4.7 TRANSPORTATION AND CIRCULATION

4.7.1 Introduction

This transportation and circulation section discusses existing and cumulative transportation and circulation conditions associated with the proposed Robert's Ranch Specific Plan project (proposed project). The analysis includes consideration of motorized vehicle traffic impacts on roadway capacity and intersections, and potential impacts to transit, bicycle, and pedestrians. In addition, an evaluation of construction impacts is also included. Quantitative transportation analyses have been conducted for the following six scenarios:

- Existing Conditions
- Existing plus Project
- Existing plus Approved Projects
- Existing plus Approved Projects plus Project
- Cumulative Year 2035 without the Project
- Cumulative Year 2035 plus Project

Comments received in response to the NOP (see Appendix A) focused on several aspects of the project related to transportation and circulation. The Solano County Planning Services Division, Department of Resource Management requested that the traffic analysis evaluate potential impacts (both project specific and cumulative) to County roads resulting from the project. The Yolo Solano Air Quality Management District requested that the analysis examine whether the project's design incorporates available features that could contribute to vehicle trip reduction and the use of clean technology vehicles. Specifically, availability of infrastructure to support electric vehicle charging; bicycle and pedestrian infrastructure; connections to other surrounding uses to encourage non-motorized travel; and integration of bike lanes into the project site. Caltrans raised a number of comments including identifying traffic impact fees to be used for project mitigation; analyzing project impacts on the Interstate 80 (I-80) corridor from State Route 113 to the Carquinez Bridge and the Leisure Town Road interchange; analysis of project travel demand; and a request the analysis consider travel demand management (TDM) strategies, such as formation of a transportation management association and adoption of an aggressive trip reduction target with Lead Agency monitoring and enforcement. Caltrans also requested the traffic analysis scenarios be provided and the traffic report be prepared consistent with guidance outlined in Caltrans' *Guide for the Preparation of Traffic Impact Studies.* In addition, information on vehicle miles traveled is included in Section 4.1, Air Quality. All of the comments raised are addressed in this section.

4.7.2 Environmental Setting

Road System

The existing road system and traffic analysis locations are shown in Figure 4.7-1.

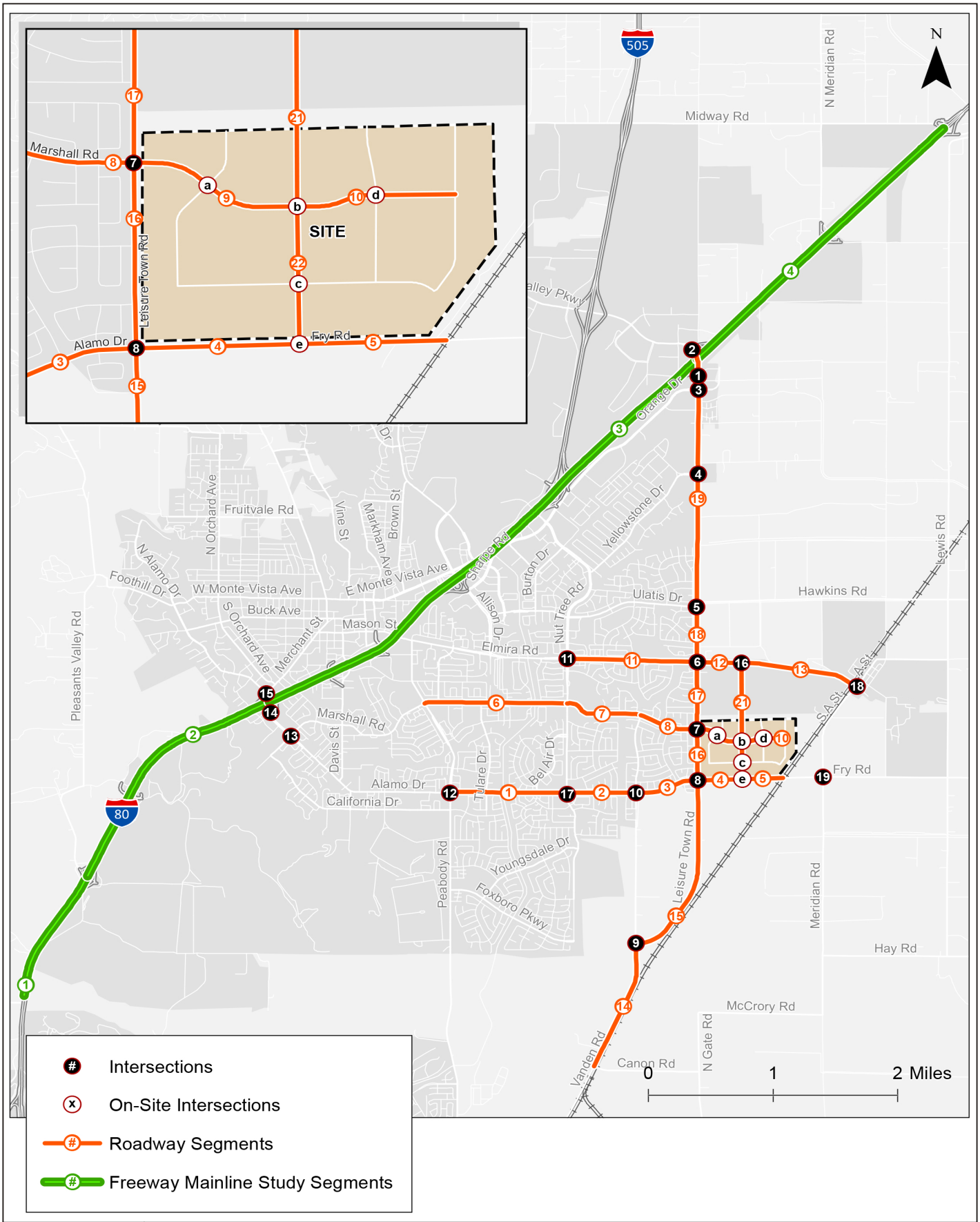
Regional Access

Regional vehicular access to the project area is provided primarily by the freeway system that serves northern Solano County. I-80, which primarily has four travel lanes in each direction in the study area, extends southwest through Fairfield and Vallejo, crosses the Carquinez Bridge and the San Francisco-Oakland Bay Bridge to terminate at Highway 101 in San Francisco. It also extends northeast through Dixon and Davis, over the Sacramento River to Sacramento and beyond. Interstate 680 provides north-south connections from I-80 near Cordelia to San Jose. Interstate 505 (I-505) has two travel lanes in each direction and links I-80 to Interstate 5, a major north-south freeway serving the west coast of the United States.

