exceeds the storage length by more than 25 feet (the average storage length for one additional vehicle) since the bay taper can typically store at least one vehicle. A significant queuing impact is determined if the Project causes the calculated 95th -percentile queue length to exceed the existing or planned storage capacity at a signalized intersection by more than 25 feet. In storage lanes that are already deficient without the Project, a significant queuing impact is determined if the Project increases the calculated 95th -percentile queue length by at least 25 feet. Where left-turn lanes connect to two-way left-turn lanes, although the calculated queue may exceed the length of the painted left-turn pocket, the presence of the two-way left-turn lane provides additional storage and allows the queue to avoid spilling into through lanes. Therefore, queues exceeding the painted storage length in these situations are not highlighted as existing deficiencies because they do not contribute to operational problems.

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3.0 AREA CONDITIONS

A. Study Area and Intersections

In general, the study area is based on the projects' trip generation and distribution assumptions. Intersections where the project is likely to add 50 or more peak hour trips have been included for analysis purposes. See Table 1-1, Section 1.B.

B. Area Roadway System

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

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

C. Existing Traffic Volumes

Existing intersection level of service calculations are based upon manual AM and PM peak hour turning movement counts made in November/December 2017 and May 2018. Saturday traffic volumes were obtained from the Murrieta Costco and Vineyard II TIA, prepared by Kittleson & Associates (November 2019). Existing AM, PM, and Saturday peak hour intersection turning movement volumes are shown on Figures 3-C through Figure 3-E, respectively.

In addition, existing traffic volumes utilized for future traffic conditions have been adjusted to reflect the future connection of Clinton Keith Road and French Valley Parkway.

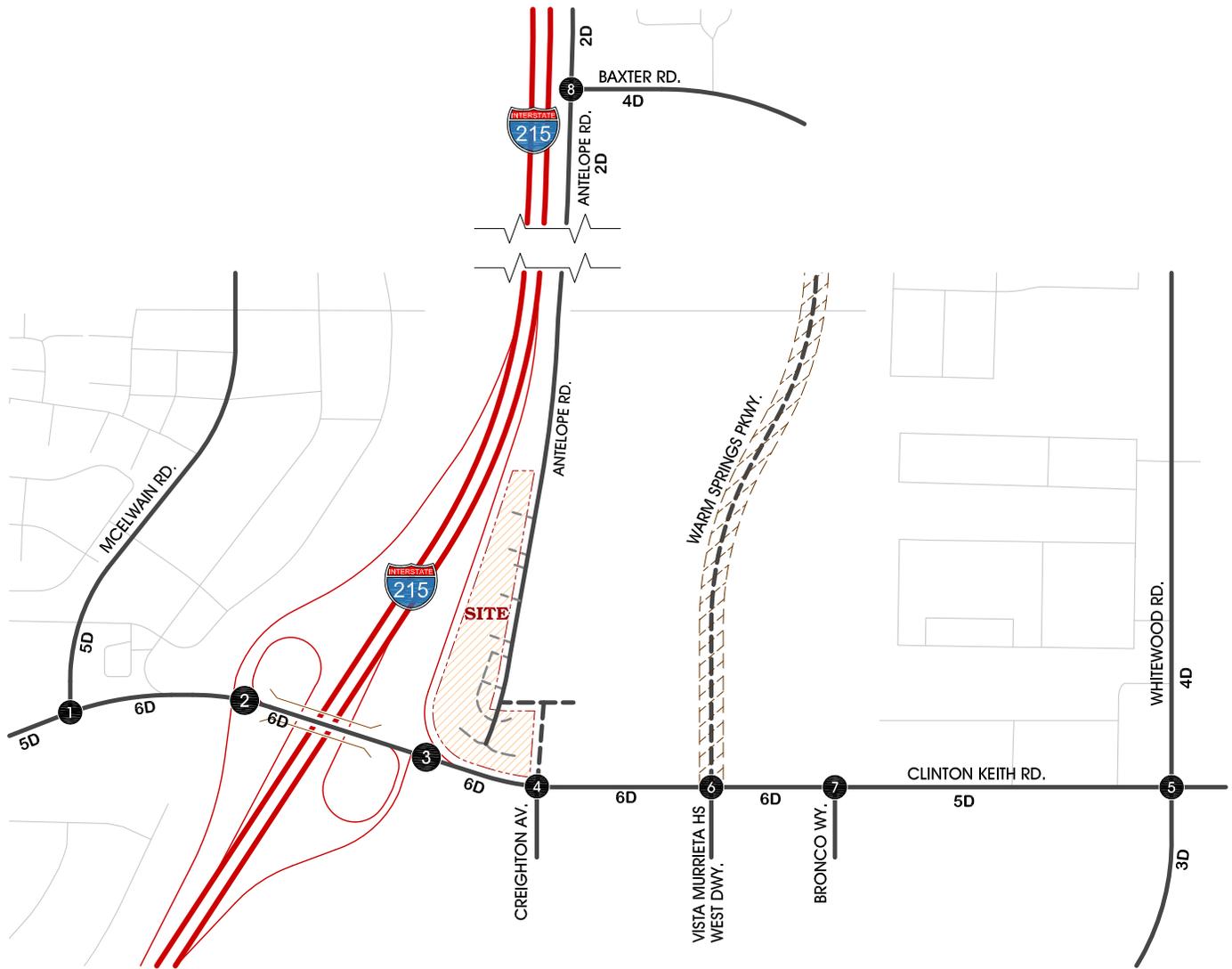
The traffic count worksheets are included in Appendix "B".

D. Existing Delay and Level of Service

The results of the existing conditions intersection analysis are summarized in Table 3-1.1. The existing condition operations analysis worksheets are provided in Appendix "C". As shown in Table 3-1.1, the study area intersections are currently operating at acceptable level of service (LOS "D" or better) during the peak hours with the existing geometry and traffic controls. The 95th percentile queueing analysis results for existing traffic conditions are presented in Table 3-1.2. The queueing analysis worksheets are also included in Appendix "C".

Table 3-2 provides a summary of the Existing conditions roadway segment capacity analysis. As shown on Table 3-2, the roadway segments are operating at acceptable levels of service (at or better than LOS "C" capacity thresholds) with existing geometry.

FIGURE 3-A EXISTING TRAFFIC CONTROLS AND INTERSECTION GEOMETRICS



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.

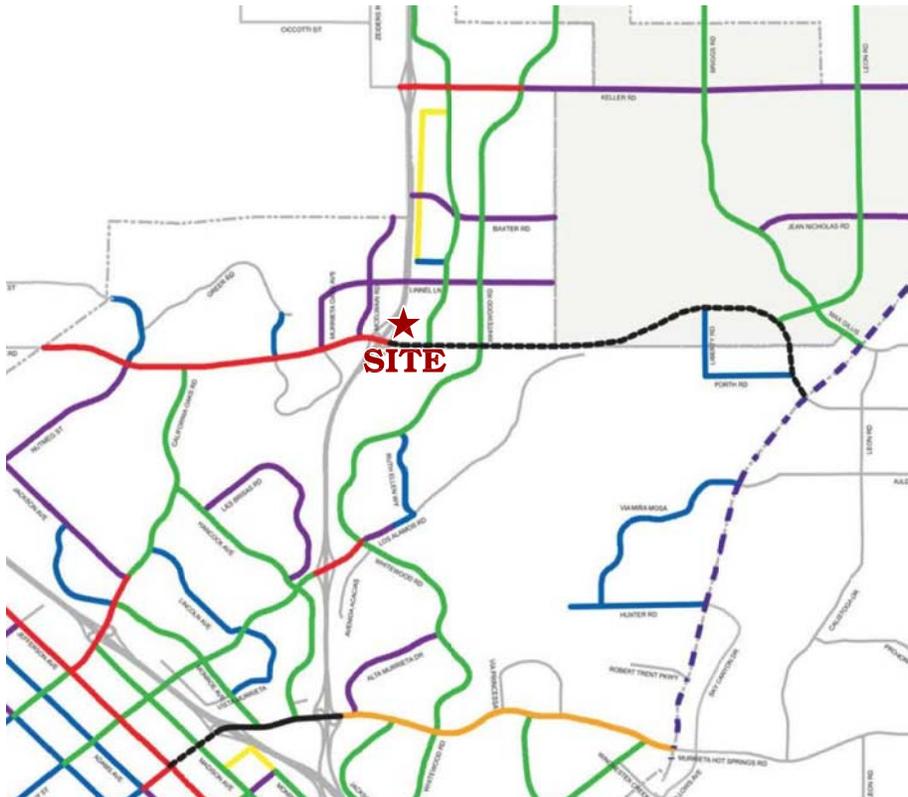
LEGEND:

- = INTERSECTION ID
- = TRAFFIC SIGNAL
- = STOP SIGN
- FREE RT = FREE RIGHT TURN
- RT OVL = RIGHT TURN OVERLAP PHASE
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND
- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- DEF = DEFACTO RIGHT TURN LANE



FIGURE 3-B CITY OF MURRIETA GENERAL PLAN 2035 CIRCULATION MAP AND TYPICAL STREET SECTIONS

CIRCULATION MAP



LEGEND

<ul style="list-style-type: none"> — County of Riverside Expressway — Augmented Urban Arterial — Multi-Modal Transp. Corridor — Urban Arterial — Arterial 	<p>* Curb to Curb / R/W</p> <ul style="list-style-type: none"> — Major 110' / 134' — Secondary 86' / 110' — Industrial Collector 86' / 134' — Collector 86' / 110' 	<p>* Curb to Curb / R/W</p> <ul style="list-style-type: none"> — Major 76' / 100' — Secondary 64' / 88' — Industrial Collector 56' / 78' — Collector 44' / 66' 	<ul style="list-style-type: none"> — Selected Roadways Shown for Clarity --- City of Murrieta Boundary Sphere of Influence
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TYPICAL STREET SECTIONS

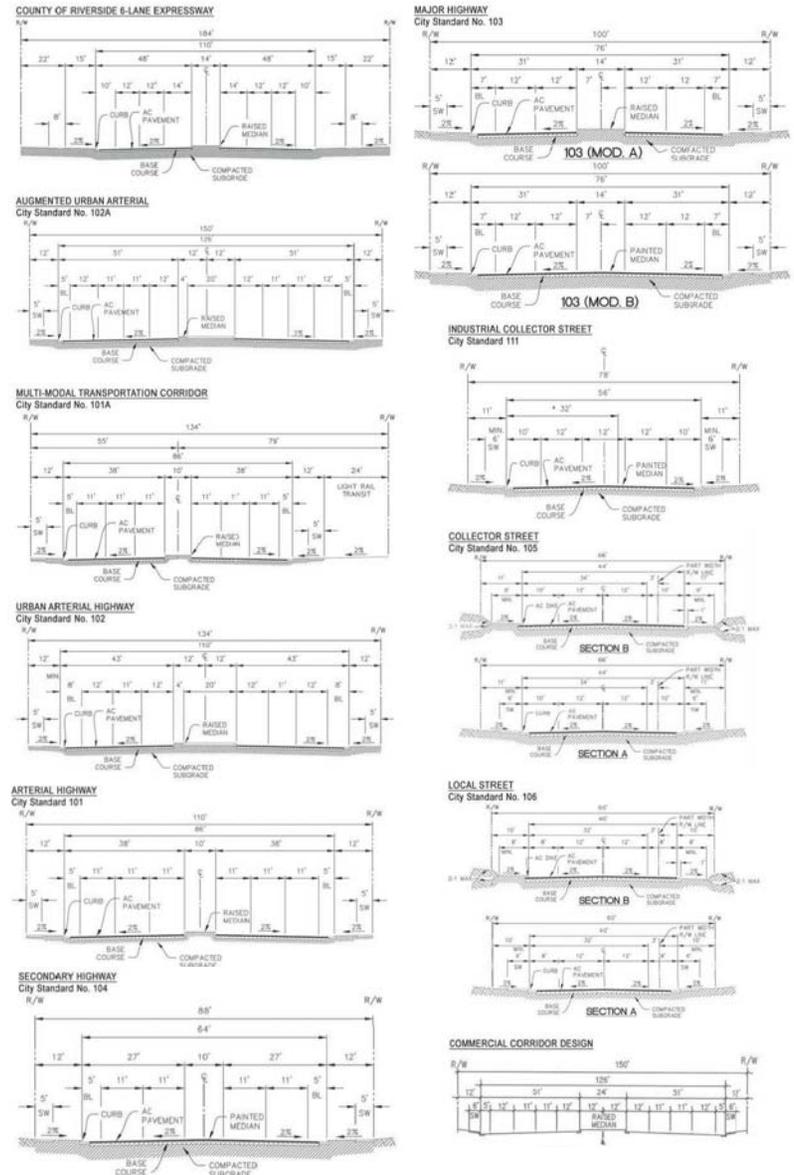
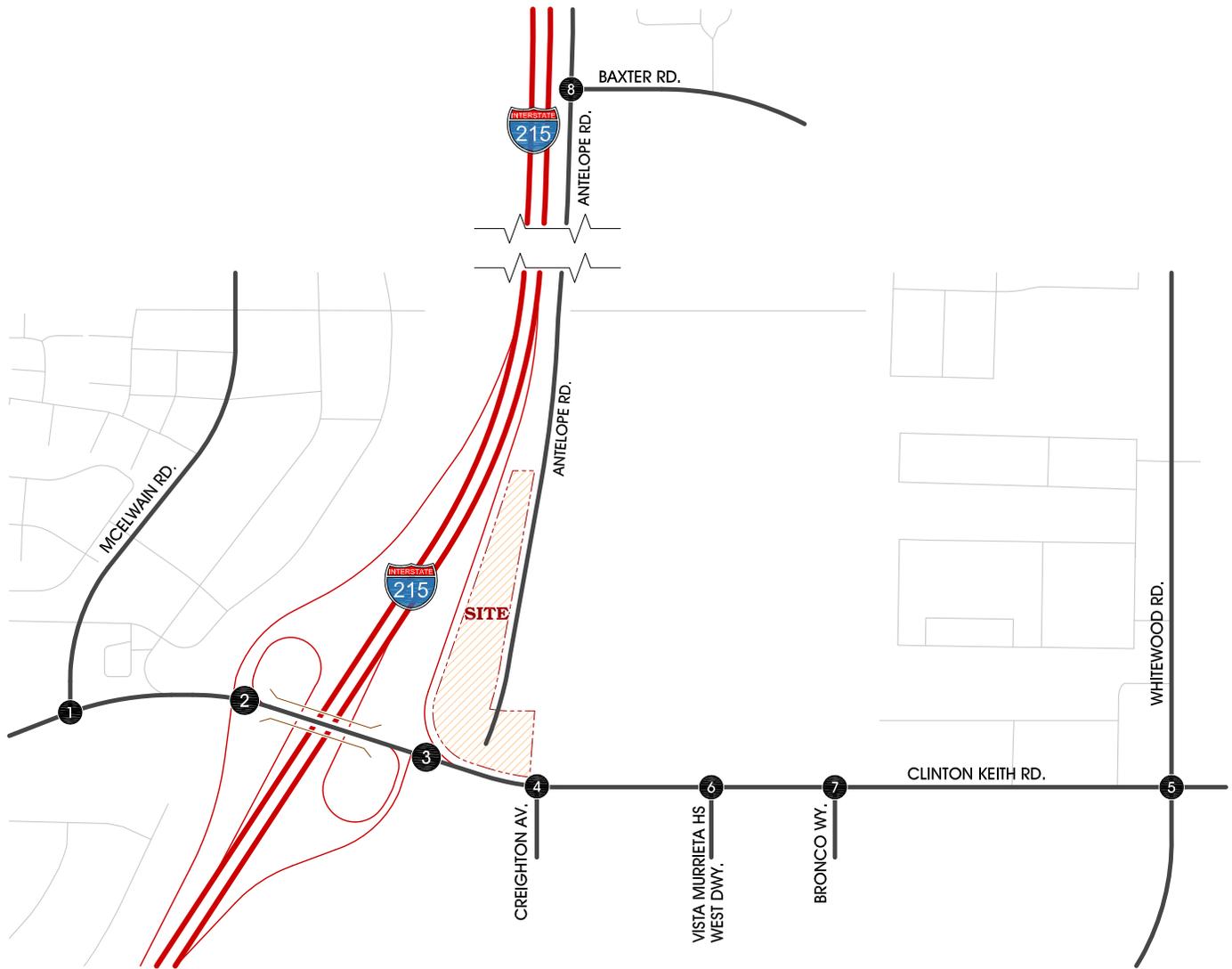


FIGURE 3-C EXISTING AM PEAK HOUR INTERSECTION VOLUMES



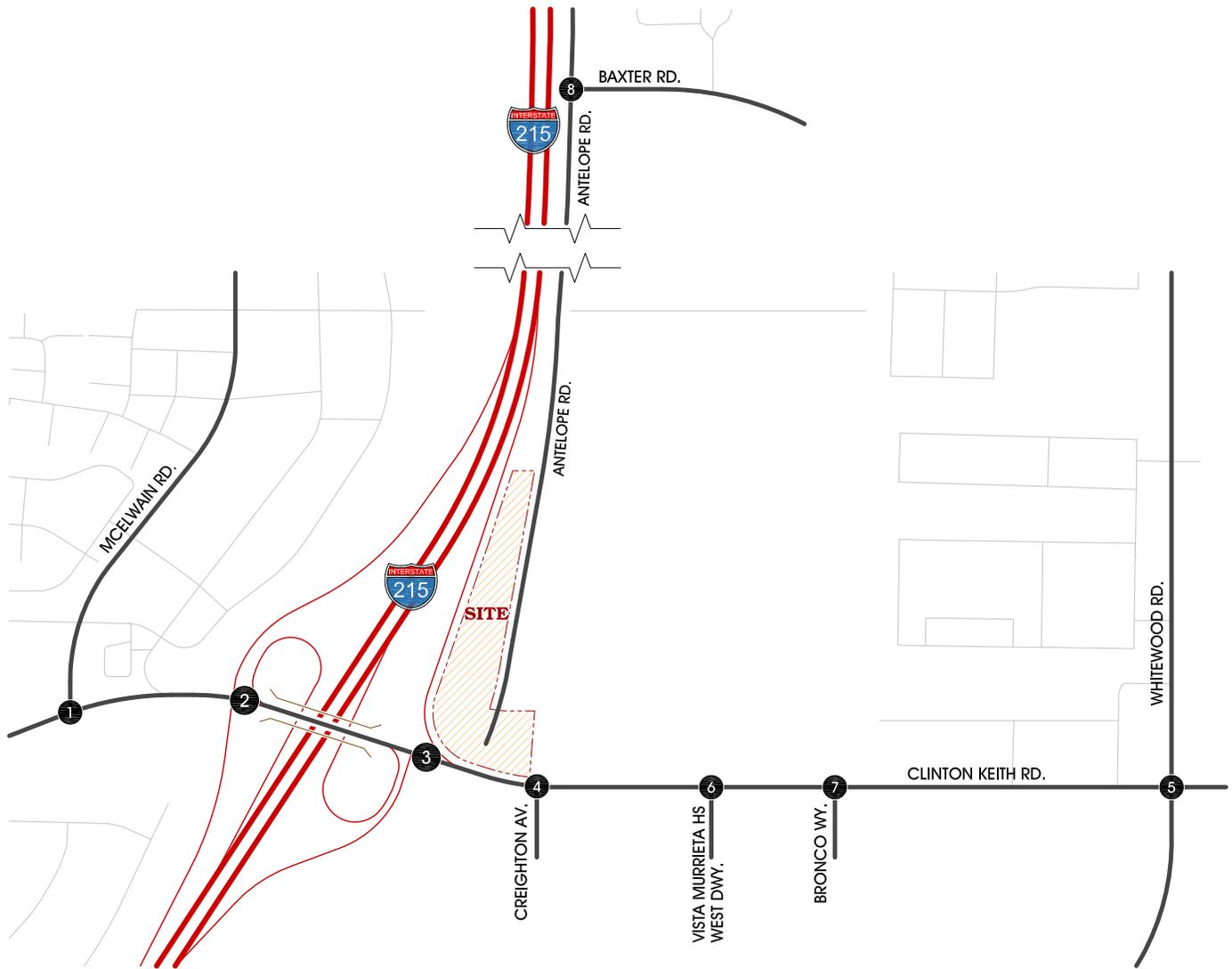
1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.
↑ 188 ↓ 306 ← 89 → 994 ↓ 3	↓ 620 ↓ 118 ← 313 → 610	↑ 145 → 756	↑ 802 ↓ 30 ↓ 0	↓ 355 ↓ 297 ↓ 0 ↓ 0 ↓ 0
240 → 1339 → 5 →	1229 → 472 →	571 → 753 → 185 → 495 →	6 → 1001 → 70 → 122 → 23 →	287 → 0 → 253 → 238 → 127 → 0 →
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.		
← 849	↑ 494 ↓ 222 ↓ 0	↓ 152 ↓ 162 ↓ 75 ↓ 34		
820 → 240 → 14 →	0 → 616 → 188 → 313 → 87 →	91 → 71 →		