Local Access

In addition to I-80 and I-505, the following road segments in the study area have been identified as regional routes and part of the Congestion Monitoring Program system in the 2005 Solano County Comprehensive Transportation Plan (CTP), and in the 2015 Congestion Monitoring Program (CMP):

- Leisure Town Road (future Jepson Parkway) between I-80 and Vanden Road (CTP)
- Vanden Road from Leisure Town Road south to Peabody Road in Solano County (CTP and CMP)
- Elmira Road between Leisure Town Road and I-80 (CTP)
- Elmira Road from Leisure Town Road east to A Street in the Town of Elmira City Limits (CMP)



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SOURCE: Kittelson & Associates, Inc. (2016)

FIGURE 4.7-1
Study Locations

Roberts' Ranch Specific Plan EIR

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These roads and other key arterials, collectors and local streets in the study area are described below:

- **Elmira Road** is an east-west street that spans between "A" Street in the Town of Elmira and I-80, where it continues westward as Mason Street. Elmira Road is designated as a minor arterial with one travel lane in each direction east of Leisure Town Road. West of Leisure Town Road, it is a major arterial with two travel lanes in each direction. Elmira Road is a designated truck route.
- **Leisure Town Road** is a north-south arterial that extends between I-80 and Vanden Road. In the project vicinity, it has one travel lane in each direction. Leisure Town Road would provide project access via its existing intersection with Fry Road, one proposed limited access street connection and a proposed full access intersection at Marshall Road. Leisure Town Road is part of the proposed Jepson Parkway Project, a planned four-lane divided arterial.
- **Marshall Road** is a two-lane collector street that extends between Leisure Town Road and just west of California Drive.
- **Nut Tree Road** is a north-south arterial that connects Foxboro Parkway, across I-80 and East Monte Vista Avenue, to the Nut Tree development area. Where development exists along Nut Tree Road, it has four travel lanes. As development occurs along the southern portion of Nut Tree Road, it would be widened from its current two lanes to four lanes.
- **Peabody Road** is a north-south street extending between Elmira Road in Vacaville and Air Base Parkway in Fairfield. Within Vacaville, Peabody Road is designated as a four-lane arterial. South of Vacaville within Solano County, Peabody Road operates as a two-lane rural road with paved shoulders.
- **Byrnes Road** is a north-south two-lane collector street that extends south from Weber Road to the Town of Elmira where it continues as California Pacific Road to just south of Water Street.
- **Vanden Road** is a two-lane collector street. It spans from Peabody Road in Fairfield, through unincorporated Solano County, and terminates at Marshall Road in Vacaville. West of Peabody Road, it continues as Cement Hill Road. Vanden Road from south City limits to Leisure Town Road is part of Jepson Parkway Project, a planned four-lane divided arterial

Existing Traffic Operations

This section provides information on the existing operating conditions (in terms of level of service) for selected intersections, road segments, and freeway mainline segments in the vicinity of the project site.

Level of Service Methodology

Methodologies outlined in the Transportation Research Board's Highway Capacity Manual (HCM) are used to evaluate level of service for intersections and freeway mainline segments. Road segment analysis is based on the HCM and commonly-accepted default values derived by the California Department of Transportation.

Level of service describes the operating conditions experienced by persons on a transportation system. For motorized vehicles, level of service is a qualitative measure of the effects of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated LOS A through F, from best to worst, which cover the entire range of traffic operations that might occur. LOS A through E generally represent traffic volumes at less than roadway capacity, while LOS F represents conditions where traffic demands exceed capacity and the flow of traffic breaks down, resulting in stop-and-go conditions and long queues of vehicles.

Intersections

For unsignalized intersection, with the exception of all-way stop controlled intersections, the methodology calculates an average total delay per vehicle for each minor street movement and for the major street left-turn movements based on the availability of adequate gaps in through traffic on the main street. A level of service designation is assigned to individual movements or to combinations of movements in the case of shared lanes, based on delay. It is not unusual for some of the minor street movements to have LOS D, E or F condition while the major street movements have LOS A, B or C condition. In such a case, the minor street traffic experiences delays that can be substantial for individual minor street vehicles, but the majority of vehicles using the intersection have very little delay. Usually in such cases, the minor street traffic volumes are relatively low. Unsignalized intersection levels of service are reported for the overall intersection, as well as for the worst approach or critical movement based upon the average delay per vehicle. Because the City's level of service standards are based on average intersection level of service and do not address individual movements, the level of service results for the intersection as a whole are used as determinants for significant impacts.

At signalized and all-way stop intersections, the level of service is determined by the weighted average delay for all vehicles entering the intersection and the calculated average total delay per vehicle and level of service for the intersection as a whole. **Error! Reference source not found.** and **Error! Reference source not found.** present the average delay criteria used to determine the level of service at unsignalized and signalized intersections, respectively. The average delay criteria used to determine the level of service at all-way stop controlled intersections are the same as those shown for signalized intersections in **Error! Reference source not found.**.

Consistent with the City of Vacaville's General Plan Update, the City has established a citywide goal of LOS "C" or better at signalized and unsignalized intersections. However, Chapter 14.12.180 of the City's Municipal Code establishes traffic impact standards, which allow City decision-makers to allow and accept LOS D without mitigation improvements. In March 2013, the City Council adopted Resolution 2013-123, identifying HCM LOS of mid-D (<45 seconds of delay) as a threshold of significance for the General Plan Update environmental impact report. With the City's goal of LOS C in mind, this report identifies any signalized or unsignalized intersection operating below LOS "C".

Table 4.7-1
Level of Service Definition for Unsignalized Intersections

Level of Service	Description	Vehicle Delay (seconds per vehicle)
A	Little or no delay	0 – 10
B	Short traffic delays	> 10 – 15
C	Average traffic delays	> 15 – 25
D	Long traffic delays	> 25 – 35
E	Very long traffic delays	> 35 – 50
Mid-E		42
F	Extreme delays potentially affecting other traffic movements at the intersection	> 50

Source: Kittelson & Associates, Inc. 2016. Transportation Research Board, Highway Capacity Manual, 2010. City of Vacaville.
Notes: At two-way stop controlled intersections, LOS is determined for each minor street movement and major street left turn. At all-way stop-controlled intersections, LOS is determined for each individual approach and for the entire intersections based on average control delay.

Table 4.7-2
Level of Service Definition for Signalized Intersections

Level of Service	Description	Vehicle Delay (seconds per vehicle)
A	Very low delay	≤ 10
B	Minimal delay	> 10 – 20
C	Acceptable delay	> 20 – 35
D	Approaching unstable delay	> 35 – 45
Mid-D		> 45 – 55
E	Unstable operations and substantial delay	> 55 – 80
F	Excessive delay	> 80

Source: Kittelson & Associates, Inc. 2016. Transportation Research Board, Highway Capacity Manual, 2010. City of Vacaville.

The potential need for traffic signals at unsignalized intersections where the minor street movements experience substantial delay is evaluated in accordance with the California Manual on Uniform Traffic Control Devices (CA MUTCD). The analysis for the proposed project focuses on the peak hour warrant (Warrant 3). The peak hour warrant is being used as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed the peak hour warrant are considered for the purposes of this analysis to be likely to meet one or more of the other signal warrants, such as the 4-hour or 8-hour warrants. This peak hour analysis is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. The City establishes priorities for traffic signal installations citywide and conducts detailed warrant analysis. The need for traffic signals may be established as a part of a proposed project.

Road Segments

Road segment level of service was determined by using peak hour two-way volumes derived from weekday AM and PM peak hour intersection turning movements. The weekday AM peak hour refers to the four consecutive 15-minute periods within the peak period (which occurs from 7:00 AM to 9:00 AM) with the highest traffic volume. The weekday PM peak hour refers to the four consecutive 15-minute periods within the peak period (which occurs from 4:00 PM to 6:00 PM) with the highest traffic volume.

For road segments, the city's traffic study guidelines refer to the General Plan Transportation Element (2007) which established maximum thresholds for LOS C for two-way hourly flow and maximum thresholds for LOS C and LOS D for one-way directional hourly flow, as shown in **Error! Reference source not found.**. The City generally has distinct directional traffic patterns during peak hours. The level of service thresholds take into account the peak directional flow and factor the two-way capacity as appropriate to establish the directional capacity for each segment level of service. For planning level analysis, existing and projected directional volumes have been compared to the segment capacities established by the city guidelines.

Table 4.7-3
Road Segment Level of Service Criteria

Segment Classification	LOS C Total Two-Way Capacity	Calculated Directional LOS C Capacity	Calculated Directional LOS D Capacity	Calculated Directional Capacity
6-Lane Divided Arterial	4,500	2,700	3,038	3,375
4-Lane Divided Arterial	3,500	2,100	2,363	2,625
4-Lane Arterial	2,500	1,500	1,688	1,875

Table 4.7-3
Road Segment Level of Service Criteria

Segment Classification	LOS C Total Two-Way Capacity	Calculated Directional LOS C Capacity	Calculated Directional LOS D Capacity	Calculated Directional Capacity
2-Lane Arterial	1,500	900	1,013	1,125
Collector	1,000	600	675	750

Notes: Calculated LOS C directional capacity is based on an assumed split of 60%/40% on local streets and 55%/45% on freeways. Calculated directional capacity assumed LOS C to be 80% of available capacity and LOS D to be 90% of capacity.
Source: City of Vacaville, *General Plan Transportation Element,* December 2007, Figure 6-1.

Freeway Mainline Segments

Caltrans' *Guide for the Preparation of Traffic Impact Studies* requires the use of HCM analysis methodology and applies the freeway mainline segment level of service criteria presented in **Error! Reference source not found.**.

Table 4.7-4
Freeway Mainline Segment Level of Service Criteria

Level of Service	Maximum Density (passenger vehicles per mile per lane)
A	≤ 11
B	18
C	26
D	35
E	45
F	> 45

Source: Transportation Research Board, Highway Capacity Manual, 2010.

Intersection Operations

A quantitative level of service analyses were performed for the 19 study intersections selected in consultation with City staff. Each of the 19 study intersections and their traffic control type are presented in **Error! Reference source not found.**. Weekday AM (7:00 AM and 9:00 AM) and PM (4:00 PM and 6:00 PM) peak period intersection turning movement counts were provided by the City for all but six of the existing study intersections. Turning movement counts provided by the City were collected between March 2015 and March 2016. Turning movement counts for the

remaining six intersections were collected on Thursday, April 7, 2016. Existing traffic volumes are shown in Figure 4.7-2 and existing traffic operations is shown in Table 4.7-6.

Table 4.7-5
Study Intersection Locations

#	Intersection	Traffic Control	
		Existing	*Future*
1	Leisure Town Road (Jepson Parkway) / I-80 EB Ramps	Signal	Signal
2	Leisure Town Road (Jepson Parkway) / I-80 WB Ramps	Signal	Signal
3	Leisure Town Road (Jepson Parkway) / Orange Drive	Signal	Signal
4	Leisure Town Road (Jepson Parkway) / Sequoia Drive-White Pine Street	Signal	Signal
5	Leisure Town Road (Jepson Parkway) / Ulatis Drive[1]	Two-Way Stop	Signal
6	Leisure Town Road (Jepson Parkway) / Elmira Road	Signal	Signal
7	Leisure Town Road (Jepson Parkway) / Marshall Road[1]	Two-Way Stop	Signal
8	Leisure Town Road (Jepson Parkway) / Alamo Drive-Fry Road	Signal	Signal
9	Leisure Town Road (Jepson Parkway) / Vanden Road[2]	Signal	Roundabout
10	Alamo Drive/ Vanden Road	Signal	Signal
11	Alamo Drive/ Nut Tree Road[4]	Signal	Signal
12	Alamo Drive/ Peabody Road	Signal	Signal
13	Alamo Drive/ Marshall Road[4]	Signal	Signal
14	Alamo Drive/ I-80 EB On-Ramp[4]	Signal	Signal
15	Alamo Drive/ Merchant Street[4]	Signal	Signal
16	Elmira Road/ North-South Arterial[3]	Does Not Exist	Signal
17	Elmira Road/ Nut Tree Road	Signal	Signal
18	Water Street/ A Street[4]	All-Way Stop	All-Way Stop
19	Alamo Drive-Fry Road / A Street-Meridian Road[4]	All-Way Stop	All-Way Stop

Source: Kittelson & Associates, Inc., 2016.
Notes:
1 This is currently a Two-Way Stop controlled intersection and was analyzed as such for Existing Conditions.