LEGEND:

= INTERSECTION ID



FIGURE 3-D EXISTING PM PEAK HOUR INTERSECTION VOLUMES



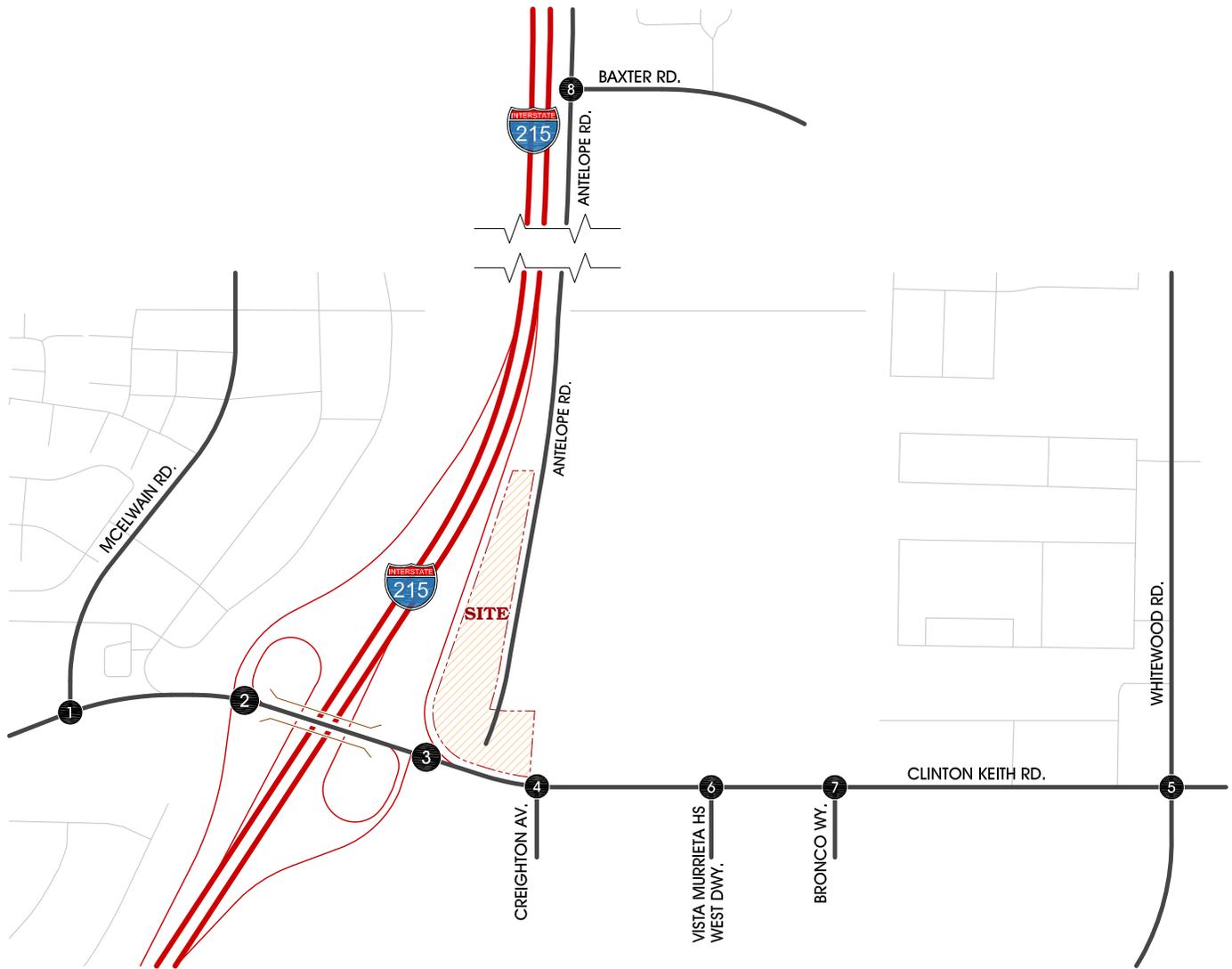
1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.																																																																
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LEGEND:

= INTERSECTION ID



FIGURE 3-E EXISTING SATURDAY MD PEAK HOUR INTERSECTION VOLUMES



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.
↓ 253 ↓ 12 ↓ 409 ← 23 ← 894 ← 25	↓ 624 ↓ 0 ↓ 150 ← 260 ← 761	← 110 ← 669	↑ 745 ↑ 7 ↑ 0	↓ 213 ↓ 213 ↓ 53 ← 29 ← 325 ← 109
276 → 1034 → 13 →	1016 → 424 →	650 → 512 →	8 → 896 → 51 →	292 → 420 → 165 →
10 → 6 → 22 →		367 → 310 →	50 → 11 →	111 → 141 → 88 →
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.	LEGEND: = INTERSECTION ID	
← 725	↑ 667 ↑ 18 ↑ 17	NOT ANALYZED (SATURDAY CONDITIONS)		
907 → 0 →	1 → 864 → 22 →			



**TABLE 3-1.1
INTERSECTION ANALYSIS FOR
EXISTING CONDITIONS**

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)			Level of Service ³		
			Northbound			Southbound			Eastbound			Westbound			Weekday		Sat	Weekday		Sat
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	MD	AM	PM	MD
1	McElwain Rd. / Clinton Keith Rd.	TS	1	1	0	2	1	0	2	3	1	1	3	1>	26.7	32.8	25.6	C	C	C
2	I-215 SB Ramps / Clinton Keith Rd.	TS	0	0	0	0	1	2	0	3	1	0	3	1>>	18.7	26.5	13.3	B	C	B
3	I-215 NB Ramps / Clinton Keith Rd.	TS	1	0	1	0	0	0	0	3	1>>	0	3	1>>	32.7	16.6	16.2	C	B	B
4	Creighton Ave. / Clinton Keith Rd.	TS	1	0	1	0	0	0	1U	3	1	1	3	0	11.1	7.3	5.4	B	A	A
5	Whitewood Rd. / Clinton Keith Rd.	TS	1	1	0	1	2	0	2	1	1	1	1	0	31.5	33.1	28.5	C	C	C
6	Vista Murrieta HS W. Dwy. / Clinton Keith Rd.	CSS	0	0	1	0	0	0	0	3	0	0	3	0	18.5	14.8	0.0	C	B	A
7	Bronco Wy. / Clinton Keith Rd.	TS	2	0	1	0	0	0	1U	3	d	1	3	0	22.4	17.2	5.8	C	B	A
8	Antelope Rd. / Baxter Rd.	TS	0	1	1	1	1	0	0	0	0	1	0	1	26.0	26.8	-	C	C	-

¹ TS = Traffic Signal; CSS = Cross Street Stop

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane; d = Defacto right turn lane; > = Right Turn Overlap; >> = Free Right Turn Lane

³ Delay and level of service calculated using the following analysis software: Synchro Software

**TABLE 3-1.2
QUEUEING ANALYSIS SUMMARY FOR
EXISTING CONDITIONS**

ID	Intersection	Turning Movement Lane	Storage Length Provided ² (feet)	95th Percentile Queue Length Per Lane (feet) ¹		
				Weekday		Saturday
				AM	PM	MD
1	McElwain / Clinton Keith Rd.	EBL	200	134	218 ³	146
		EBR	100	0	0	0
		WBL	200	12	49	47
		WBR	160	25	55	37
		NBL	50	17	40	27
		SBL	250	162	205	209
2	I-215 SB Ramps / Clinton Keith Rd.	EBR	400	34	35	34
		WBR	150	1	0	0
		SBR	>1000	136	223	93
3	I-215 NB Ramps / Clinton Keith Rd.	NBL	960	138	329	269
		NBR	960	346	215	119
4	Creighton Ave. / Clinton Keith Rd.	EBU	240	16	21	21
		EBR	200	10	18	11
		WBL	230	47	51	19
		WBR	150	0	0	0
		NBL	200	129	86	70
5	Whitewood Rd. / Clinton Keith Rd.	EBL	250	133	258 ³	187
		NBL	310	249	325 ³	170
		SBL	100	12	12	97
7	Bronco Wy. / Clinton Keith Rd.	EBU	200	199	35	6
		WBL	315	260	183	55
		NBL	355	157	57	24
		NBR	355	11	31	10
8	Antelope Rd. / Baxter Rd.	WBL	520	55	59	-
		WBR	520	40	42	-
		NBR	50	19	8	-
		SBL	150	174 ³	71	-

¹ Queue length calculated using Synchro 8

² Existing pocket length storage (for turning movements) or link distance (for through movements).

³ 95th percentile queue is anticipated to exceed available storage length. However, the excess queue length can be accommodated within the transition lane.

TABLE 3-2
ROADWAY SEGMENT ANALYSIS FOR
EXISTING CONDITIONS

Roadway	Segment Limits	General Plan Roadway Classification	Through Travel Lanes ¹	Roadway Capacity and LOS Criteria ² (Maximum 2-Way ADT)		Existing Conditions ⁴					
						Weekday			Saturday		
				LOS C	LOS E	ADT	V/C ³	LOS	ADT	V/C ³	LOS
Clinton Keith Rd.	west of Creighton Av.	Urban Arterial	6	43,100	53,900	25,264	0.47	A	20,276	0.38	A
	east of Creighton Av.	Urban Arterial	6	43,100	53,900	25,264	0.47	A	20,276	0.38	A

¹ 1 = Existing number of through lanes; 1 = Improvement

² Source: City of Murrieta Daily Roadway Capacity Values

³ V/C = ADT / LOS E Roadway Capacity

⁴ Source: For the purpose of this analysis, ADT counts from the Costco Warehouse Murrieta TIA, prepared by Kittelson & Associates (April 2019), have been utilized.

The Existing freeway ramp and basic freeway segment analysis results are summarized in Tables 3-3 and 3-4. As shown on Tables 3-3 and 3-4, the freeway ramps and basic freeway segments analyzed for this study were found to operate at an acceptable LOS (LOS "D" or better) during the peak hours. The existing conditions ramp analysis worksheets are provided in Appendix "D". The basic freeway segment analysis worksheets for existing conditions are included in Appendix "E".

E. Transit Service

Riverside Transit Agency (RTA) Routes 23 and 61 currently provide service to the roadways within the study area.

F. City of Murrieta Planned Roadway Improvements within the study area

Warm Springs Parkway and Clinton Keith Road

The proposed alignment of the Warm Springs Parkway will be constructed as a four (4) leg intersection at Clinton Keith Road, directly across from the existing High School West (Stadium) Driveway.

**TABLE 3-3
 FREEWAY RAMP ANALYSIS FOR
 EXISTING CONDITIONS**

Freeway	Ramp Location	Lanes on Freeway ¹	Lanes on Ramp ¹	Ramp Volumes			Density ²			Level of Service ³		
				Weekday		Sat	Weekday		Sat	Weekday		Sat
				AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	Clinton Keith Rd. Off-Ramp	3	1	739	898	674	31.6	27.3	29.7	D	C	D
	Clinton Keith Rd. Loop On-Ramp	3	1	313	217	260	25.0	18.8	23.2	C	B	C
	Clinton Keith Rd. Slip On-Ramp	3	1	473	431	424	27.6	21.1	25.4	C	C	C
I-215 Northbound	Clinton Keith Rd. Off-Ramp	3	1	680	771	677	20.9	30.2	27.1	C	D	C
	Clinton Keith Rd. Loop On-Ramp	3	1	753	732	512	17.2	25.5	21.2	B	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	145	55	110	16.7	24.2	21.1	B	C	C

¹ Existing number of lanes.

² Density is measured by passenger cars per lane (pc/mi/ln)

³ Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

**TABLE 3-4
BASIC FREEWAY SEGMENT ANALYSIS FOR
EXISTING CONDITIONS**

Freeway	Ramp Location	Lanes on Freeway ¹	Freeway Volumes			Density ²			Level of Service ³		
			Weekday		Sat	Weekday		Sat	Weekday		Sat
			AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	North of Clinton Keith Rd.	3	4,491	3,693	4,269	25.5	19.5	22.9	C	C	C
	South of Clinton Keith Rd.	3	4,538	3,443	4,279	25.8	18.1	23.0	C	C	C
I-215 Northbound	South of Clinton Keith Rd.	3	2,493	4,245	3,665	13.3	22.9	19.4	B	C	C
	North of Clinton Keith Rd.	3	2,711	4,261	3,610	14.5	23.0	19.1	B	C	C

¹ Density is measured by passenger cars per lane (pc/mi/ln)

² Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

4.0 PROJECTED FUTURE TRAFFIC

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

A. Project Traffic

1. Ambient Growth Rate

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

A 2% ambient growth rate that has been used in this study to account for traffic not attributed to the project or other planned developments within the study area.

2. Project Trip Generation

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

- 4,000 sf Automobile Parts and Service Center
- 5,000 sf Tire Store
- 11,650 sf Shopping Center
- 3,000 sf High Turnover (Sit-Down) Restaurant
- 5,000 sf Fast Food restaurant with Drive Through
- 5,000 sf Drive-in Bank

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

The daily and peak hour trip generations for the proposed project are shown on Table 4-2. The proposed development is projected to generate a total of approximately 4,433 trip-ends per day with 311 vehicles per hour during the AM peak hour, 395 vehicles per hour during the PM peak hour, and 692 during the Saturday peak hour.

**TABLE 4-1
PROJECT TRIP GENERATION RATES¹**

Land Use	ITE Code	Quantity ²	WEEKDAY							SATURDAY		
			AM Peak Hour			PM Peak Hour			Daily	MD Peak Hour		
			In	Out	Total	In	Out	Total		In	Out	Total
Automobile Parts and Service Center	943 ³	4 TSF	1.43	0.53	1.96	0.90	1.36	2.26	16.28	3.05	3.57	6.62
Tire Store	848	5 TSF	1.82	1.07	2.89	1.78	2.37	4.15	24.87	2.37	2.68	5.05
Shopping Center	820	11.65 TSF	2.24	1.37	3.61	5.85	6.33	12.18	144.12	5.06	4.67	9.73
High Turnover (Sit-Down) Restaurant	932	3 TSF	5.95	4.86	10.81	5.91	3.94	9.85	127.15	5.71	5.48	11.19
Fast Food w/ Drive Thru	934	5 TSF	15.06	10.04	25.10	14.17	14.17	28.34	346.23	27.98	26.88	54.86
Drive-in Bank	912	5 TSF	6.89	5.19	12.08	12.15	12.15	24.30	148.15	43.24	43.24	86.48

¹ Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 9th Edition, 2012.
Regression equation applied to ITE Code 820 (Shopping Center)

² TSF = Thousand Square Feet

³ Source: ITE (Institute of Transportation Engineers) Trip Generation Manual, 10th Edition, 2017.

**TABLE 4-2
PROJECT TRIP GENERATION SUMMARY**

Land Use	Quantity ¹	WEEKDAY							SATURDAY		
		AM Peak Hour			PM Peak Hour			Daily	MD Peak Hour		
		In	Out	Total	In	Out	Total		In	Out	Total
Automobile Parts and Service Center	4 TSF	6	2	8	4	5	9	65	12	14	26
Tire Store	5 TSF	9	5	14	9	12	21	124	12	13	25
Shopping Center	11.65 TSF	26	16	42	68	74	142	1,679	59	54	113
High Turnover (Sit-Down) Restaurant	3 TSF	18	15	33	18	12	30	381	17	16	33
Fast Food w/ Drive Thru	5 TSF	116	111	227	85	78	163	2,481	140	134	274
- Pass-By Reduction (25%)		-29	-28	-57	-21	-20	-41	-620	-34	-34	-68
Drive-in Bank	5 TSF	34	26	60	61	61	122	741	216	216	432
- Pass-By Reduction (25%)					-16	-15	-31	-185	-54	-54	-108
- Internal Capture (5% Reduction)		-9	-7	-16	-10	-10	-20	-233	-18	-17	-35
TOTAL		171	140	311	198	197	395	4,433	350	342	692

¹ TSF = Thousand Square Feet

3. Project Trip Distribution and Assignment

Trip distribution represents the directional orientation of traffic to and from the project site. The project's trip distribution patterns are based on the proximity of the specific uses to the surrounding trip attractors (employment bases, schools, recreation centers, etc.), and the regional freeway interchanges. The trip distribution pattern for the project is illustrated on Figure 4-A.

4. Other Trip Generation Factors

The project land uses are comprised mainly of primary traffic. Primary traffic refers to trips that are intending to go to the project as their primary destination. Therefore, no reduction has been assumed for pass-by traffic.