[2] This is currently a signalized intersection and was analyzed as such for Existing Conditions.
[3] The North-South Arterial has not yet been built, therefore no traffic operations were recorded under exiting condition scenarios
[4] Denotes new intersection turning movement counts were collected on Thursday, April 7, 2016. Counts were provided by the City for all other locations.

Table 4.7-6
Intersection Operations – Existing Conditions

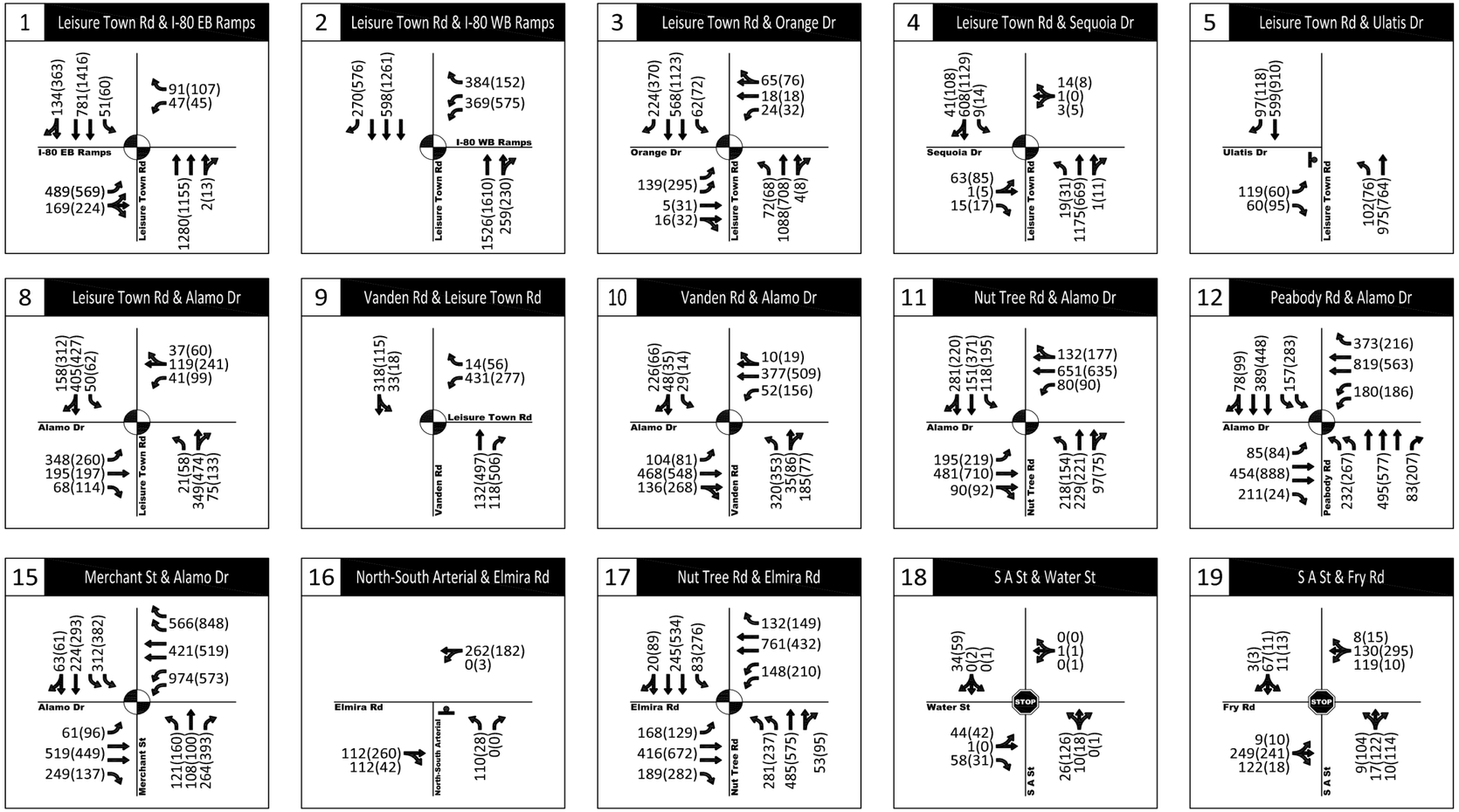
#	Intersection	Traffic Control[2]	Peak Hour	LOS[3]	Delay[4]
1	Leisure Town Road (Jepson Parkway) / I-80 EB Ramps	Signal	AM	C	22.2
			PM	B	19.9
2	Leisure Town Road (Jepson Parkway) / I-80 WB Ramps	Signal	AM	A	6.9
			PM	A	8.1
3	Leisure Town Road (Jepson Parkway) / Orange Drive	Signal	AM	B	18.8
			PM	B	19.4
4	Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street	Signal	AM	A	9.2
			PM	C	24.6
5	Leisure Town Road (Jepson Parkway) / Ulatis Drive	TWSC	AM	B (F)	13.1 (>50.0)
			PM	A (F)	5.0 (>50.0)
6	Leisure Town Road (Jepson Parkway) / Elmira Road	Signal	AM	D	44.3
			PM	C	34.8
7	Leisure Town Road (Jepson Parkway) / Marshall Road	TWSC	AM	A (F)	6.9 (>50.0)
			PM	A (F)	3.6 (>50.0)
8	Leisure Town Road (Jepson Parkway) / Alamo Drive–Fry Road	Signal	AM	C	25.4
			PM	C	29.6
9	Leisure Town Road (Jepson Parkway) / Vanden-Foxboro Road	Signal	AM	A	8.4
			PM	A	6.6
10	Alamo Drive/ Vanden Road	Signal	AM	B	19.9
			PM	C	25.1
11	Alamo Drive/ Nut Tree Road	Signal	AM	C	28.5
			PM	C	34.2
12	Alamo Drive/ Peabody Road	Signal	AM	C	29.1
			PM	C	29.8
13	Alamo Drive/ Marshall Road	Signal	AM	C	28.3
			PM	C	28.2