5. Project Peak Hour Turning Movement Traffic

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

B. Cumulative Traffic (Background)

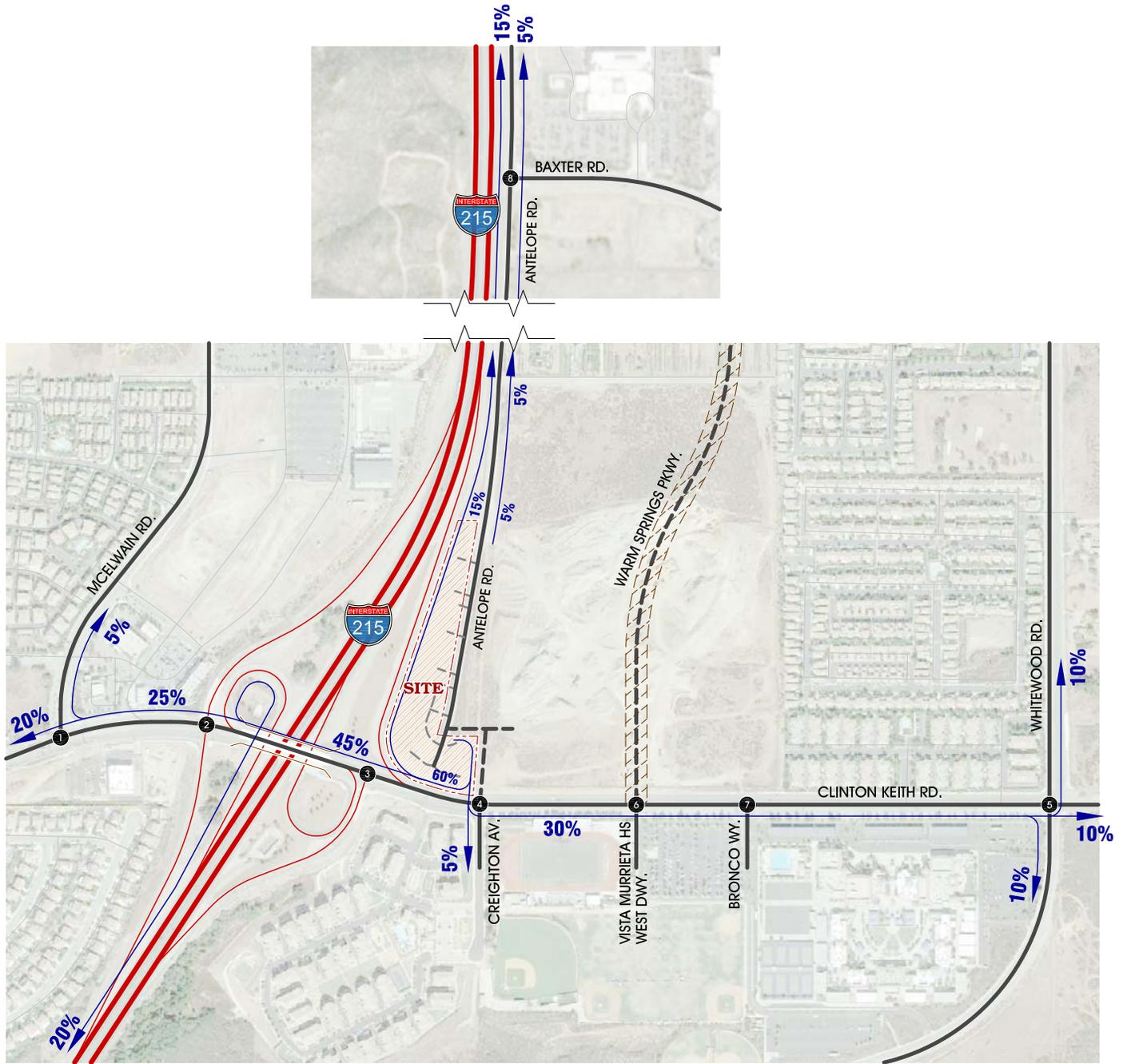
1. Method of Projection

To assess Existing Plus Ambient Plus Project Plus Cumulative traffic conditions, project traffic is combined with existing traffic, area-wide growth and other future developments which are approved or being processed concurrently in the study area. Developments which are being processed concurrently in the study area have been provided by City staff.

2. Other Approved or Proposed Development Projects

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

FIGURE 4-A PROJECT TRIP DISTRIBUTION

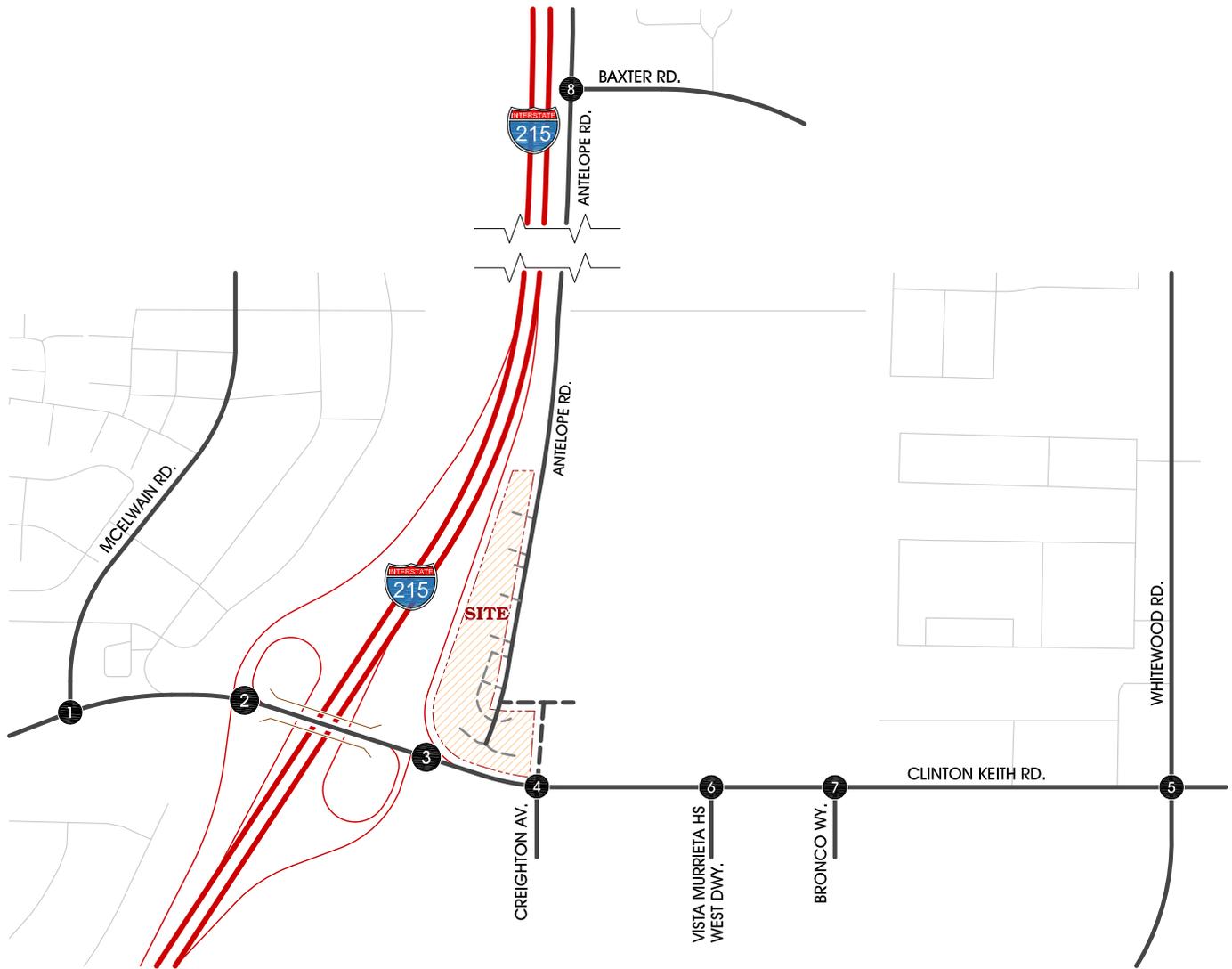


LEGEND:

-  = INTERSECTION ID
- 10%** = PERCENT TO/FROM PROJECT



FIGURE 4-B PROJECT ONLY AM PEAK HOUR INTERSECTION VOLUMES



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.
5. Whitewood Rd. / Clinton Keith Rd.	6. Vista Murrieta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.

PASS-BY TRIPS

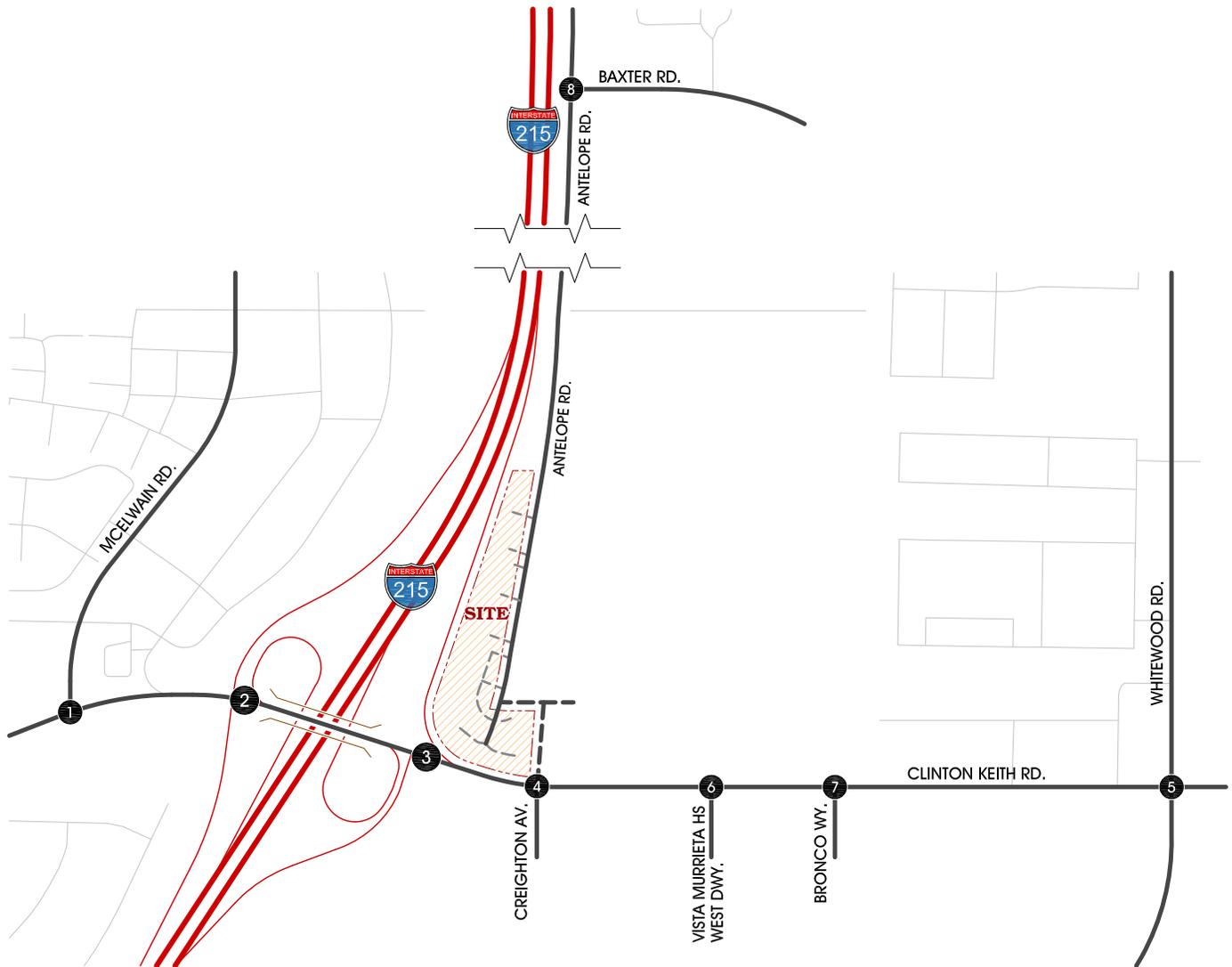
4. Creighton Av. / Clinton Keith Rd.

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD



FIGURE 4-C PROJECT ONLY PM PEAK HOUR INTERSECTION VOLUMES



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.
5. Whitewood Rd. / Clinton Keith Rd.	6. Vista Murrieta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.

PASS-BY TRIPS

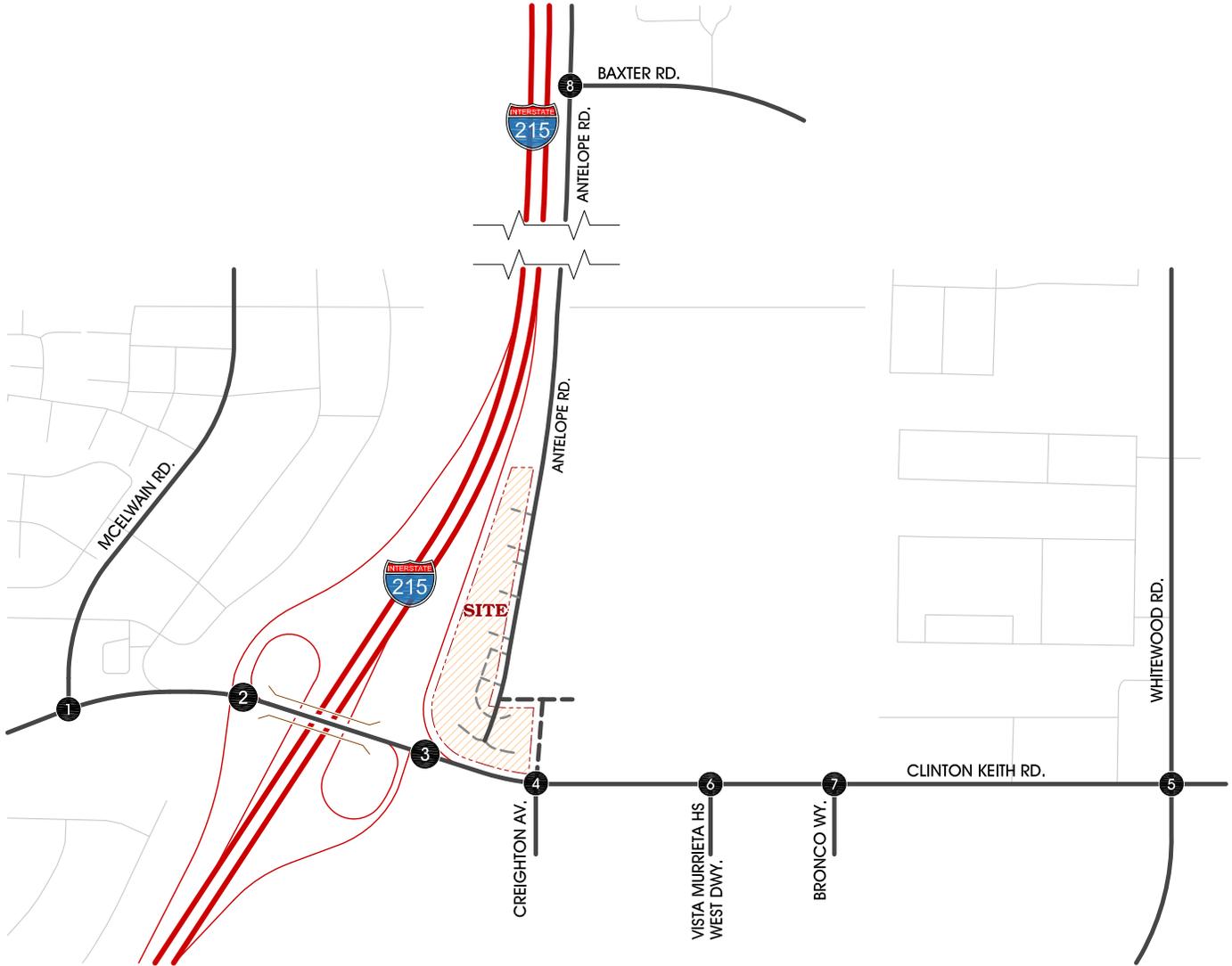
4. Creighton Av. / Clinton Keith Rd.	

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD



FIGURE 4-D PROJECT ONLY SATURDAY MD PEAK HOUR INTERSECTION VOLUMES



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.
5. Whitewood Rd. / Clinton Keith Rd.	6. Vista Murrieta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.
			NOT ANALYZED (SATURDAY CONDITIONS)

PASS-BY TRIPS

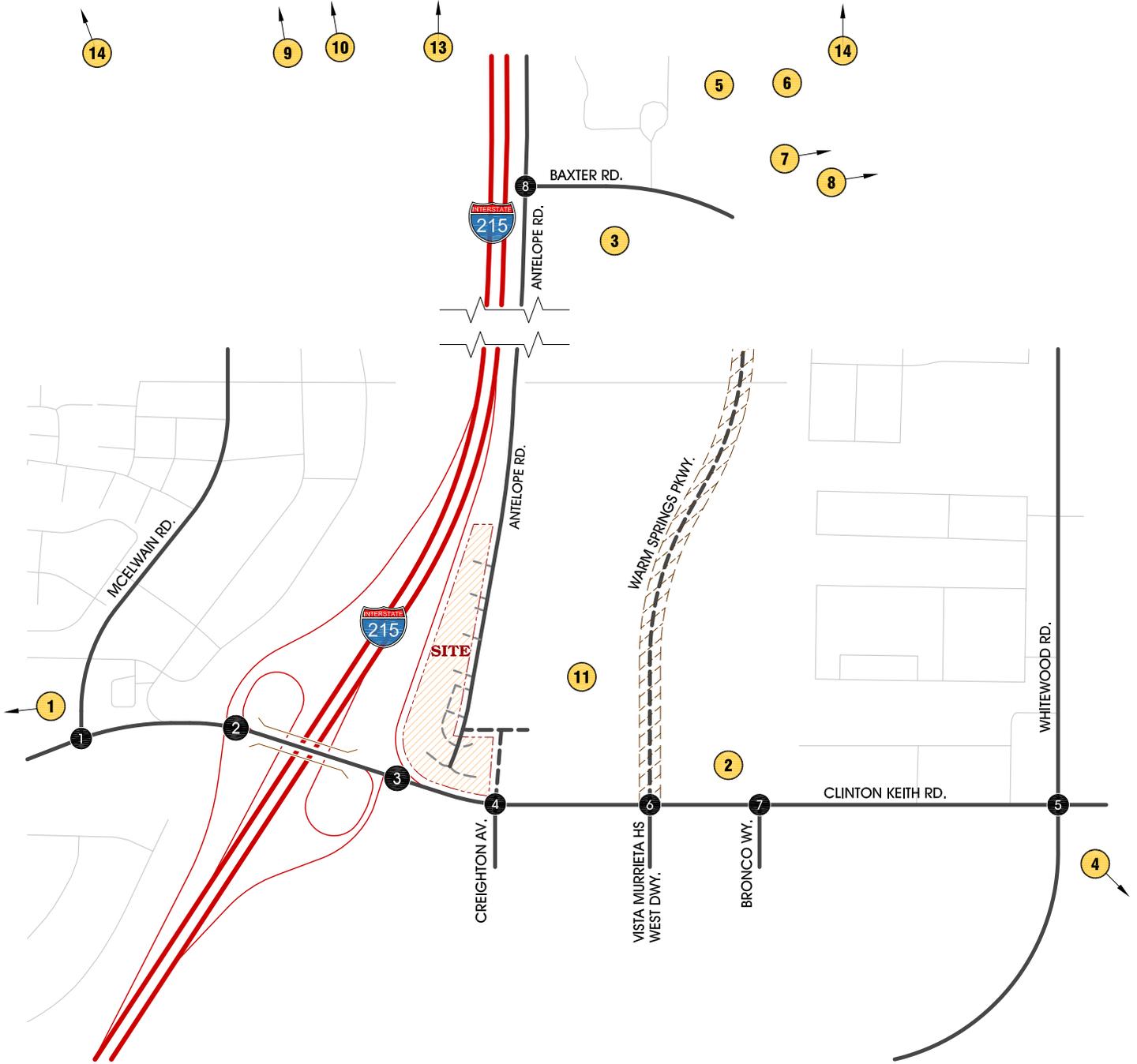
4. Creighton Av. / Clinton Keith Rd.

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD



FIGURE 4-E CUMULATIVE DEVELOPMENTS LOCATION MAP



LEGEND:

-  = INTERSECTION ID
-  = DIRT ROAD / FUTURE ROADWAY
-  = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND
-  = CUMULATIVE DEVELOPMENT ID (SEE TABLE 4-3 FOR REFERENCE)



3. Other Approved Projects Trip Generation

Table 4-3 presents the cumulative development land uses and trip generation summary. As presented in Table 4-3, the cumulative developments are projected to generate a total of approximately 79,536 trip-ends per day with 4,216 vehicles per hour during the AM peak hour, 7,476 vehicles per hour during the PM peak hour, and 3,743 during the Saturday peak hour. Cumulative development information is provided in Appendix "F".

4. Total Background Peak Hour Turning Movement Volumes

Based on the identified trip distribution for the cumulative development on arterial highways throughout the study area, cumulative development only AM and PM peak hour intersection turning movement volumes are shown on Figures 4-F and 4-G.

Existing plus Ambient plus Project (E+A+P) (2021) AM, PM, and Saturday peak hour intersection turning movement volumes are shown on Figures 4-H through 4-J, respectively.