Table 4.7-6
Intersection Operations – Existing Conditions

#	Intersection	Traffic Control[2]	Peak Hour	LOS[3]	Delay[4]
14	Alamo Drive/ I-80 EB On-Ramp	Signal	AM	A	7.5
			PM	A	3.8
15	Alamo Drive/ Merchant Street	Signal	AM	D	38.9
			PM	C	28.2
16	Elmira Road/ North-South Arterial[1]	Does not Exist	AM	–	–
			PM	–	–
17	Elmira Road/ Nut Tree Road	Signal	AM	C	33.9
			PM	D	42.1
18	Water Street/ A Street	AWSC	AM	A (A)	6.9 (7.5)
			PM	A (A)	7.8 (8.4)
19	Alamo Drive–Fry Road / A-Meridian	AWSC	AM	A (B)	9.6 (10.3)
			PM	B (B)	10.6 (11.6)

Source: Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable.
1 Intersection does not exist under existing conditions, therefore intersection operations were omitted
2 Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection
3 LOS = Level of Service; Parentheses denote the intersection's critical movement LOS
4 Delay = average vehicle delay; delay reported in seconds. The results for unsignalized intersections are shown as the average for all movements and for the critical movement (e.g., A(B); 7.8(8.4)).

All intersections currently operate at the City's goal LOS C or better during both the weekday AM and PM peak hours, with the exception of the Leisure Town Road (Jepson Parkway) / Elmira Road (#6); Alamo Drive/ Merchant Street (#15); and, Elmira Road/ Nut Tree Road (#17), which operate at the City's standard LOS mid-D or better during one peak hour. While the average intersection delays at the two-way stop controlled intersections of Leisure Town Road (Jepson Parkway) / Ulatis Drive (#5) and Leisure Town Road (Jepson Parkway) / Marshall Road (#7) are consistent with LOS A, the critical stop-controlled movements operate at LOS F during the weekday AM and PM peak hours. However, the peak hour traffic signal warrant is not met at either location under existing conditions. Future improvements planned as part of the Jepson Parkway project include the installation of a traffic signal at Leisure Town Road (Jepson Parkway) / Ulatis Drive (#5). Signalization of Leisure Town Road (Jepson Parkway) / Marshall Road (#7) would be completed by the Parkway. The project would modify the intersection to provide the fourth leg of the intersection.



AM(PM) - Traffic Volume

STOP - All-Way Stop

- Stop Sign

- Traffic Signal

SOURCE: Kittelson & Associates, Inc. (2016)

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FIGURE 4.7-2

Existing Intersection Traffic Volumes & Geometry

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Road Segment Volumes

Peak hour road segment volumes were derived from the turning movement volumes at adjacent intersections. Volumes along these segments were compared to the thresholds listed in **Error! Reference source not found.** depending on the road facility type. **Error! Reference source not found.** shows the road segment analysis along the study segments.

The peak hour volumes on all but two of the study road segments are consistent with LOS C or better during the weekday AM and PM peak hours. None of the study road segments exceed LOS D under existing conditions. Leisure Town Road south of Vanden (#14) exceeds LOS D in the northbound direction during the weekday PM peak hour. The volumes are on Leisure Town Road from Ulatis Drive to Orange Drive (#19) are at LOS D levels in the northbound and southbound directions during the weekday AM and PM peak hours. The Jepsen Parkway project is slated to begin construction in 2017 and would widen these segments of Leisure Town Road from two to four lanes.

Table 4.7-7
Road Segment Level of Service – Existing Conditions

#	Road Segment	Volume Exceeds LOS C (Exceeds LOS D)			
		AM Peak Hour		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*
Alamo Drive – Fry Road					
1	W of Nut Tree	No (No)	No (No)	No (No)	No (No)
2	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)
3	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)
4	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)
5	East of N-S Arterial	No (No)	No (No)	No (No)	No (No)
Marshall Road					
6	W of Nut Tree	No (No)	No (No)	No (No)	No (No)
7	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)
8	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)
9	Leisure Town (Jepson) to N-S Arterial1	-	-	-	-
10	East of N-S Arterial1	-	-	-	-
Elmira Road					
11	Nut Tree to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)
12	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)
13	East of N-S Arterial	No (No)	No (No)	No (No)	No (No)
Leisure Town Road (Jepson Parkway)					
14	South of Vanden	No (No)	No (No)	No (No)	Yes (Yes)
15	Vanden to Alamo	No (No)	No (No)	No (No)	No (No)

Table 4.7-7
Road Segment Level of Service – Existing Conditions

#	Road Segment	Volume Exceeds LOS C (Exceeds LOS D)			
		AM Peak Hour		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*
16	Alamo to Marshall	No (No)	No (No)	No (No)	No (No)
17	Marshall to Elmira	No (No)	No (No)	No (No)	No (No)
18	Elmira to Ulatis	No (No)	No (No)	No (No)	No (No)
19	Ulatis to Orange	No (No)	Yes (No)	Yes (No)	No (No)
20	I-80 Overcrossing	No (No)	No (No)	No (No)	No (No)
North-South Arterial[1]					
21	Elmira to Marshall	-	-	-	-
22	Marshall to Alamo-Fry	-	-	-	-
23	Alamo-Fry to Leisure Town (Jepson)	-	-	-	-

Source: Vacaville Land Use and Development Code: Chapter 14.13, 2015. Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable. NB/EB = northbound/eastbound; SB/WB = southbound/westbound; Shading in cells means exceeds threshold.
[1] Intersection does not exist under existing conditions, therefore intersection operations were omitted;

Freeway Mainline Segment Operations

Freeway mainline volumes were compiled from data obtained from the California Department of Transportation Performance Enhancement Measurement System (PeMS) database. Historical data was used where current data was lacking for the analysis segment. In the event of a detector being available adjacent to a ramp, ramp and mainline volumes were added together for the analysis of that particular segment direction.

Error! Reference source not found. shows the freeway segment analysis at selected study locations along I-80 at the east and west end of the study area. As shown in **Error! Reference source not found.**, all of the study freeway mainline segments operate at LOS D or better during the weekday AM and PM peak hours.