Existing plus Ambient plus Cumulative (E+A+C) (2021) AM, PM, and Saturday peak hour intersection turning movement volumes are shown on Figures 4-K through 4-M, respectively.

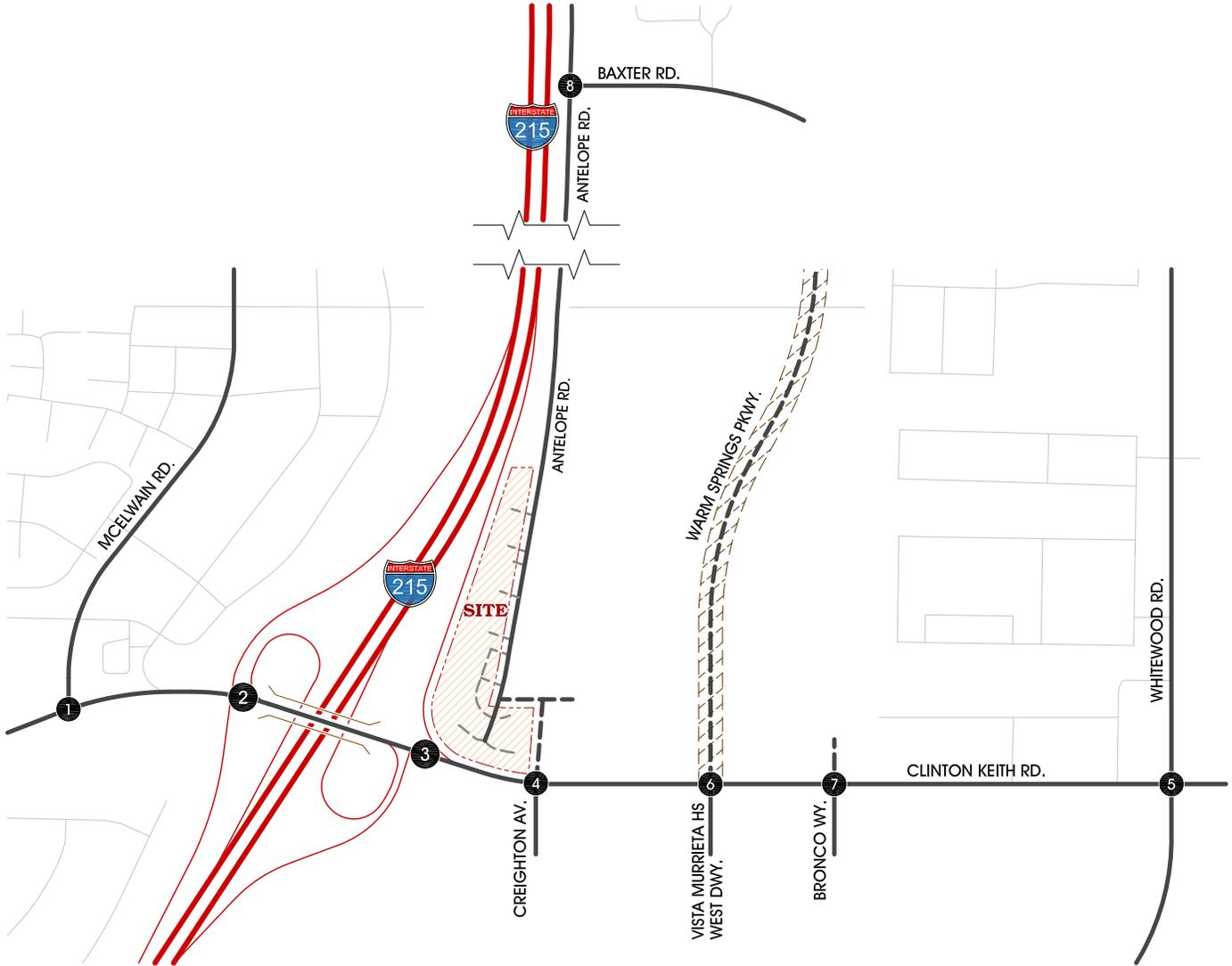
Existing Plus Ambient Plus Project Plus Cumulative (E+A+P+C) (2021) AM, PM, and Saturday peak hour intersection turning movement volumes are shown on Figures 4-N through 4-P, respectively.

**TABLE 4-3
CUMULATIVE DEVELOPMENTS TRIP GENERATION SUMMARY**

TAZ ID	PROJECT NAME	LAND USE	QUANTITY ¹	PEAK HOUR						DAILY
				AM			PM			
				IN	OUT	TOTAL	IN	OUT	TOTAL	
1	Mitchell Crossing	Multi-Family	331 DU	33	136	169	132	73	205	2,201
		Specialty Retail	30 TSF	40	27	67	60	76	136	2,216
TAZ 1 Subtotal				73	163	236	192	149	341	4,417
2	Vineyard Shopping Ctr.	Mixed-Use	-	139	87	226	334	356	690	8,092
		Pass-By (25%)	-	-28	-17	-45	-76	-83	-159	-1,838
TAZ 2 Subtotal				111	70	181	258	273	531	6,254
3	Makena Hills	Medical-Dental Office	116.2 TSF	220	58	278	116	299	415	4,198
		Quality Restaurant	9.3 TSF	-	-	-	47	23	70	837
		Hotel	206 RM	64	45	109	63	60	123	1,683
TAZ 3 Subtotal				284	103	387	226	382	608	6,718
4	Adobe Spings	Single Fam. Detached	287 DU	55	161	216	181	106	287	2,732
		Business Park	208.5 TSF	248	44	292	69	194	263	2,594
		Internal (5%)	-	0	0	0	-6	-7	-13	-130
TAZ 4 Subtotal				303	205	508	244	293	537	5,196
5	Alderwood	Single Fam. Detached	10 DU	2	6	8	6	4	10	95
6	Golden Cities Phase 3	Single Fam. Detached	69 DU	13	39	52	44	26	70	657
7	Golden Cities Phase 4	Single Fam. Detached	126 DU	24	71	95	80	47	127	1,200
8	Golden Cities Phase 5	Single Fam. Detached	119 DU	23	67	90	75	44	119	1,133
9	Junction	Discount Club	148.663 TSF	59	24	83	315	315	630	6,214
		Home Improvement Superstore	140.76 TSF	91	77	168	162	183	345	4,195
		Retail	237.377 TSF	161	103	264	532	577	1,109	11,912
		Pass-By (25%)	-	-78	-51	-129	-252	-269	-521	-5,580
TAZ 9 Subtotal				233	153	386	757	806	1,563	16,741
10	Walmart			473	405	878	677	658	1,335	15,702
11	Costco & Shopping Center	Costco w/ Fuel Center	152.65 TSF	-	-	-	535	567	1,102	12,502
		Costco Fuel Center (AM)	32 VFP	224	224	448	-	-	-	-
		Pass-By (AM 32.5%; PM33.3%)		-73	-73	-146	-183	-183	-366	-4,164
		Costco Subtotal		151	151	302	352	384	736	8,338
		Shopping Center	79.9 TSF	84	52	136	247	268	515	5,870
	Pass-By (25%)		-17	-17	-34	-64	-64	-128	-1,468	
Shopping Center Subtotal				67	35	102	183	204	387	4,402
TAZ 11 Subtotal				218	186	404	535	588	1,123	12,740
City of Murrieta Total Cumulative Projects Trip Generation				1,757	1,468	3,225	3,094	3,270	6,364	70,853
City of Menifee Cumulative Projects										
12	TTM 33732	Single Fam. Detached	296 DU	56	166	222	187	110	297	2,818
13	PP 2009-006; PP2016-126	Gen. Lt. Industrial	827.777 TSF	670	91	761	100	704	804	5,770
14	TR 36684	Single Fam. Detached	10 DU	2	6	8	7	4	11	95
City of Murrieta Total Cumulative Projects Trip Generation				728	263	991	294	818	1,112	8,683
Total Cumulative Projects Trip Generation				2,485	1,731	4,216	3,388	4,088	7,476	79,536

¹ TSF = Thousand Square Feet; DU = Dwelling Units; RM = Room; VFP = Vehicle Fueling Position

FIGURE 4-F CUMULATIVE DEVELOPMENTS ONLY AM PEAK HOUR INTERSECTION VOLUMES



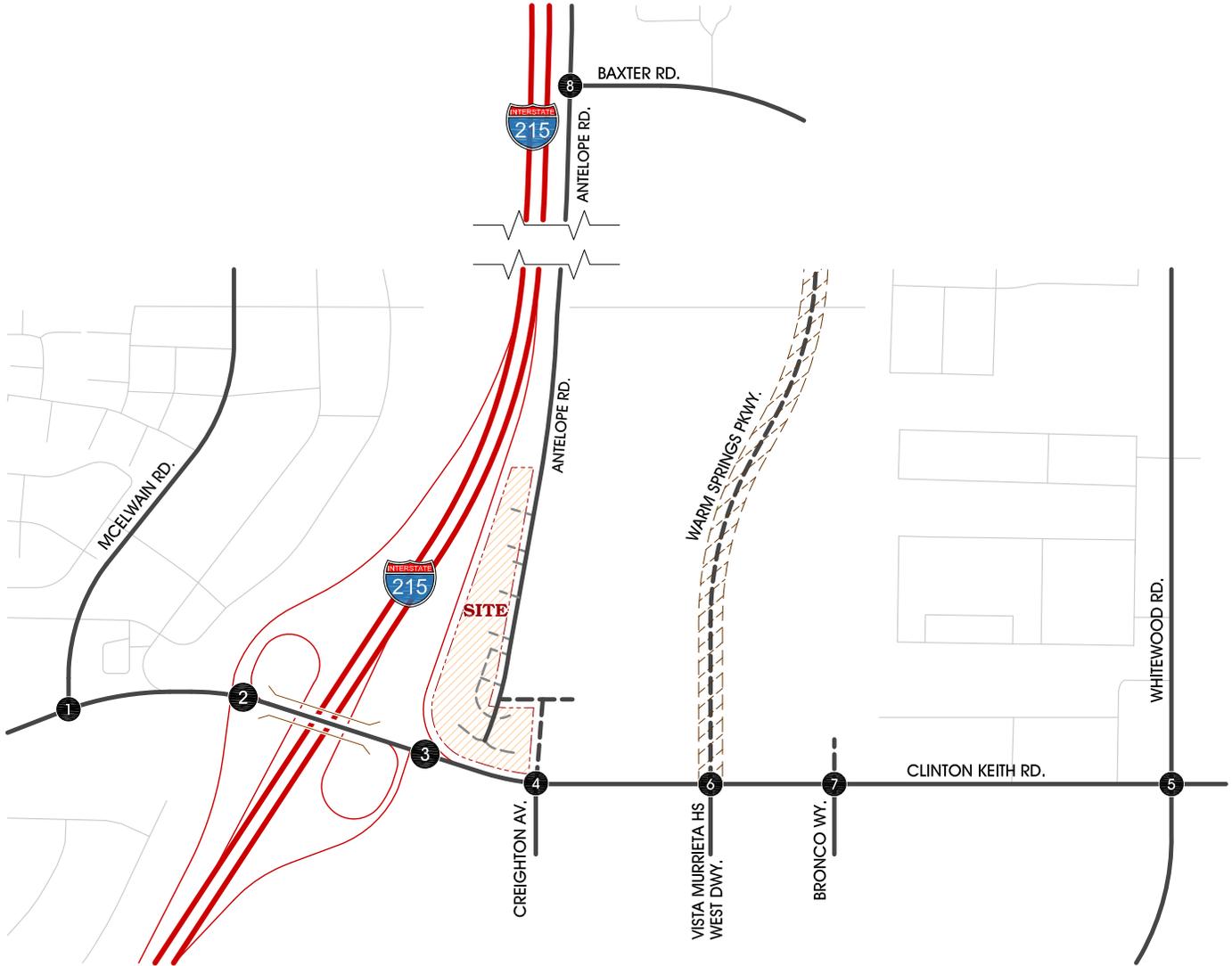
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FIGURE 4-G CUMULATIVE DEVELOPMENTS ONLY PM PEAK HOUR INTERSECTION VOLUMES



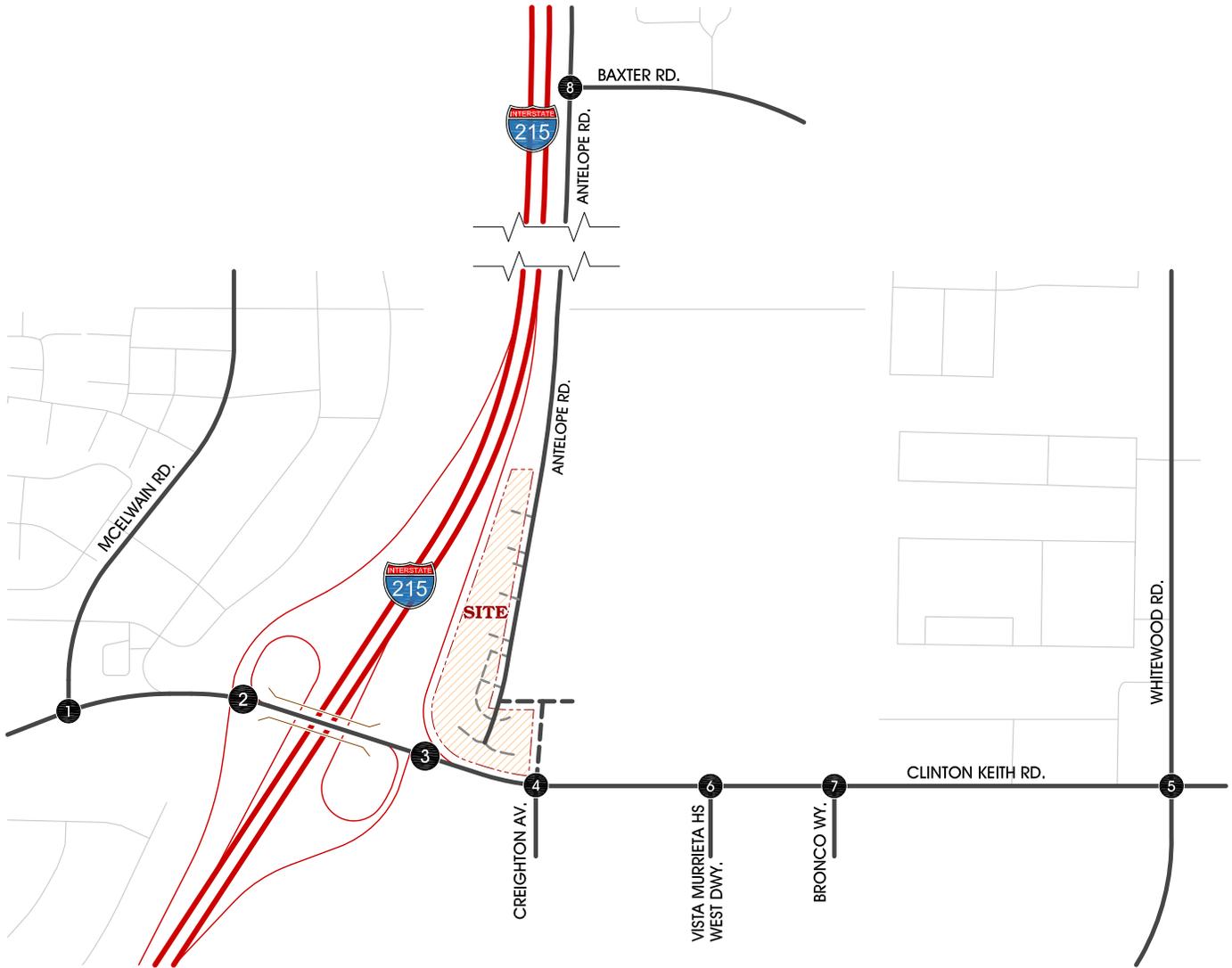
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FIGURE 4-H EXISTING + AMBIENT + PROJECT (2021) AM PEAK HOUR INTERSECTION VOLUMES



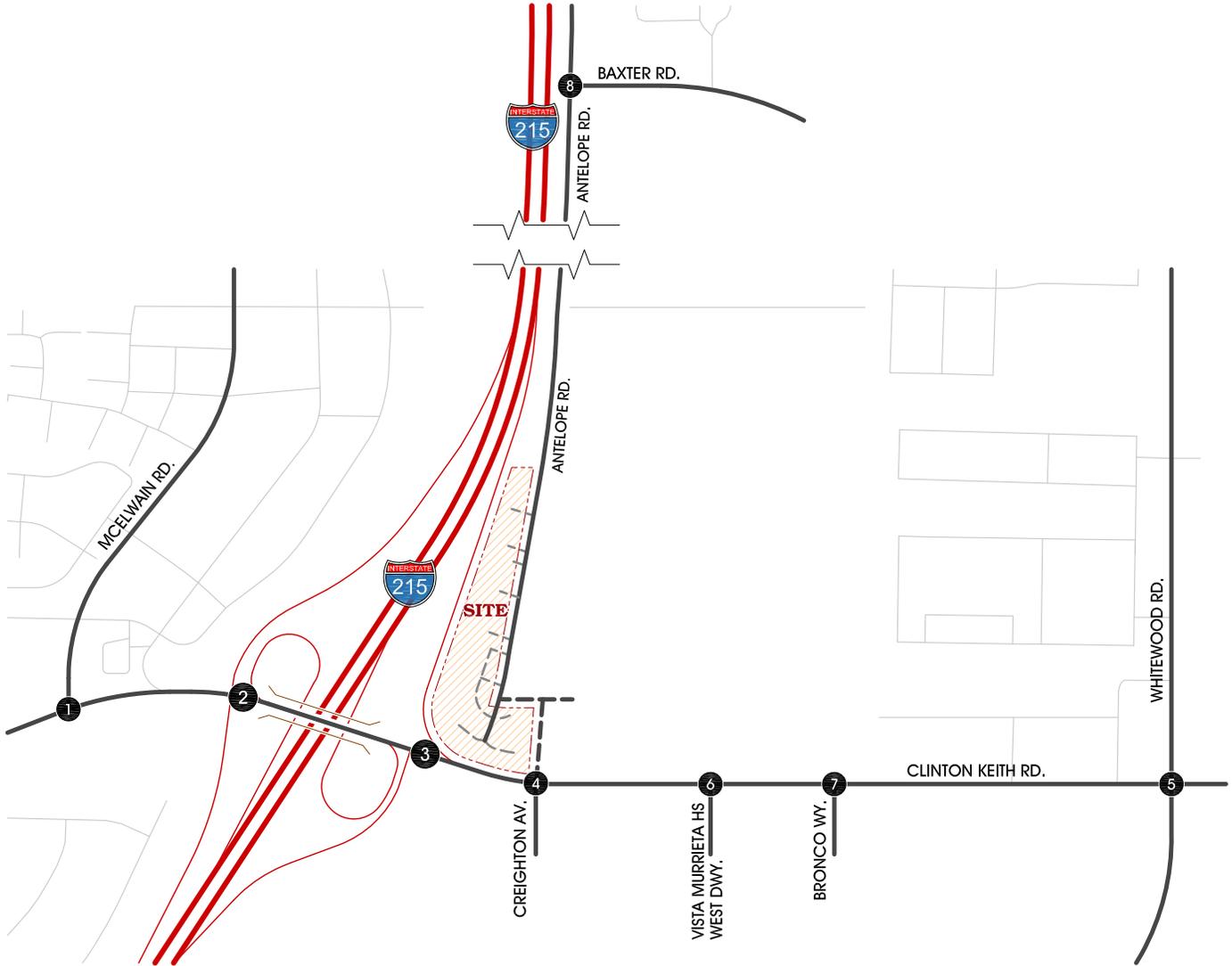
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FIGURE 4-1 EXISTING + AMBIENT + PROJECT (2021) PM PEAK HOUR INTERSECTION VOLUMES