Table 4.7-8
Freeway Mainline Segment Level of Service – Existing Conditions

Freeway Mainline Segment / Direction	AM Peak Hour		PM Peak Hour	
	Density	*LOS*	*Density*	*LOS*
I-80 West of Lagoon Valley Road				
Eastbound	18.5	C	16.7	B
Westbound	30.0	D	21.4	C

Table 4.7-8
Freeway Mainline Segment Level of Service – Existing Conditions

Freeway Mainline Segment / Direction	AM Peak Hour		PM Peak Hour	
	Density	*LOS*	*Density*	*LOS*
I-80 West of Alamo Drive				
Eastbound	18.7	C	22.2	C
Westbound	31.5	D	22.4	C
I-80 East of Leisure Town Road				
Eastbound	19.6	C	21.0	C
Westbound	24.8	C	20.3	C
I-80 East of Midway Road				
Eastbound	19.0	C	23.7	C
Westbound	24.9	C	20.9	C

Source: Performance Enhancement Measurement System (PeMS), 2016. Kittelson & Associates, Inc. 2016.
Notes: Density = passenger cars per mile per lane; LOS = Level of Service

Existing Transit

Bus service in the City of Vacaville is provided by Vacaville City Coach, Fairfield and Suisun Transit (FAST), and YOLOBUS (**Error! Reference source not found.**). Vacaville City Coach offers six local fixed-route services to or from the Vacaville Transportation Center located on Allison Drive at Travis Way. The Transportation Center also serves as a transfer point for intercity routes operated by Fairfield and Suisun Transit. The Vacaville Regional Transportation Center, located at the corner of Davis Street and Hickory Lane, is another key intercity transit hub, with two nearby park and ride lots along Davis Street on either side of I-80.

In addition to the fixed-route service, City Coach Special Services provides Americans with Disabilities Act (ADA) paratransit service to eligible residents within Vacaville. Trips beyond the city limits of Vacaville may be specially arranged with City Coach. The existing transit network is shown in Figure 4.7-3.

Fairfield and Suisun Transit (FAST) offers three intercity routes through Vacaville, primarily to serve weekday commuters. YOLOBUS offers one fixed bus route between Vacaville and Davis via Interstate 505 and Winters that provides three daily trips in each direction from Monday to Saturday.

The project site is not currently directly served by any public transit service. The nearest bus stop for City Coach's Route 8 is located on Vanden Road south of Marshall Road, which is about two-thirds of a mile from the proposed project access on Leisure Town Road at Marshall Road. City

Coach Route 8 operates between the Transportation Center and the Transit Plaza via Elmira Road, Peabody Road, Youngsdale Drive, Vanden Road, and Davis Street. Hours of operation are between 6:00 AM and 7:00 PM on weekdays and 8:00 AM and 6:00 PM on Saturday.

Existing Bicycle Facilities

The City currently classifies bikeways into three categories: bike path (Class I), bike lane (Class II), and bike route (Class III). Bike paths meet the state requirements for Class I shared-use paths. These paths are dedicated off-street public paths designed and constructed for both bicycle and pedestrian traffic. In the project vicinity, Alamo Creek Bikeway is a bike path along Alamo Creek between Marshall Road and Leisure Town Road. Bike lanes meet the State requirements for striped on-street Class II bike lanes. These lanes are marked exclusively for bike travel on roadways. Bike lanes are provided between Leisure Town Road and just east of Nut Tree Road in the vicinity of the project. Bike routes meet the State requirements for Class III on-street bike routes. On-street bike routes, which must be signed or marked, bicycle riders must share the roadway with vehicles. The City's existing bicycle network is shown in Figure 4.7-4.

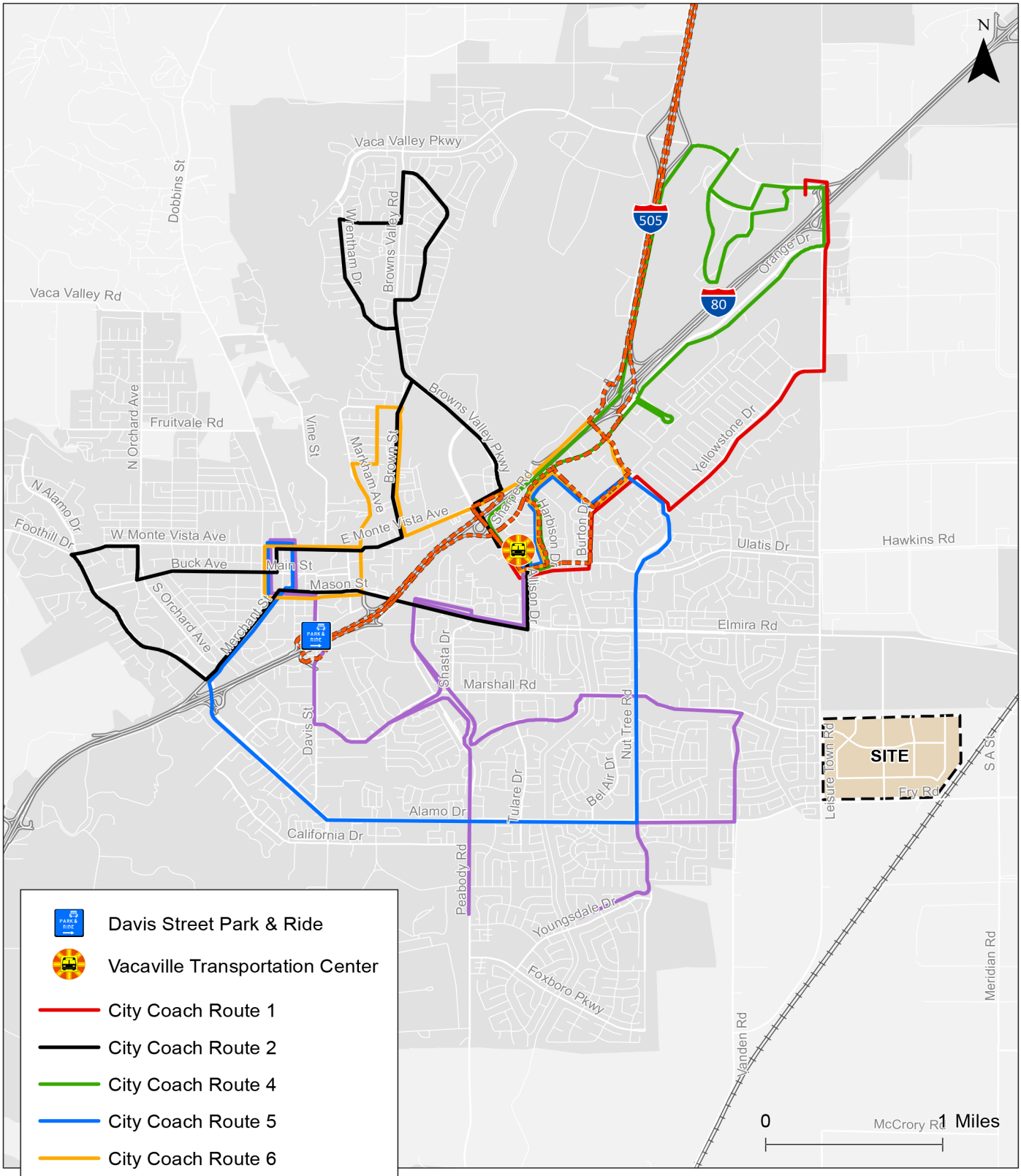
There are no existing on-street bike routes in the project vicinity. However, several facilities are planned in the study area, including the Elmira Road Bike Path, Ulatis Creek Bike Path, and Jepson Parkway Bike Path.