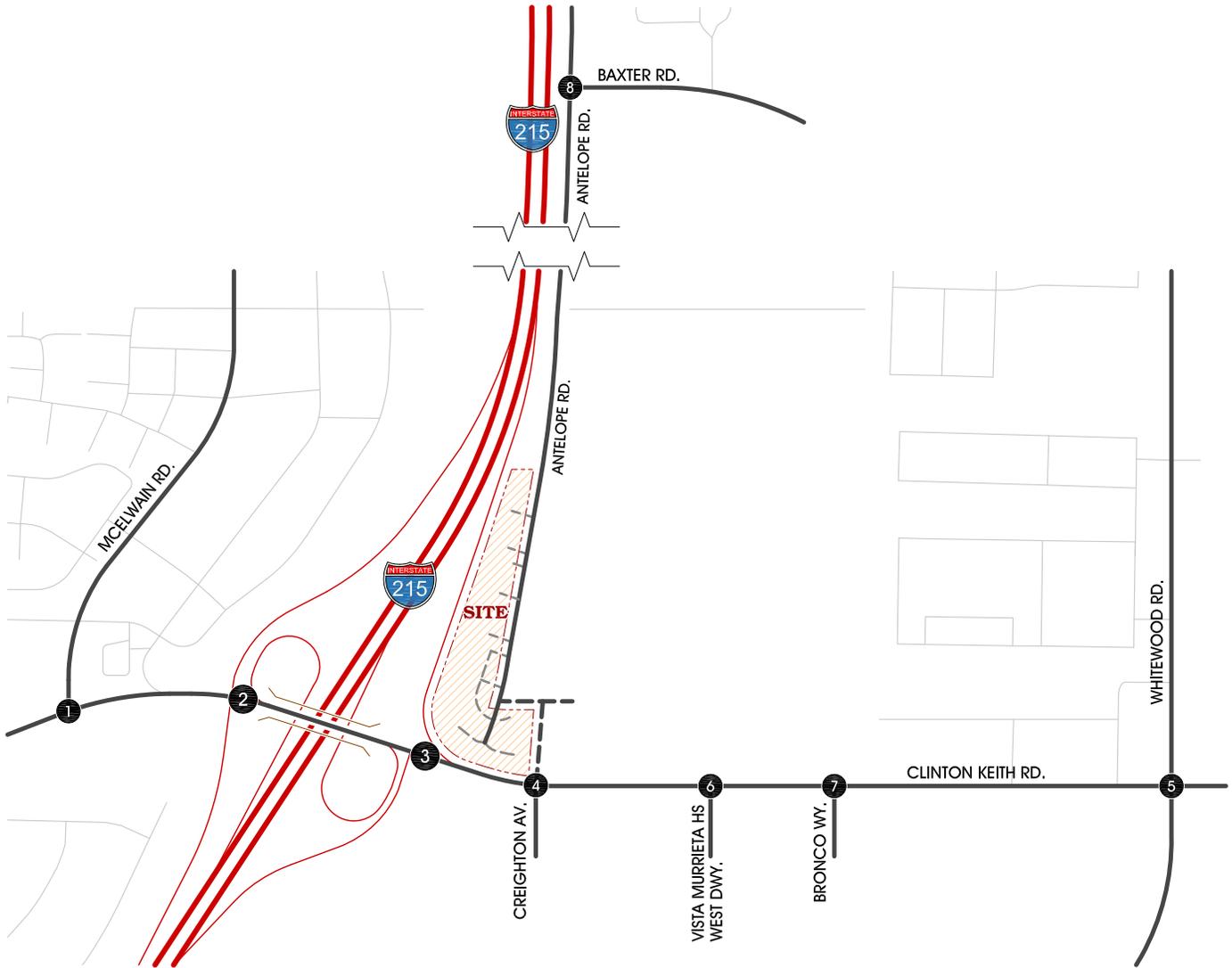
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← 75	← 54																																																																
309 →	545 →																																																																
211 →	316 →																																																																
111 →	185 →																																																																
	264 →																																																																
	417 →																																																																
	108 →																																																																
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.																																																															
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">← 625</td> <td style="text-align: center;">← 490</td> </tr> <tr> <td></td> <td style="text-align: center;">← 123</td> </tr> <tr> <td></td> <td style="text-align: center;">← 38</td> </tr> <tr> <td style="text-align: center;">1103 →</td> <td style="text-align: center;">16 →</td> </tr> <tr> <td style="text-align: center;">51 →</td> <td style="text-align: center;">978 →</td> </tr> <tr> <td style="text-align: center;">22 →</td> <td style="text-align: center;">129 →</td> </tr> <tr> <td></td> <td style="text-align: center;">131 →</td> </tr> <tr> <td></td> <td style="text-align: center;">77 →</td> </tr> </table>	← 625	← 490		← 123		← 38	1103 →	16 →	51 →	978 →	22 →	129 →		131 →		77 →	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">← 120</td> <td style="text-align: center;">← 156</td> </tr> <tr> <td style="text-align: center;">← 54</td> <td style="text-align: center;">← 42</td> </tr> <tr> <td style="text-align: center;">169 →</td> <td style="text-align: center;">15 →</td> </tr> </table>	← 120	← 156	← 54	← 42	169 →	15 →																																										
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169 →	15 →																																																																

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



FIGURE 4-J EXISTING + AMBIENT + PROJECT (2021) SATURDAY MD PEAK HOUR INTERSECTION VOLUMES



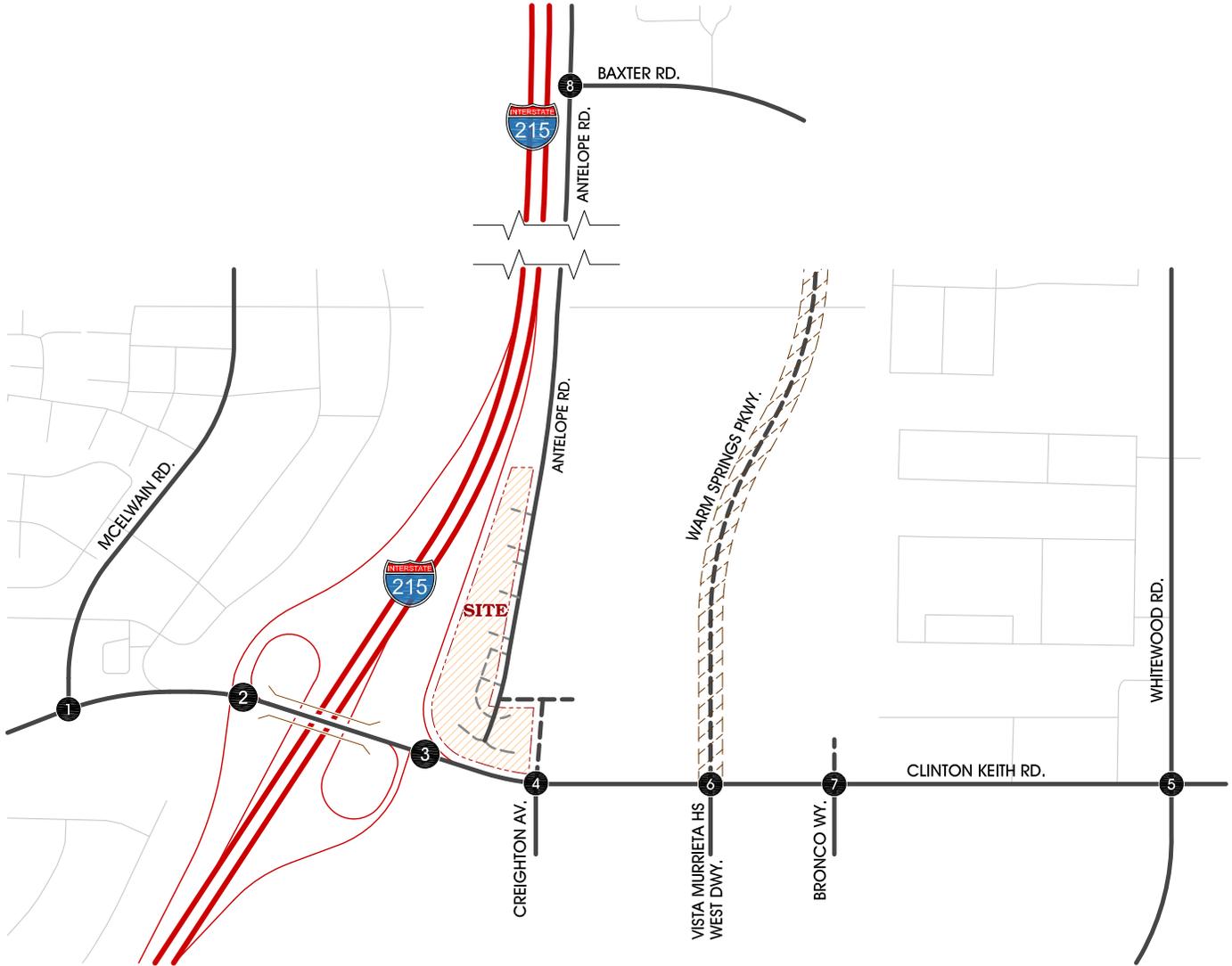
1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.
↓273 ↓13 ↓460 ↑270 ↑1034 ↑27	↓566 ↓0 ↓215 ↑349 ↑908	↑170 ↑877	↓262 ↓17 ↓134 ↑162 ↑748 ↑0	↓265 ↓230 ↓57 ↑31 ↑386 ↑118
298 → 1187 → 14 →	1185 → 458 →	842 → 553 → 396 → 405 →	242 → 937 → 55 → 54 → 18 → 12 →	349 → 488 → 212 → 155 → 152 → 95 →
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.		
←888	↑825 ↑21 ↑17	NOT ANALYZED (SATURDAY CONDITIONS)		
1083 → 0 →	1 → 1036 → 24 → 63 → 10 →			

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



FIGURE 4-K EXISTING + AMBIENT + CUMULATIVE (2021) AM PEAK HOUR INTERSECTION VOLUMES



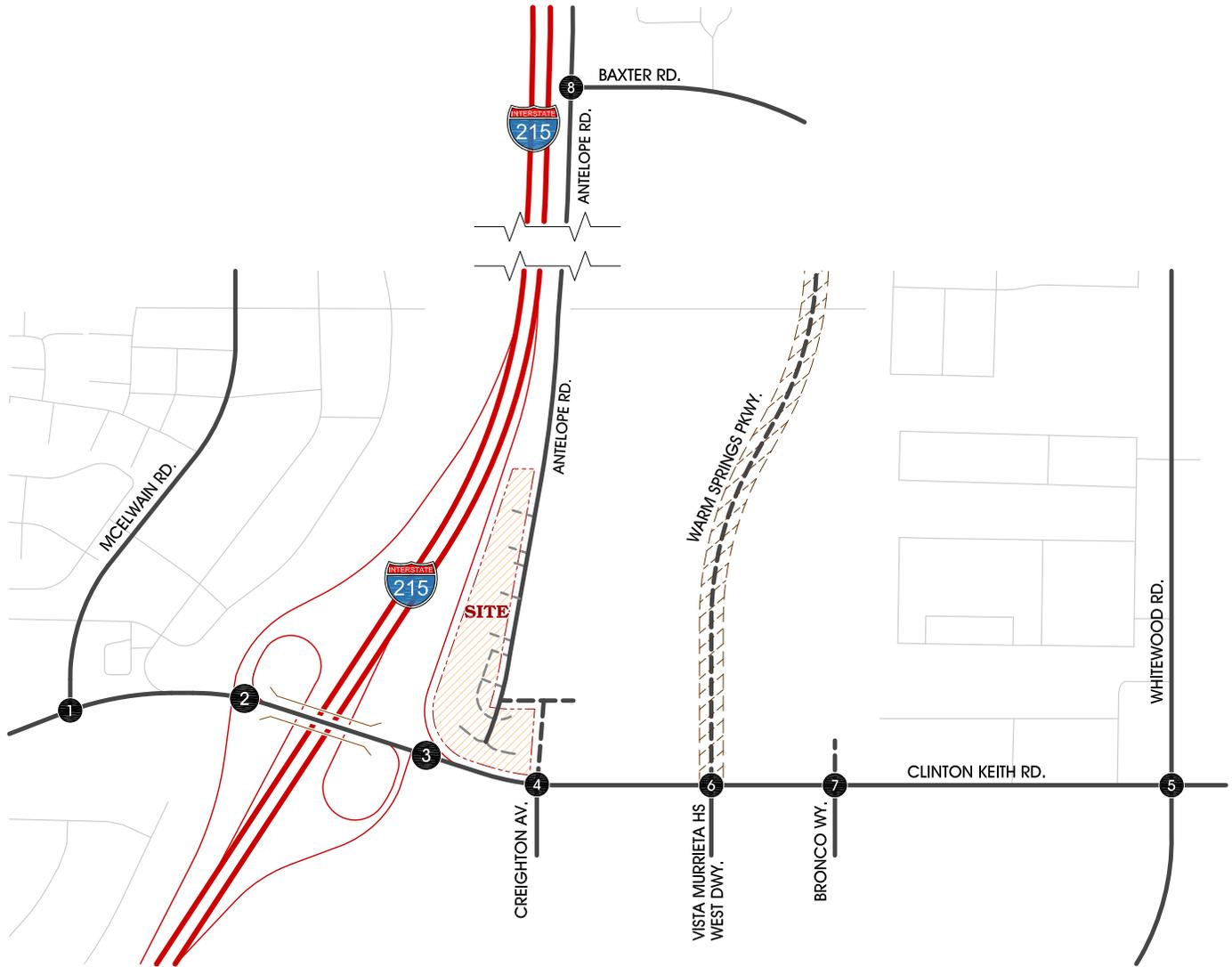
1. McElwain Rd. / Clinton Keith Rd.		2. I-215 SB Ramps / Clinton Keith Rd.		3. I-215 NB Ramps / Clinton Keith Rd.		4. Creighton Av. / Clinton Keith Rd.		5. Whitewood Rd. / Clinton Keith Rd.	
↓ 230	↑ 389	↓ 151	↑ 1233	↓ 430	↑ 267	↓ 65	↑ 1111	↓ 420	↑ 64
↓ 3	↑ 3	↓ 1233	↑ 3	↓ 832	↑ 1017	↓ 0	↑ 32	↓ 333	↑ 163
↓ 1717	↑ 5	↓ 596	↑ 5	↓ 918	↑ 264	↓ 1409	↑ 0	↓ 136	↑ 54
↓ 5	↑ 5	↓ 596	↑ 5	↓ 918	↑ 631	↓ 76	↑ 25	↓ 136	↑ 108
6. Vista Murieta W. Dwy. / Clinton Keith Rd.		7. Bronco Wy. / Clinton Keith Rd.		8. Anelope Rd. / Baxter Rd.					
↓ 175	↑ 109	↓ 10	↑ 19	↓ 238	↑ 209	↓ 93	↑ 126		
↓ 1	↑ 89	↓ 1	↑ 31	↓ 209	↑ 209	↓ 126	↑ 93		
↓ 109	↑ 976	↓ 19	↑ 699	↓ 209	↑ 209	↓ 126	↑ 126		
↓ 12	↑ 12	↓ 19	↑ 228	↓ 209	↑ 209	↓ 126	↑ 126		
↓ 246	↑ 17	↓ 150	↑ 15	↓ 125	↑ 107				
↓ 968	↑ 1	↓ 841	↑ 1	↓ 107	↑ 107				
↓ 259	↑ 15	↓ 203	↑ 94						

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



FIGURE 4-L EXISTING + AMBIENT + CUMULATIVE (2021) PM PEAK HOUR INTERSECTION VOLUMES



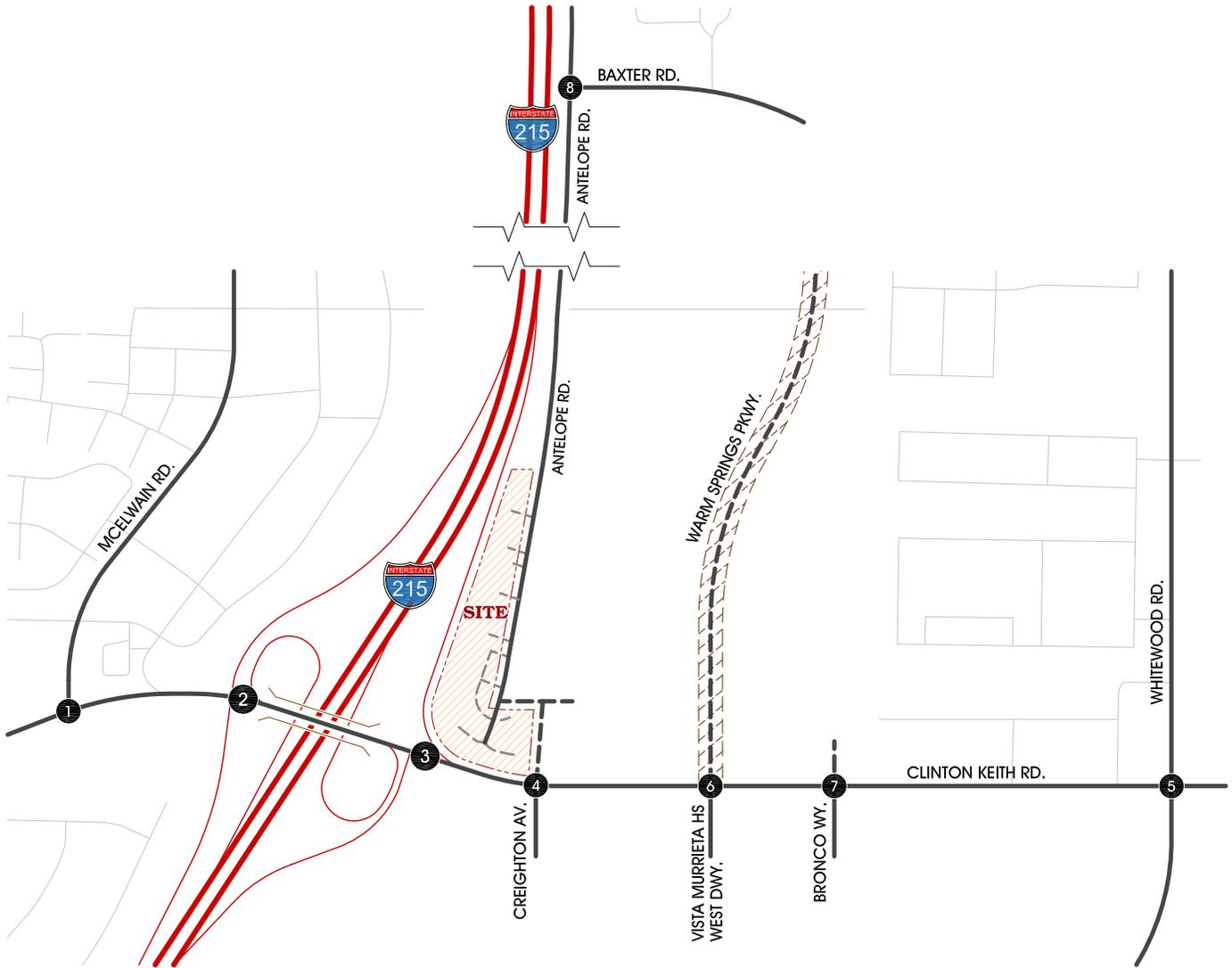
1. McElwain Rd. / Clinton Keith Rd.		2. I-215 SB Ramps / Clinton Keith Rd.		3. I-215 NB Ramps / Clinton Keith Rd.		4. Creighton Av. / Clinton Keith Rd.		5. Whitewood Rd. / Clinton Keith Rd.	
430 ↓	532 ↑	359 ←	1653 →	783 ↓	540 ↑	494 ←	1473 →	346 ↓	1438 ↑
21 ↓	25 ↓	16 ↓	13 ↓	1915 →	582 →	1717 →	697 →	127 ↑	1709 ↑
434 ↑	41 ↑	16 ↑	41 ↑	494 ←	1473 ←	541 ←	660 ←	37 ↓	2 ↓
1919 →	29 →	1915 →	582 →	39 ↓	0 ↓	132 ↓	8 ↓	607 ↓	292 ↓
29 →	16 →	1915 →	582 →	2276 →	84 →	55 →	0 →	112 ↑	75 ↑
666 ↓	276 ↓	81 ↓	100 ↓	541 ←	660 ←	55 →	0 →	653 ↓	942 ↓
144 ←	1305 →	78 ↑	1248 ↑	168 ↓	81 ↓	201 ↑	101 ↑	364 ↓	117 ↑
1 ↓	1 ↓	81 ↓	100 ↓	201 ↑	101 ↑	258 ↑	115 ↑	296 ↑	389 ↑
656 ↓	276 ↓	144 ←	1305 →	168 ↓	81 ↓	201 ↑	101 ↑	119 ↑	
1693 →	50 →	16 ↓	89 ↓	258 ↑	115 ↑				
1 ↓	21 ↓	1816 →	99 →						
1 ↓	21 ↓	121 ↓	80 ↓						

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



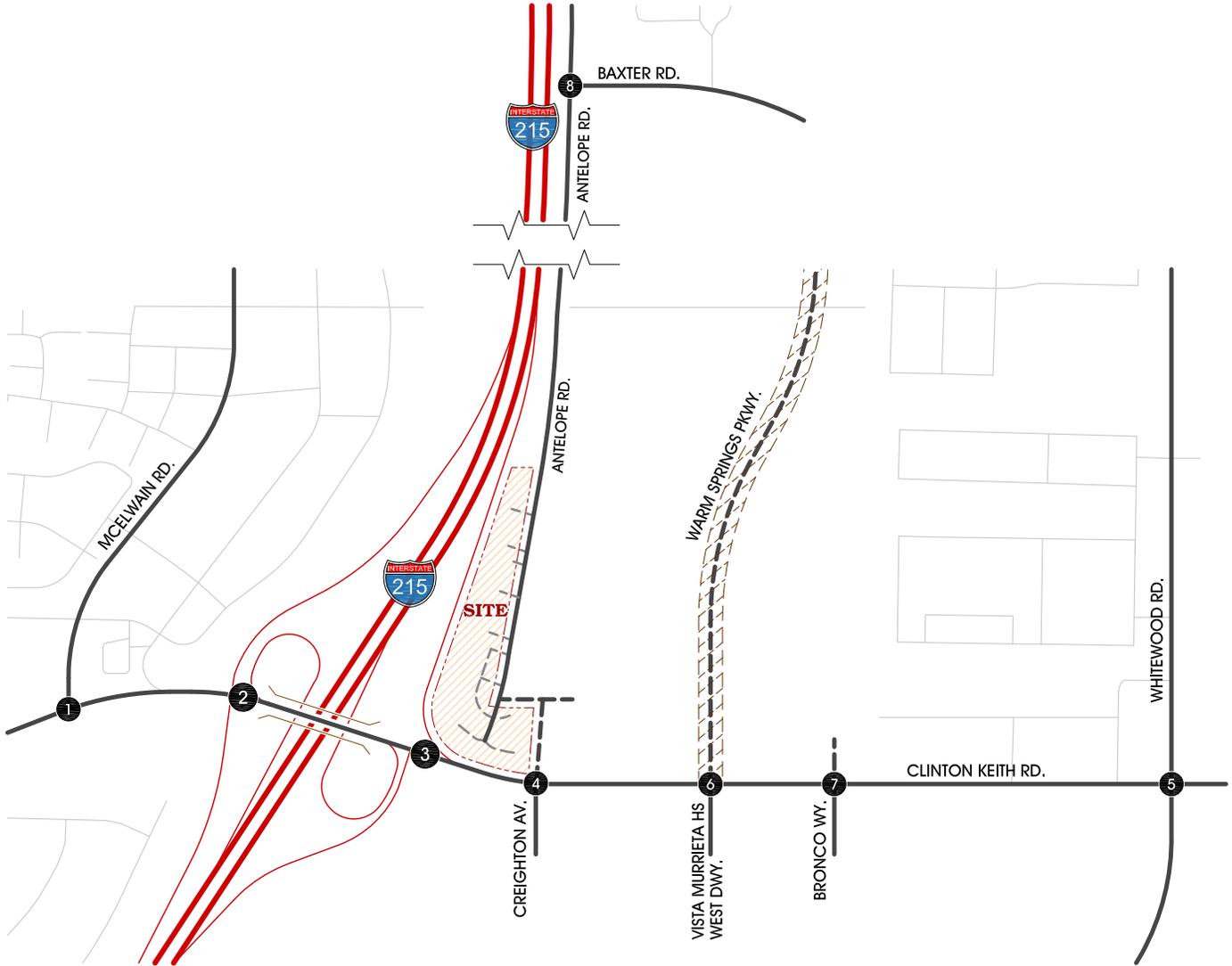
FIGURE 4-M EXISTING + AMBIENT + CUMULATIVE (2021) SATURDAY MD PEAK HOUR INTERSECTION VOLUMES



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.
↓ 376 ↓ 16 ↓ 622 ↖ 390 ↖ 1311 ↖ 26	↓ 648 ↓ 0 ↓ 486 ↖ 452 ↖ 1306	↖ 373 ↖ 1272	↓ 63 ↓ 0 ↓ 133 ↖ 139 ↖ 1561 ↖ 0	↓ 376 ↓ 280 ↓ 96 ↖ 60 ↖ 549 ↖ 116
381 → 1515 → 14 →	1555 → 582 →	1429 → 605 → 511 → 484 →	8 → 47 → 1799 → 54 → 53 → 0 → 12 →	472 → 645 → 290 → 243 → 198 → 93 →
6. Vista Murrieta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Anelope Rd. / Baxter Rd.	LEGEND: ● = INTERSECTION ID --- = FUTURE ROAD [Hatched] = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND	
↓ 615 ↓ 0 ↓ 317 ↖ 171 ↖ 1066 ↖ 0	↓ 111 ↓ 0 ↓ 136 ↖ 125 ↖ 1063 ↖ 19 ↖ 17	NOT ANALYZED (SATURDAY CONDITIONS)		
839 → 1076 → 0 →	1 → 144 → 1235 → 23 →	61 → 0 → 10 →		



FIGURE 4-N EXISTING + AMBIENT + PROJECT + CUMULATIVE (2021) AM PEAK HOUR INTERSECTION VOLUMES



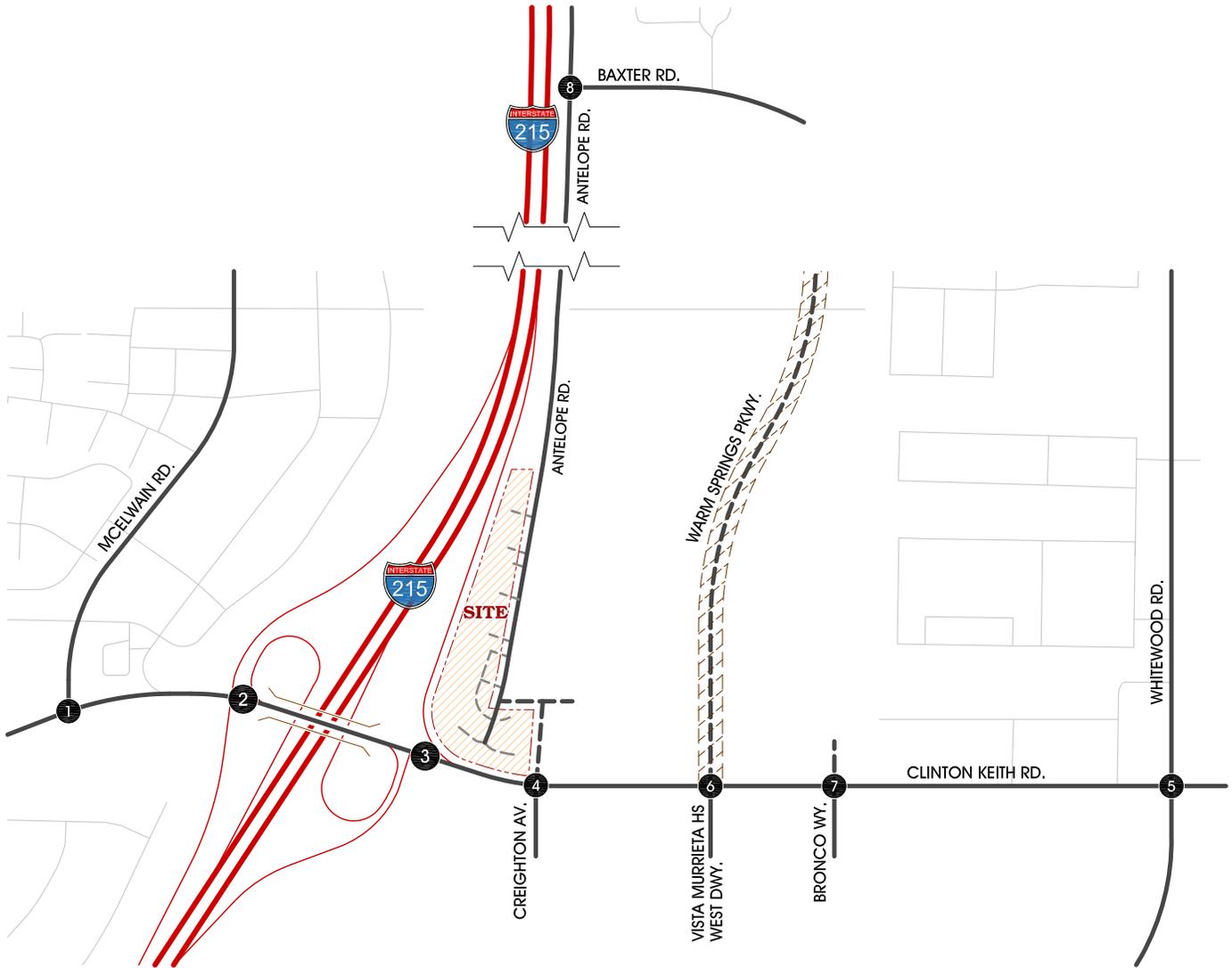
1. McElwain Rd. / Clinton Keith Rd.		2. I-215 SB Ramps / Clinton Keith Rd.		3. I-215 NB Ramps / Clinton Keith Rd.		4. Creighton Av. / Clinton Keith Rd.		5. Whitewood Rd. / Clinton Keith Rd.	
↓230	←158	↓711	←458		↑288	↓168	↑76	↓437	←64
↓3	←1261	↓1	←867		↑1092	↓7	↑1092	↓333	←180
↓398	←3	↓277			↑32	↓52	↓0	↓121	←54
297	5	1615		948	264	146	132	353	260
1751	5	596		918	665	139	9	317	171
5						76	25	150	108
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.		7. Bronco Wy. / Clinton Keith Rd.		8. Antelope Rd. / Baxter Rd.					
↓175	←89	↓10	←31	↓247	←93				
↓109	←1027	↓1	←750	↓209	←126				
↓12	←0	↓19	←228						
	←0		←0						
246	17	883	321	132	107				
1010	1	150	1						
259	15	203	94						

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



FIGURE 4-O EXISTING + AMBIENT + PROJECT + CUMULATIVE (2021) PM PEAK HOUR INTERSECTION VOLUMES



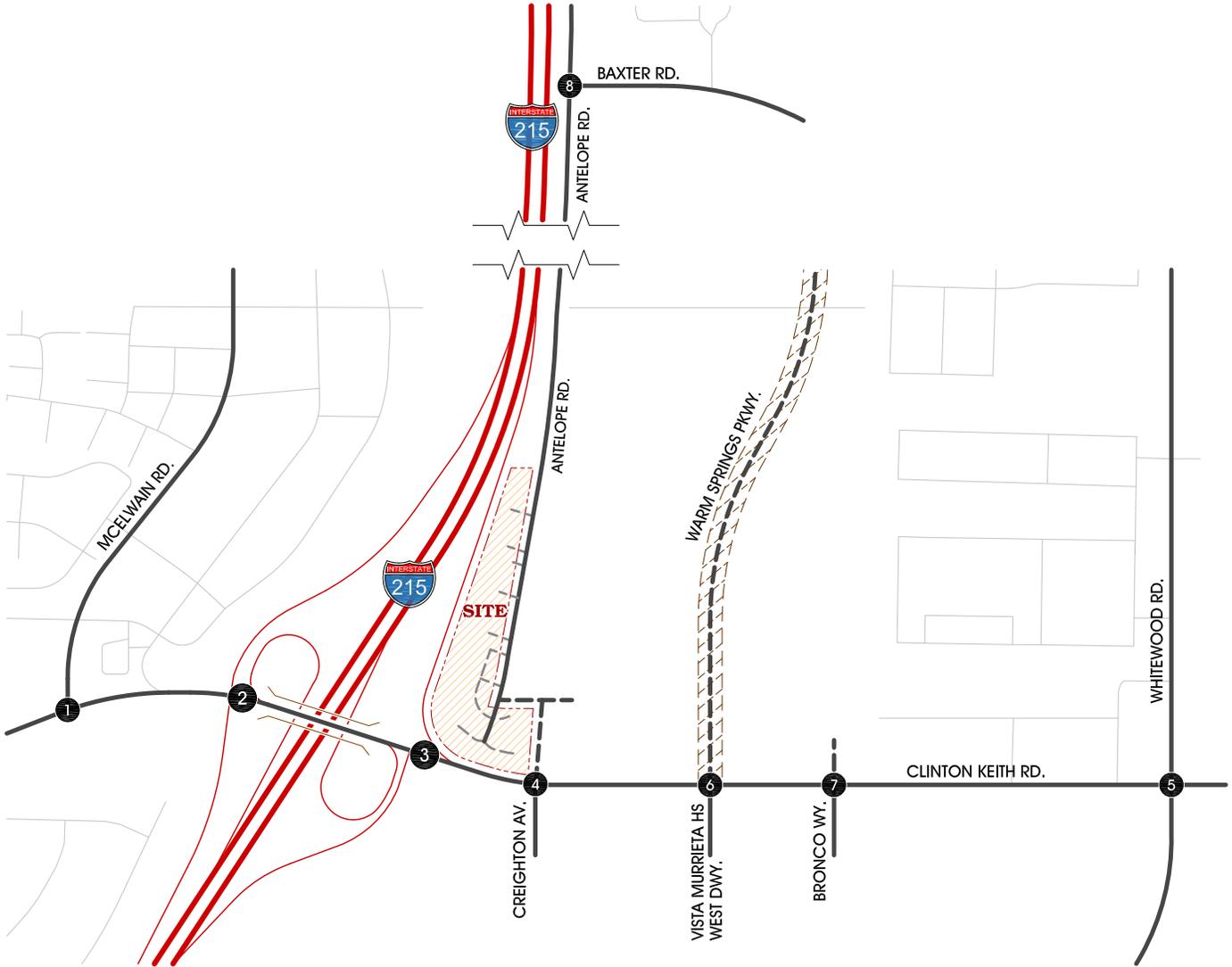
1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.
↓ 430 ↓ 21 ↓ 542 ← 369 ← 1692 ← 25	↓ 783 ↓ 570 ← 533 ← 1522	↓ 376 ↓ 1522	↓ 181 ↓ 10 ↓ 204 ↓ 8 ↓ 167 ↓ 2263 ↓ 84 ↑ 210 ↑ 1685 ↑ 39 ↑ 2	↓ 627 ↓ 292 ↓ 112 ↓ 75 ↓ 687 ↓ 117
434 → 1959 → 29 →	1965 → 582 →	1796 → 697 → 541 → 700 →	55 → 10 → 25 →	673 → 962 → 384 → 316 → 389 → 119 →
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Anelope Rd. / Baxter Rd.		
↓ 566 ↓ 276 ↓ 144 ↓ 1364	↓ 81 ↓ 100 ↓ 78 ↓ 1307 ↓ 81 ↓ 38	↓ 178 ↓ 81 ↓ 201 ↓ 101		
656 → 1752 → 50 →	16 → 105 → 1875 → 99 → 121 → 1 → 80 →	268 → 115 →		

LEGEND:

- = INTERSECTION ID
- = FUTURE ROAD
- = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND



FIGURE 4-P EXISTING + AMBIENT + PROJECT + CUMULATIVE (2021) SATURDAY MD PEAK HOUR INTERSECTION VOLUMES



1. McElwain Rd. / Clinton Keith Rd.	2. I-215 SB Ramps / Clinton Keith Rd.	3. I-215 NB Ramps / Clinton Keith Rd.	4. Creighton Av. / Clinton Keith Rd.	5. Whitewood Rd. / Clinton Keith Rd.
↓ 376 ↓ 16 ↓ 640 ← 407 ← 1379 ← 26	↓ 648 ↓ 0 ↓ 539 ← 520 ← 1392	↓ 424 ← 1426	↓ 315 ↓ 17 ↓ 267 ← 301 ← 1504 ← 70	↓ 411 ↓ 280 ↓ 96 ← 60 ← 584 ← 116
381 → 1585 → 14 →	1643 → 582 →	1569 → 605 →	511 → 554 → 8 → 296 → 1768 → 54 →	506 → 679 → 324 → 278 → 198 → 93 →
6. Vista Murrleta W. Dwy. / Clinton Keith Rd.	7. Bronco Wy. / Clinton Keith Rd.	8. Antelope Rd. / Baxter Rd.	LEGEND: ● = INTERSECTION ID --- = FUTURE ROAD = WARM SPRINGS PARKWAY, FUTURE ROADWAY DEFERRED - CITY TO EXTEND	
↓ 615 ↓ 0 ↓ 317 ← 171 ← 1171 ← 0	↓ 111 ↓ 0 ↓ 136 ← 125 ← 168 ← 19 ← 17	NOT ANALYZED (SATURDAY CONDITIONS)		
839 → 1179 → 0 →	1 → 144 → 1338 → 23 →	61 → 0 → 10 →		



5.0 TRAFFIC ANALYSIS

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

- 1) When existing traffic conditions (Analysis Scenario 1) exceed the General Plan target LOS.
- 2) When project traffic, when added to existing traffic (Analysis Scenario 2), will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.
- 3) When cumulative traffic (Analysis Scenario 3) exceeds the target LOS, and impacts cannot be mitigated through existing infrastructure funding mechanisms.

A. Existing plus Ambient plus Project (E+A+P) (2021) Conditions

The results of the E+A+P (2021) conditions intersection analysis are summarized in Table 5-1.1. The E+A+P (2021) condition operations analysis worksheets are provided in Appendix "G".

For EAP conditions, the study area intersections are anticipated to operate at an acceptable level of service (LOS "D" or better) during the peak hours with the following planned improvements:

Creighton Avenue / Clinton Keith Road (#4)

- Modify existing northbound (NB) right turn lane to a shared through right lane.
- Construct one southbound (SB) left turn lane and one SB shared through right lane.
- Construct one westbound (WB) right turn lane.
- Install a "no right turn on red" signage for the SB approach.