Existing Pedestrian Facilities

In Vacaville, sidewalks with raised curb and gutter are typically provided along arterials and collectors, as well as in newer residential developments. Existing pedestrian facilities in the project vicinity are limited because this area is currently at the urban fringe. Sidewalks are provided only on the west side of Leisure Town Road and on the south side of Elmira Road west of Leisure Town Road. There is no sidewalk or paved shoulder on Elmira Road east of Leisure Town Road. At the signalized intersection of Leisure Town Road (Jepson Parkway) / Elmira Road (#6), pedestrian signal heads are provided as well as marked crosswalks on the north and west legs of the intersection.

Planned Transportation Improvements

The planned transportation improvement most relevant to the proposed project is the Jepson Parkway Road Widening Project.



SOURCE: Kittelson & Associates, Inc. (2016)

FIGURE 4.7-3
Existing Transit Service

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Roberts' Ranch Specific Plan EIR

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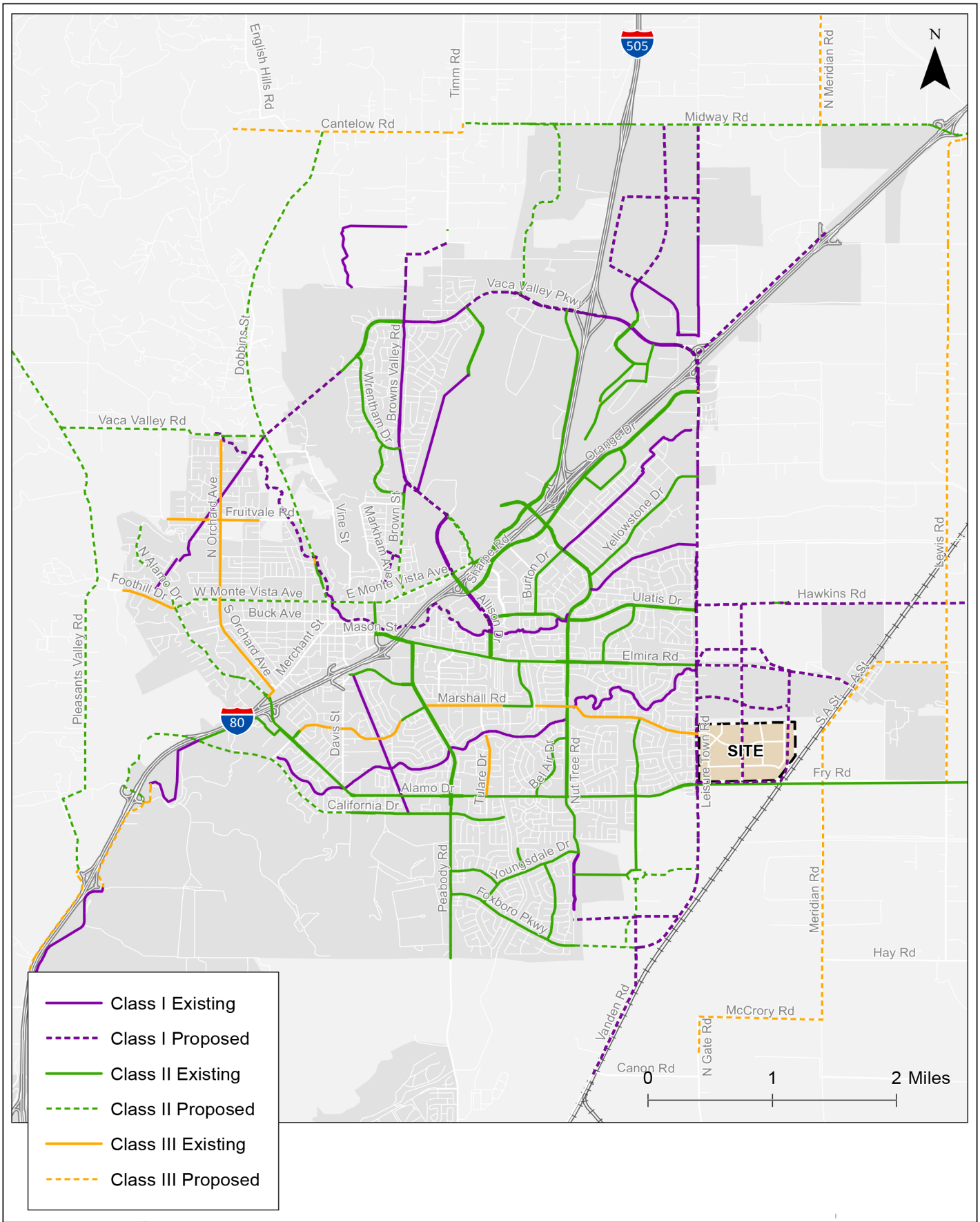

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SOURCE: Kittelson & Associates, Inc. (2016)

FIGURE 4.7-4

Existing Bicycle Facilities

Roberts' Ranch Specific Plan EIR

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Jepson Parkway Road Widening Project

Jepson Parkway is planned as a four-lane road connecting State Route 12 in Fairfield/Suisun City with I-80 in Vacaville. The alignment would include portions of the current alignments of Peabody Road, Vanden Road and Leisure Town Road. The Jepson Parkway Concept Plan provides design guidelines and requirements for each segment of the Parkway. The full project is not funded for implementation.