In addition, improvements at the Whitewood Road / Clinton Keith Road were recently constructed. Therefore, the following configuration is shown as built for future conditions:

Whitewood Road / Clinton Keith Road (#5)

- NB Approach: one left turn lane, one through lane, and one shared through/right lane.
- SB Approach: one left turn lane, one through lane, and one shared through/right lane.
- EB approach: two left turn lanes, two through lanes, and one right turn lane.

TABLE 5-1.1
INTERSECTION ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT (2021) CONDITIONS

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)			Level of Service ³		
			Northbound			Southbound			Eastbound			Westbound			Weekday		Sat	Weekday		Sat
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	MD	AM	PM	MD
1	McElwain Rd. / Clinton Keith Rd.	TS	1	1	0	2	1	0	2	3	1	1	3	1>	14.1	20.1	19.8	B	C	B
2	I-215 SB Ramps / Clinton Keith Rd.	TS	0	0	0	0	1	2	0	3	1	0	3	1>>	12.5	12.7	12.7	B	B	B
3	I-215 NB Ramps / Clinton Keith Rd.	TS	1	0	1	0	0	0	0	3	1>>	0	3	1>>	33.8	23.4	21.1	C	C	C
4	Creighton Ave. / Clinton Keith Rd.	TS	1	<u>1</u>	0	<u>1</u>	<u>1</u>	0	1	3	1	1	3	<u>1</u>	39.8	33.9	43.5	D	C	D
5	Whitewood Rd. / Clinton Keith Rd.	TS	1	<u>2</u>	0	1	2	0	2	<u>2</u>	1	<u>2</u>	<u>3</u>	<u>1</u>	36.0	45.5	26.5	D	D	C
6	Vista Murrieta HS W. Dwy. / Clinton Keith Rd.	CSS	0	0	1	0	0	0	0	3	0	0	3	0	16.3	16.2	0.0	C	C	A
7	Bronco Wy. / Clinton Keith Rd.	TS	2	0	1	0	0	0	1U	3	d	1	3	0	19.2	12.0	4.1	B	B	A
8	Antelope Rd. / Baxter Rd.	TS	0	1	1	1	1	0	0	0	0	1	0	1	26.1	27.4	-	C	C	-

¹ TS = Traffic Signal; CSS = Cross Street Stop

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane ; d = Defacto right turn lane; > = Right Turn Overlap; >> = Free Right Turn Lane
1 = Recently built in 2018 after counts were taken; 1 = Lane Improvement

³ Delay and level of service calculated using the following analysis software: Synchro Software

- WB approach: two left turn lanes, three through lanes, and right turn lane.

The 95th percentile queuing analysis results for E+A+P (2021) traffic conditions are presented in Table 5-1.2. Based on the analysis, it appears that the Whitewood/Clinton Keith intersection will have excessive queuing on the northbound and southbound left turn movements. The project will be responsible for designing, furnishing and installing the proposed lengthening of the turn pockets. Since the lengthening of the turn pockets will not accommodate the forecasted queues, a statement of overriding considerations will be required. The queuing analysis worksheets are included in Appendix "G".

Table 5-2 provides a summary of the EAP (2021) conditions roadway segment capacity analysis. As shown on Table 5-2, the study area roadway segments are anticipated to continue to operate within LOS "C" capacity thresholds.

Tables 5-3 and 5-4 summarize the freeway ramp analysis for I-215 at the Clinton Keith Road Interchange. As shown on Tables 5-3 and 5-4, the freeway ramps and basic freeway segments analyzed for this study were found to operate at an acceptable LOS (LOS "D" or better) during the peak hours. The EAP ramp analysis worksheets are provided in Appendix "H". The basic freeway segment analysis worksheets for EAP conditions are included in Appendix "I".

B. Existing plus Ambient plus Cumulative (E+A+C) (2021) Conditions

The results of the E+A+C (2021) conditions intersection analysis are summarized in Table 5-5.1. The E+A+C (2021) condition operations analysis worksheets are provided in Appendix "J".

For EAC conditions, the intersection of Whitewood Road / Clinton Keith Road is anticipated to operate at LOS E during the PM peak hour conditions. It should be noted however that the City's General Plan has projected this intersection to be deficient and accepts LOS E as an acceptable performance for Whitewood / Clinton Keith Road (#5) intersection. The remaining study area intersections are anticipated to operate at an acceptable level of service (LOS "D" or better) during the peak hours with the following planned improvements, in addition to the improvements identified under EAP conditions:

Warm Springs Parkway – Vista Murrieta HS W. Driveway / Clinton Keith Road (#6)

- Install Traffic Signal
- Provide a SB right turn overlap phase
- Restrict eastbound U-Turns
- NB Approach: provide two left turn lanes, one through lane, and maintain existing right turn lane.

TABLE 5-1.2
QUEUEING ANALYSIS SUMMARY FOR
EXISTING PLUS AMBIENT PLUS PROJECT (2021) WITH INTERSECTION IMPROVEMENTS

ID	Intersection	Turning Movement Lane	Storage Length Provided ² (feet)	95th Percentile Queue Length Per Lane (feet) ¹		
				Weekday		Saturday
				AM	PM	MD
1	McElwain / Clinton Keith Rd.	EBL	200	165	224 ³	176
		EBR	100	0	0	0
		WBL	200	9	44	53
		WBR	160	15	54	23
		NBL	50	20	41	31
		SBL	250	192	201	242
2	I-215 SB Ramps / Clinton Keith Rd.	EBR	400	29	47	64
		WBR	150	14	0	0
		SBR	>1000	241	366	226
3	I-215 NB Ramps / Clinton Keith Rd.	NBL	960	127	434	387
		NBR	960	446	399	348
4	Creighton Ave. / Clinton Keith Rd.	EBL	300	172	202	312 ³
		EBR	200	49	89	11
		WBL	230	68	65	27
		WBR	150	25	8	80
		NBL	200	200	112	91
		SBL	245	92	120	244
5	Whitewood Rd. / Clinton Keith Rd.	EBL	525	200	409	216
		EBR	250	48	56	59
		WBL	200	52	52	90
		WBR	200	0	0	0
		NBL	420	330	462 ⁴	219
		SBL	100	179	172	102
7	Bronco Wy. / Clinton Keith Rd.	EBU	200	0	0	0
		WBL	315	294	214	71
		NBL	355	170	95	53
8	Antelope Rd. / Baxter Rd.	WBL	520	64	69	-
		WBR	520	39	45	-
		NBR	50	25	8	-
		SBL	150	169 ³	86	-

¹ Queue length calculated using Synchro 8

BOLD = exceeds storage lane

² Existing/Proposed pocket length storage (for turning movements) or link distance (for through movements). 100 = Existing; **100** = Proposed
100 = Recommended

³ 95th percentile queue is anticipated to exceed available storage length. However, the excess queue length can be accommodated within the transition lane.

⁴ It should be noted that a school access located along Whitewood Road is approximately 480 ft. south of Clinton Keith Road and extending the NBL turn lane at Clinton Keith Road over 420 ft. is not feasible. Therefore, the 95th percentile queue for the NBL is anticipated to continue to exceed available storage length.

TABLE 5-2
ROADWAY SEGMENT ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT (2021) CONDITIONS

Roadway	Segment Limits	General Plan Roadway Classification	Through Travel Lanes ¹	Roadway Capacity and LOS Criteria ² (Maximum 2-Way ADT)		EAP Conditions					
						Weekday			Saturday		
				LOS C	LOS E	ADT	V/C ³	LOS	ADT	V/C ³	LOS
Clinton Keith Rd.	west of Creighton Av.	Urban Arterial	6	43,100	53,900	29,945	0.56	A	26,558	0.49	A
	east of Creighton Av.	Urban Arterial	6	43,100	53,900	28,615	0.53	A	24,228	0.45	A

¹ 1 = Existing number of through lanes

² Source: City of Murrieta Daily Roadway Capacity Values

³ V/C = ADT / LOS E Roadway Capacity

**TABLE 5-3
 FREEWAY RAMP ANALYSIS FOR
 EXISTING PLUS AMBIENT PLUS PROJECT (2021) CONDITIONS**

Freeway	Ramp Location	Lanes on Freeway ¹	Lanes on Ramp ¹	Ramp Volumes			Density ²			Level of Service ³		
				Weekday		Sat	Weekday		Sat	Weekday		Sat
				AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	Clinton Keith Rd. Off-Ramp	3	1	824	1,000	781	33.5	29.2	31.7	D	D	D
	Clinton Keith Rd. Loop On-Ramp	3	1	366	273	349	27.0	20.3	25.3	C	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	511	465	458	29.7	22.8	27.6	D	C	C
I-215 Northbound	Clinton Keith Rd. Off-Ramp	3	1	769	872	801	22.4	31.8	29.2	C	D	D
	Clinton Keith Rd. Loop On-Ramp	3	1	813	791	553	18.4	27.4	22.8	B	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	178	89	170	18.0	26.2	23.0	B	C	C

¹ Existing number of lanes.

² Density is measured by passenger cars per lane (pc/mi/ln)

³ Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

TABLE 5-4
BASIC FREEWAY SEGMENT ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT (2021) CONDITIONS

Freeway	Ramp Location	Lanes on Freeway ¹	Freeway Volumes			Density ²			Level of Service ³		
			Weekday		Sat	Weekday		Sat	Weekday		Sat
			AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	North of Clinton Keith Rd.	3	4,876	4,018	4,664	28.5	21.4	25.6	D	C	C
	South of Clinton Keith Rd.	3	4,929	3,756	4,690	29.0	19.8	25.8	D	C	C
I-215 Northbound	South of Clinton Keith Rd.	3	2,726	4,525	4,028	14.5	24.8	21.6	B	C	C
	North of Clinton Keith Rd.	3	2,948	4,533	3,950	15.7	25.6	21.1	B	C	C

¹ Density is measured by passenger cars per lane (pc/mi/ln)

² Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

**TABLE 5-5.1
INTERSECTION ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS CUMULATIVE (2021) CONDITIONS**

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)			Level of Service ³		
			Northbound			Southbound			Eastbound			Westbound			Weekday		Sat	Weekday		Sat
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	MD	AM	PM	MD
															AM	PM	MD	AM	PM	MD
1	McElwain Rd. / Clinton Keith Rd.	TS	1	1	0	2	1	0	2	3	1	1	3	1>	14.7	37.8	24.4	B	D	C
2	I-215 SB Ramps / Clinton Keith Rd.	TS	0	0	0	0	1	2	0	3	1	0	3	1>>	12.3	12.6	9.1	B	B	A
3	I-215 NB Ramps / Clinton Keith Rd.	TS	1	0	1	0	0	0	0	3	1>>	0	3	1>>	36.0	16.1	13.6	D	B	B
4	Creighton Ave. / Clinton Keith Rd.	TS	1	<u>1</u>	0	<u>1</u>	<u>1</u>	0	1	3	1	1	3	<u>1</u>	40.8	23.9	26.4	D	C	C
5	Whitewood Rd. / Clinton Keith Rd. ⁴	TS	1	<u>2</u>	0	1	2	0	2	<u>2</u>	1	<u>2</u>	<u>3</u>	<u>1</u>	39.5	71.0	36.8	D	E	D
6	Vista Murrieta HS W. Dwy. / Clinton Keith Rd.	<u>TS</u>	<u>2</u>	<u>1</u>	1	<u>2</u>	<u>1</u>	<u>2></u>	<u>2</u>	3	0	<u>1</u>	3	<u>1</u>	10.7	17.2	22.8	B	B	C
7	Bronco Wy. / Clinton Keith Rd.	TS	2	<u>1</u>	0	<u>1</u>	<u>1</u>	0	1	3	d	1	3	<u>1</u>	27.2	28.8	29.7	C	C	C
8	Antelope Rd. / Baxter Rd.	TS	0	1	1	1	1	0	0	0	0	1	0	1	29.5	28.0	-	C	C	-

¹ TS = Traffic Signal; CSS = Cross Street Stop

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane ; d = Defacto right turn lane; > = Right Turn Overlap; >> = Free Right Turn Lane
1 = Recently built in 2018 after counts were taken; 1 = Lane Improvement

³ Delay and level of service calculated using the following analysis software: Synchro Software

⁴ The City's General Plan has identified this intersection to be deficient and accepts LOS E as an acceptable performance criteria.

- SB Approach: construct two left turn lanes, one through lane, and two right turn lanes.
- EB Approach: provide two left turn lanes, and maintain existing 3 through lanes.
- WB Approach: provide one left turn lane, one right turn lane, and maintain existing 3 through lanes.

Bronco Way / Clinton Keith Road (#7)

- Modify existing NB right turn lane to provide one shared through/right lane.
- Construct one SB left turn lane and one SB shared through/right lane.
- Provide one WB right turn lane.

It should be noted that both improvements are anticipated to be constructed in conjunction with the development of nearby cumulative projects (Costco & Vineyard Shopping Center). The 95th percentile queuing analysis results for E+A+C (2021) traffic conditions are presented in Table 5-5.2. Based on the analysis, it appears that the Whitewood/Clinton Keith intersection will have excessive queuing on the northbound and southbound left turn movements. The queuing analysis worksheets are also included in Appendix “J”.

Table 5-6 provides a summary of the EAC (2021) conditions roadway segment capacity analysis. As shown on Table 5-6, the study area roadway segments are anticipated to continue to operate within LOS “C” capacity thresholds.

Tables 5-7 and 5-8 summarize the freeway ramp analysis for I-215 at the Clinton Keith Road Interchange. As shown on Tables 5-7 and 5-8, the freeway ramps and basic freeway segments analyzed for this study were found to operate at an acceptable LOS (LOS “D” or better) during the peak hours. The EAC ramp analysis worksheets are provided in Appendix "K". The basic freeway segment analysis worksheets for EAP conditions are included in Appendix “L”.

C. Existing Plus Ambient Plus Project Plus Cumulative (E+A+P+C) (2021) Conditions

The results of the E+A+P+C (2021) conditions intersection analysis are summarized in Table 5-9.1. The E+A+P+C (2021) condition operations analysis worksheets are provided in Appendix "M".

For EAPC conditions, the intersection of Whitewood Road / Clinton Keith Road is anticipated to continue to operate at LOS E during the PM peak hour conditions. As mentioned previously, the City’s General Plan accepts LOS E as an acceptable performance for Whitewood / Clinton Keith Road (#5) intersection. The remaining study area intersections are anticipated to continue to operate at an acceptable level of service (LOS “D” or better) during the peak hours with the planned improvements identified previously under EAC conditions. However, the following additional improvements are

TABLE 5-5.2
QUEUEING ANALYSIS SUMMARY FOR
EXISTING PLUS AMBIENT PLUS CUMULATIVE (2021) WITH INTERSECTION IMPROVEMENTS

ID	Intersection	Turning Movement Lane	Storage Length Provided ² (feet)	95th Percentile Queue Length Per Lane (feet) ¹		
				Weekday		Saturday
				AM	PM	MD
1	McElwain / Clinton Keith Rd.	EBL	300	188	251 ³	221
		EBR	100	0	0	0
		WBL	200	6	41	46
		WBR	160	29	156	42
		NBL	50	20	41	31
		SBL	350	221	300	332
2	I-215 SB Ramps / Clinton Keith Rd.	EBR	400	24	367	141
		WBR	150	8	0	0
		SBR	>1000	293	389	288
3	I-215 NB Ramps / Clinton Keith Rd.	NBL	960	163	788	553
		NBR	960	533	744	413
4	Creighton Ave. / Clinton Keith Rd.	EBL	300	61	34	66
		EBR	200	39	5	12
		WBL	230	56	38	13
		WBR	150	0	14	14
		NBL	200	200	50	90
		SBL	245	0	240	245
5	Whitewood Rd. / Clinton Keith Rd.	EBL	525	228	525	295
		EBR	250	50	157	66
		WBL	200	49	97	91
		WBR	200	0	14	0
		NBL	420	373	548 ⁵	380
		SBL	100	179	220	160
6	Warm Springs Pkwy. - Vista Murrieta HS West Dwy. / Clinton Keith Rd.	EBL ⁴	600	189	591	779
		WBL	150	28	0	0
		WBR	240	43	3	0
		NBL	100	21	3	0
		NBR	390	0	0	0
		SBL	350	83	230	272
		SBR	350	28	130	144
7	Bronco Wy. / Clinton Keith Rd.	EBL	200	36	141	210 ³
		WBL	315	290	308	70
		WBR	85	0	8	41
		NBL	355	247	88	28
		SBL	150	47	215	294
8	Antelope Rd. / Baxter Rd.	WBL	520	159	133	-
		WBR	520	36	44	-
		NBR	50	53	47	-
		SBL	150	174 ³	115	-

¹ Queue length calculated using Synchro 8

BOLD = exceeds storage lane

² Existing/Proposed pocket length storage (for turning movements) or link distance (for through movements). 100 = Existing; **100** = Proposed **100** = Recommended

³ 95th percentile queue is anticipated to exceed available storage length. However, the excess queue length can be accommodated within the transition lane.

⁴ Staggered dual left turns (300 ft. & 600 ft.)

⁵ It should be noted that a school access located along Whitewood Road is approximately 480 ft. south of Clinton Keith Road and extending the NBL turn lane at Clinton Keith Road over 420 ft. is not feasible. Therefore, the 95th percentile queue for the NBL is anticipated to continue to exceed available storage length.

TABLE 5-6
ROADWAY SEGMENT ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS CUMULATIVE (2021) CONDITIONS

Roadway	Segment Limits	General Plan Roadway Classification	Through Travel Lanes ¹	Roadway Capacity and LOS Criteria ² (Maximum 2-Way ADT)		EAC Conditions					
						Weekday			Saturday		
				LOS C	LOS E	ADT	V/C ³	LOS	ADT	V/C ³	LOS
Clinton Keith Rd.	west of Creighton Av.	Urban Arterial	6	43,100	53,900	41,122	0.76	C	41,012	0.76	C
	east of Creighton Av.	Urban Arterial	6	43,100	53,900	41,122	0.76	C	41,012	0.76	C

¹ 1 = Existing number of through lanes

² Source: City of Murrieta Daily Roadway Capacity Values

³ V/C = ADT / LOS E Roadway Capacity

**TABLE 5-7
 FREEWAY RAMP ANALYSIS FOR
 EXISTING PLUS AMBIENT PLUS CUMULATIVE (2021) CONDITIONS**

Freeway	Ramp Location	Lanes on Freeway ¹	Lanes on Ramp ¹	Ramp Volumes			Density ²			Level of Service ³		
				Weekday		Sat	Weekday		Sat	Weekday		Sat
				AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	Clinton Keith Rd. Off-Ramp	3	1	963	1,324	1,134	34.4	32.3	34.1	D	D	D
	Clinton Keith Rd. Loop On-Ramp	3	1	430	494	452	27.6	23.0	26.2	C	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	597	583	582	30.8	25.8	29.1	D	C	D
I-215 Northbound	Clinton Keith Rd. Off-Ramp	3	1	895	1,201	995	23.4	34.7	30.6	C	D	D
	Clinton Keith Rd. Loop On-Ramp	3	1	918	697	605	19.3	26.9	23.2	B	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	267	346	373	19.3	28.1	24.9	B	D	C

¹ Existing number of lanes.

² Density is measured by passenger cars per lane (pc/mi/ln)

³ Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

TABLE 5-8
BASIC FREEWAY SEGMENT ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS CUMULATIVE (2021) CONDITIONS

Freeway	Ramp Location	Lanes on Freeway ¹	Freeway Volumes			Density ²			Level of Service ³		
			Weekday		Sat	Weekday		Sat	Weekday		Sat
			AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	North of Clinton Keith Rd.	3	5,015	4,518	5,017	29.7	24.6	28.3	D	C	D
	South of Clinton Keith Rd.	3	5,079	4,271	4,917	30.3	23.0	27.5	D	C	D
I-215 Northbound	South of Clinton Keith Rd.	3	2,852	5,013	4,222	15.2	28.5	22.8	B	D	C
	North of Clinton Keith Rd.	3	3,142	4,855	4,205	16.8	28.0	22.7	B	D	C

¹ Density is measured by passenger cars per lane (pc/mi/ln)

² Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

TABLE 5-9

**INTERSECTION ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS**

ID	Intersection	Traffic Control ¹	Intersection Approach Lanes ²												Delay ³ (secs.)						Level of Service ³					
			Northbound			Southbound			Eastbound			Westbound			With Full Project			Sensitivity Analysis (Reduced Project Land Use)			With Full Project			Sensitivity Analysis (Reduced Project Land Use)		
			L	T	R	L	T	R	L	T	R	L	T	R	Weekday	Sat	MD	Weekday	Sat	MD	Weekday	Sat	MD	Weekday	Sat	MD
			AM	PM	MD	AM	PM	MD	AM	PM	MD	AM	PM	MD	AM	PM	MD	AM	PM	MD	AM	PM	MD	AM	PM	MD
1	McElwain Rd. / Clinton Keith Rd.	TS	1	1	0	2	1	0	2	3	1	1	3	1>	14.8	40.0	24.7	14.9	39.9	24.7	B	D	C	B	D	C
2	I-215 SB Ramps / Clinton Keith Rd.	TS	0	0	0	0	1	2	0	3	1	0	3	1>>	12.5	15.4	10.6	12.5	15.2	9.9	B	B	B	B	B	A
3	I-215 NB Ramps / Clinton Keith Rd.	TS	1	0	1	0	0	0	0	3	1>>	0	3	1>>	37.5	16.9	14.1	36.5	16.2	14.1	D	B	B	D	B	B
4	Creighton Ave. / Clinton Keith Rd.	TS	1	1	0	1	1	0	1	3	1	1	3	1	44.3	31.9	54.0	41.8	20.5	49.8	D	C	D	D	C	D
	- With revised coordination plan														44.2	26.4	53.6	-	-	-	D	C	D	-	-	-
5	Whitewood Rd. / Clinton Keith Rd. ⁴	TS	1	2	0	1	2	0	2	2	1	2	3	1	45.5	77.0	58.0	42.7	72.1	54.5	D	E	E	D	E	D
	- With revised coordination plan														45.5	77.0	58.0	42.7	72.1	54.5	D	E	E	D	E	D
6	Vista Murrieta HS W. Dwy. / Clinton Keith Rd.	IS	2	1	1	2	1	2>	2	3	0	1	3	1	10.8	20.2	31.9	10.8	19.9	32.0	B	C	C	B	B	C
7	Bronco Wy. / Clinton Keith Rd.	TS	2	1	0	1	1	0	1	3	d	2	3	1	43.8	29.5	30.4	43.6	29.1	30.0	D	C	C	D	C	C
	- With revised coordination plan														43.8	29.5	30.4	43.6	29.1	30.0	D	C	C	D	C	C
8	Antelope Rd. / Baxter Rd.	TS	0	1	1	1	1	0	0	0	0	1	0	1	29.6	28.1	-	29.6	28.5	-	C	C	-	C	C	-

¹ TS = Traffic Signal; CSS = Cross Street Stop

² When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; 1! = Shared Left-Through-Right Lane; 0.5 = Shared Lane; d = Defacto right turn lane; > = Right Turn Overlap; >> = Free Right Turn Lane

7 = Recently built in 2018 after counts were taken; 1 = Lane Improvement; 1 = With additional improvement in comparison to EAC conditions to provide adequate queueing storage

³ Delay and level of service calculated using the following analysis software: Synchro Software

⁴ The City's General Plan has identified this intersection to be deficient and accepts LOS E as an acceptable performance criteria.

needed to mitigate potential queuing issues at Creighton Avenue / Clinton Keith Road (#4) and Bronco Way / Clinton Keith Road (#7):

Creighton Ave. / Clinton Keith Road (#4)

- Lengthen the EB left turn pocket by 50 feet to provide 300 feet of stacking distance.

Bronco Way / Clinton Keith Road (#7)

- Provide a 2nd WB left turn lane.

Warm Springs Pkwy./Clinton Keith Rd. (#6) – The eastbound left turn pocket is anticipated to experience during the Saturday peak conditions with the proposed improvement measures.

Signal coordination and detailed queuing evaluation has also been included in this traffic study report for all intersections under EAPC (2021) conditions. Table 5-10 summarizes the 95th percentile for the EAPC (2021) with intersection improvements queuing analysis. The queuing analysis worksheets are also included in Appendix “M”.

As indicated in the queueing analysis, the eastbound left turn volumes at the intersection of Creighton/Clinton Keith Road is anticipated to exceed the stacking length on a Saturday peak hour. A 2nd eastbound left turn lane (300') would accommodate the anticipated queuing and fully mitigate the stacking impacts of the Curci project since it would provide 600 feet of queuing. A supplemental sensitivity analysis has been performed to determine what measures would be required to accommodate the anticipated queuing of a single eastbound left turn lane. The restriction of the Costco traffic through the Creighton intersection along with the following project land uses can be developed to allow this intersection to accommodate the single eastbound left turn lane:

- 5,000 sf Tire Store
- 3,000 sf High Turnover (Sit-Down) Restaurant
- 5,000 sf Drive-in Bank

Furthermore, based on the analysis, it appears that the Whitewood/Clinton Keith intersection will have excessive queuing on the northbound and southbound left turn movements. The project will be responsible for designing, furnishing and installing the proposed lengthening of the turn pockets. Since the lengthening of the turn pockets will not accommodate the forecasted queues, a statement of overriding considerations will be required.

Table 5-11 provides a summary of the EAPC (2021) conditions roadway segment

TABLE 5-10

**QUEUEING ANALYSIS SUMMARY FOR
EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) WITH INTERSECTION IMPROVEMENTS**

ID	Intersection	Turning Movement Lane	Storage Length Provided ² (feet)	95th Percentile Queue Length Per Lane (feet) ¹					
				With Full Project			Sensitivity Analysis (Reduced Project Land Use)		
				Weekday		Saturday	Weekday		Saturday
				AM	PM	MD	AM	PM	MD
1	McElwain / Clinton Keith Rd.	EBL	300	189	264	239	189	303 ³	239
		EBR	100	0	0	0	0	0	0
		WBL	200	6	39	0	6	39	0
		WBR	160	31	59	157	30	57	145
		NBL	50	20	56 ³	34	20	56 ³	34
		SBL	350	226	317	369 ³	222	312	363
2	I-215 SB Ramps / Clinton Keith Rd.	EBR	400	23	65	147	24	49	55
		WBR	150	10	0	0	9	0	0
		SBR	>1000	296	396	185	292	395	185
3	I-215 NB Ramps / Clinton Keith Rd.	NBL	960	163	826	695	163	787	690
		NBR	960	587	752	615	550	734	557
4	Creighton Ave. / Clinton Keith Rd. - With Additional 2nd EBL turn improvement	EBL	300	205	257	546	106	95	276
		EBR	200	47	2	0	48	3	1
		WBL	230	55	64	13	53	66	14
		WBR	150	19	77	161 ³	4	51	108
		NBL	200	224 ³	83	101	218 ³	83	91
		SBL	245	92	309	525	34	217	381
		EBL (2x)	300	101	97	178	-	-	-
5	Whitewood Rd. / Clinton Keith Rd.	EBL	525	238	547 ³	358	231	532 ³	346
		EBR	250	52	162	79	51	152	71
		WBL	200	52	99	106	52	99	106
		WBR	200	1	14	0	1	14	0
		NBL	420	434 ³	609 ⁴	493	406	579 ⁴	448
		SBL	100	212	208	180	212	208	180
6	Warm Springs Pkwy. - Vista Murrieta HS West Dwy. / Clinton Keith Rd.	EBL	600	190	555	732	189	571	731
		WBL	150	22	2	0	22	2	0
		WBR	240	50	2	0	53	2	0
		NBL	100	21	3	0	21	3	0
		NBR	390	0	0	0	0	0	0
		SBL	350	83	243	275	83	243	275
		SBR	350	30	138	152	29	138	152
7	Bronco Wy. / Clinton Keith Rd. - With 2nd WBL turn improvement	EBL	200	31	139	183	31	140	181
		WBL	315	492	308	74	482	308	38
		WBR	85	0	9	56	0	9	74
		NBL	355	195	84	53	195	84	53
		SBL	150	42	154 ³	206	42	154 ³	206
		WBL (2x)	315	31	139	183	31	139	181
8	Antelope Rd. / Baxter Rd.	WBL	WBL	164	133	-	164	133	-
		WBR	520	37	44	-	37	44	-
		NBR	50	52 ³	46	-	49	46	-
		SBL	150	174 ³	113	-	174 ³	113	-

¹ Queue length calculated using Synchro 8

BOLD = exceeds storage lane

² Existing/Proposed pocket length storage (for turning movements) or link distance (for through movements). 100 = Existing; **100** = Proposed
100 = Recommended

³ 95th percentile queue is anticipated to exceed available storage length. However, the excess queue length can be accommodated within the transition lane.

⁴ It should be noted that a school access located along Whitewood Road is approximately 480 ft. south of Clinton Keith Road and extending the NBL turn lane at Clinton Keith Road over 420 ft. is not feasible. Therefore, the 95th percentile queue for the NBL is anticipated to continue to exceed available storage length.

capacity analysis. As shown on Table 5-11, the study area roadway segments are anticipated to continue to operate within LOS "C" capacity thresholds.

Tables 5-12 and 5-13 summarize the freeway ramp analysis for I-215 at the Clinton Keith Road Interchange. As shown on Tables 5-12 and 5-13, the freeway ramps and basic freeway segments analyzed for this study were found to operate at an acceptable LOS (LOS "D" or better) during the peak hours. The EAPC ramp analysis worksheets are provided in Appendix "N". The basic freeway segment analysis worksheets for EAPC conditions are included in Appendix "O".

TABLE 5-11
ROADWAY SEGMENT ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS

Roadway	Segment Limits	General Plan Roadway Classification	Through Travel Lanes ¹	Roadway Capacity and LOS Criteria ² (Maximum 2-Way ADT)		EAPC Conditions					
						Weekday			Saturday		
				LOS C	LOS E	ADT	V/C ³	LOS	ADT	V/C ³	LOS
Clinton Keith Rd.	west of Creighton Av.	Urban Arterial	6	43,100	53,900	43,782	0.81	D	43,672	0.81	D
	east of Creighton Av.	Urban Arterial	6	43,100	53,900	42,452	0.79	C	42,342	0.79	C

¹ 1 = Existing number of through lanes

² Source: City of Murrieta Daily Roadway Capacity Values

³ V/C = ADT / LOS E Roadway Capacity

**TABLE 5-12
 FREEWAY RAMP ANALYSIS FOR
 EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS**

Freeway	Ramp Location	Lanes on Freeway ¹	Lanes on Ramp ¹	Ramp Volumes			Density ²			Level of Service ³		
				Weekday		Sat	Weekday		Sat	Weekday		Sat
				AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	Clinton Keith Rd. Off-Ramp	3	1	989	1,354	1,187	34.6	32.5	34.4	D	D	D
	Clinton Keith Rd. Loop On-Ramp	3	1	458	533	520	27.8	23.3	26.7	C	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	597	583	582	30.9	26.0	29.4	D	C	D
I-215 Northbound	Clinton Keith Rd. Off-Ramp	3	1	929	1,241	1,065	23.7	34.9	30.9	C	D	D
	Clinton Keith Rd. Loop On-Ramp	3	1	918	697	605	19.3	26.9	23.0	B	C	C
	Clinton Keith Rd. Slip On-Ramp	3	1	288	376	424	19.5	28.4	25.1	B	D	C

¹ Existing number of lanes.

² Density is measured by passenger cars per lane (pc/mi/lh)

³ Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

TABLE 5-13
BASIC FREEWAY SEGMENT ANALYSIS FOR
EXISTING PLUS AMBIENT PLUS PROJECT PLUS CUMULATIVE (2021) CONDITIONS

Freeway	Ramp Location	Lanes on Freeway ¹	Freeway Volumes			Density ²			Level of Service ³		
			Weekday		Sat	Weekday		Sat	Weekday		Sat
			AM	PM	MD	AM	PM	MD	AM	PM	MD
I-215 Southbound	North of Clinton Keith Rd.	3	5,041	4,548	5,070	30.0	24.8	28.7	D	C	D
	South of Clinton Keith Rd.	3	5,107	4,310	4,985	30.6	23.2	28.0	D	C	D
I-215 Northbound	South of Clinton Keith Rd.	3	2,886	5,053	4,292	15.4	28.8	23.2	B	D	C
	North of Clinton Keith Rd.	3	3,163	4,885	4,256	16.9	28.2	23.0	B	D	C

¹ Density is measured by passenger cars per lane (pc/mi/ln)

² Density and level of service calculated using the following analysis software: HCS2010, Version 6.65

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6.0 FINDINGS AND RECOMMENDATIONS

This section of the report summarizes the project impacts for each scenario analyzed. Physical and funding recommendations are provided to address the project-related impacts. The scenarios evaluated include:

- **Existing Conditions**
- **Existing + Ambient + Project (2021)**
- **Existing + Ambient + Cumulative (2021)**
- **Existing + Ambient + Project + Cumulative (2021)**

A. Traffic Impacts and Level of Service Analysis

1. Existing Conditions

For Existing traffic conditions, the study area intersections, roadway segments, freeway ramps, and freeway segments are currently operating at an acceptable level of service during the peak hours with the existing geometry and traffic controls.

2. Existing + Ambient + Project (2021) Conditions

For EAP traffic conditions, the study area intersections, roadway segments, freeway ramps, and freeway segments are operating at an acceptable level of service during the peak hours with the following planned improvements:

Creighton Avenue / Clinton Keith Road (#4)

- Modify existing northbound (NB) right turn lane to a shared through right lane.
- Construct one southbound (SB) left turn lane and one SB shared through right lane.
- Construct one westbound (WB) right turn lane.
- Install a “no right turn on red” signage for the SB approach.

In addition, improvements at the Whitewood Road / Clinton Keith Road were recently constructed. Therefore, the following configuration is shown as built for future conditions:

Whitewood Road / Clinton Keith Road (#5)

- NB Approach: one left turn lane, one through lane, and one shared through/right lane.
- SB Approach: one left turn lane, one through lane, and one shared through/right lane.

- EB approach: two left turn lanes, two through lanes, and one right turn lane.
- WB approach: two left turn lanes, three through lanes, and right turn lane.

3. Existing + Ambient + Cumulative (2021) Conditions

For EAC conditions, the intersection of Whitewood Road / Clinton Keith Road is anticipated to operate at LOS E during the PM peak hour conditions. It should be noted however that the City's General Plan has projected this intersection to be deficient and accepts LOS E as an acceptable performance for Whitewood / Clinton Keith Road (#5) intersection. The remaining study area intersections are operating at an acceptable level of service (LOS "D" or better) during the peak hours with the following planned improvements, in addition to the improvements identified under EAP conditions:

Warm Springs Parkway – Vista Murrieta HS W. Driveway / Clinton Keith Road (#6)

- Install Traffic Signal
- Provide a SB right turn overlap phase
- Restrict eastbound U-Turns
- NB Approach: provide two left turn lanes, one through lane, and maintain existing right turn lane.
- SB Approach: construct two left turn lanes, one through lane, and two right turn lanes.
- EB Approach: provide two left turn lanes, and maintain existing 3 through lanes.
- WB Approach: provide one left turn lane, one right turn lane, and maintain existing 3 through lanes.

It should be noted that under these conditions, the eastbound left turn pocket will experience excessive queues during the Saturday peak period.

Bronco Way / Clinton Keith Road (#7)

- Modify existing NB right turn lane to provide one shared through/right lane.
- Construct one SB left turn lane and one SB shared through/right lane.
- Provide one WB right turn lane.

It should be noted that both improvements are anticipated to be constructed in conjunction with the development of nearby cumulative projects (Costco & Vineyard Shopping Center).

The EAC conditions, for the roadway segments, freeway ramps, and freeway segments are anticipated to continue to operate at an acceptable level of service during the peak hours.

4. Existing Plus Ambient Plus Project Plus Cumulative (E+A+P+C) (2021) Conditions

For EAPC conditions, the intersection of Whitewood Road / Clinton Keith Road is anticipated to continue to operate at LOS E during the PM peak hour conditions. As mentioned previously, the City's General Plan accepts LOS E as an acceptable performance for Whitewood / Clinton Keith Road (#5) intersection. The remaining study area intersections are operating at an acceptable level of service (LOS "D" or better) during the peak hours with the planned improvements identified previously under EAC conditions. However, the following additional improvements are needed to mitigate potential queuing issues:

Bronco Way / Clinton Keith Road (#7)

- Provide a 2nd WB left turn lane.

It should be noted that excessive queues are anticipated to occur on-site for the southbound approach. However, since the queues are on private property, no improvements have been recommended.

Queueing analysis results for EAPC conditions indicate that the following turn movements are anticipated to exceed available storage lane capacities:

Whitewood Road / Clinton Keith Rd. (#5)

- NB left turn (*AM & PM peak hours*)
- SB left turn (*AM & PM peak hours*)

Warm Springs Pkwy./Clinton Keith Rd. (#6)

- EB left turn (*Sat peak hour*)

It should be noted that the City Council has adopted overriding considerations in the current General Plan for the intersection of Whitewood Road/Clinton Keith Road. Based on the queuing analysis, it appears that the Whitewood/Clinton Keith intersection will have excessive queuing on the northbound and southbound left turn movements. The project will be responsible for designing, furnishing and installing the proposed lengthening of the turn pockets. Since the lengthening of the turn pockets will not accommodate the forecasts queues, a statement of overriding considerations will be required. The project will be required to contribute a fair share amount to the City's CIP 8389 for the improvements to this intersection.

For the intersection of Creighton Avenue/Clinton Keith Road (#4), the eastbound left turn volumes are anticipated to exceed the stacking length on a Saturday peak hour. A 2nd eastbound left turn lane (300') would accommodate the anticipated queuing and fully mitigate the stacking impacts of the Curci project since it would provide 600 feet of queuing. A supplemental sensitivity analysis has been performed to determine what measures would be required to accommodate the anticipated queuing of a single eastbound left turn lane. The restriction of the Costco traffic through the Creighton intersection along with the following project land uses can be developed to allow this intersection to accommodate the single eastbound left turn lane:

- 5,000 sf Tire Store
- 3,000 sf High Turnover (Sit-Down) Restaurant
- 5,000 sf Drive-in Bank

Based on the supplemental analysis, lengthening the EB left turn pocket by 50 feet to provide 300 feet of stacking distance at the intersection of Creighton Ave. / Clinton Keith Road (#5) is anticipated to provide adequate storage length during Weekday and Saturday conditions. The Project will be responsible to design, fund, and install the second eastbound left turn lane at this intersection and a fair share cost to be paid by adjacent development (Murrieta Costco) towards this improvement if/when they are granted access through this intersection.

It should be noted that excessive queues are anticipated to occur on-site for the southbound approach. However, since the queues are on private property, no improvements have been recommended.

The EAPC conditions, for the roadway segments, freeway ramps, and freeway segments are anticipated to continue to operate at an acceptable level of service during the peak hours.

B. Circulation Recommendations

1. On-Site

Construction of on-site improvements shall occur in conjunction with adjacent project development activity or as needed for project access purposes. The recommended on-site roadway improvements are described below.

- On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project.
- Verify that minimum sight distance is provided at the project access points.