The City of Vacaville has completed design of an initial phase of Jepson Parkway between Vanden Road just south of the intersection with Leisure Town Road and Leisure Town Road just north of the intersection with Elmira Road. Funding is committed for this phase and the anticipated start of construction is in the spring of 2017. The construction is expected to take two years. The Jepson Parkway Road Widening Project would include an off-street bicycle and pedestrian path on the west side of the roadway.

4.7.3 Regulatory Setting

Existing transportation policies, plans, laws and regulations that apply to the proposed project are summarized below. This information provides a context for the impact discussion related to the project's consistency with applicable regulatory conditions.

Federal Regulations

Federal Highway Administration

The Federal Highway Administration (FHWA) is the agency of the United States Department of Transportation (DOT) responsible for the federally funded roadway system, including the interstate highway network and portions of the primary State highway network, such as I-80. FHWA funding is provided through the Moving Ahead for Progress in the 21st Century (MAP-21). MAP-21 can be used to fund local transportation improvements in Vacaville, such as projects to improve the efficiency of existing roads, traffic signal coordination, bikeways, and transit system upgrades.

Americans with Disabilities Act

The Americans with Disabilities Act (ADA) of 1990 provides comprehensive rights and protections to individuals with disabilities. The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency. To implement this goal, the United States Access Board has created accessibility guidelines for public rights-of-way. The guidelines address various issues, including roadway design practices, slope and terrain issues, and pedestrian access to streets, sidewalks, curb ramps, street furnishings,

pedestrian signals, parking, and other components of public rights-of-way. The guidelines would apply to proposed roadways in the project area.

State Regulations

California Department of Transportation

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. One of its duties is the construction and maintenance of the State highway system. Caltrans has established standards for roadway traffic flow and developed procedures to determine if State-controlled facilities require improvements. For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken. For projects that would not physically affect facilities, but may influence traffic flow and levels of services at such facilities, Caltrans may recommend measures to mitigate the traffic impacts of such projects. Caltrans facilities within the Vacaville study area include I-80 and I-505, as well as the on- and off-ramps from these State facilities.

The following Caltrans procedures and directives are relevant to the project:

- **Level of Service Target.** Caltrans maintains a minimum level of service at the transition between LOS C and LOS D for all of its facilities.[1] Where an existing facility is operating at less than the LOS C/D threshold, the existing measure of effectiveness should be maintained.[2]
- **Environmental Assessment Review and Comment.** Caltrans, as a responsible agency under the California Environmental Quality Act (CEQA), is available for early consultation on projects to provide guidance on applicable transportation analysis methodologies or other transportation related issues, and is responsible for reviewing traffic impact studies for errors and omissions pertaining to the State highway facilities. In relation to this role, Caltrans published the Guide for the Preparation of Traffic Impact Studies (December 2002), which establishes the Measures of Effectiveness as described under “Level of Service Target” above. The Measures of Effectiveness are used to determine significant impacts on State facilities. The Guide also mandates that traffic analyses include mitigation measures to lessen potential project impacts on State facilities and to meet each project’s fair share responsibility for the impacts. However, the ultimate mitigation measures and their implementations are to be determined based on consultation between Caltrans, the City of Vacaville, and the project proponent.

[1] Level of service is explained further in Section 0.
[2] California Department of Transportation, 2002. Guide for the Preparation of Traffic Impact Studies.

Regional Regulations

Metropolitan Transportation Commission

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Solano County. It also functions as the federally mandated metropolitan planning organization (MPO) for the region. MTC authored the current regional transportation plan known as *Transportation 2035* that was adopted on April 22, 2009. *Transportation 2035* specifies a detailed set of investments and strategies throughout the region from 2010 through 2035 to maintain, manage, and improve the surface transportation system, specifying how anticipated federal, State, and local transportation funds will be spent. The projects included in the 2035 Plan that would most directly affect the proposed project are:

- Construction of a new Fairfield/Vacaville Multi-Modal Train Station at the southeast corner of Peabody Road and Vanden Road in northeast Fairfield for Capitol Corridor intercity rail service.
- Construction of Jepson Parkway from State Route 12 to I-80 at the Leisure Town Road Interchange. In Vacaville, Jepson Parkway will follow the Leisure Town Road alignment along the western border of the Brighton Landing Specific Plan area.

Solano Transportation Authority

The Solano Transportation Authority (STA) has been designated as the Congestion Management Agency to address congestion issues in Solano County and the seven cities within the county, including Vacaville. It is responsible for countywide transportation planning, programming transportation funds, managing and providing transportation programs and services, delivering transportation projects, and setting transportation priorities. The STA Board of Directors adopted the Solano County Comprehensive Transportation Plan (CTP 2030)[3] in June 2005. The Plan envisions, directs, and prioritizes the transportation needs of Solano County through 2030.

As the designated Congestion Management Agency, STA worked with jurisdictions within the county, including Vacaville, to identify locations where periodic congestion monitoring would occur as required by the State's CMP legislation. Level of service standards are established for segments of the CMP roadway system that connect communities with each other and with the State highway system.

[3] Solano Transportation Authority, *Solano Comprehensive Transportation Plan,* adopted June 8, 2005.

Local Regulations

Vacaville General Plan

The City of Vacaville's General Plan contains guiding and implementing policies that are relevant to transportation and circulation in the study area. These guiding and implementing policies are listed below.

Through the General Plan update and adoption process in 2015, the City assessed the operational analysis methodology in the Transportation Research Board's Highway Capacity Manual as an alternative to the Circular 212 Planning Method that the City previously used to perform intersection level of service.

Policy TR-P1.3 Continue to coordinate and support regional efforts to construct Jepson Parkway in accordance with the Jepson Parkway Concept Plan (2000), or subsequent updates to the Plan for Jepson Parkway.

Policy TR-P2.1 Work with the California Department of Transportation (Caltrans) and Solano Transportation Authority (STA) to achieve timely construction of programmed freeway and interchange improvements.

Policy TR-P2.3 Encourage Caltrans to widen and upgrade Interstate 80 through Vacaville. In new development areas adjoining Interstate 80 and Interstate 505, require major building setbacks and offers-of-dedication to permit the long-term planning and widening of the freeways.

Policy TR-P3.1 Strive to maintain LOS C as the LOS goal at all intersections and interchanges to facilitate the safe and efficient movement of people, goods, and services. Design improvements to provide LOS C conditions based on the City's most recent 20+ year traffic forecast. At unsignalized intersections, maintain an overall LOS C standard with the worst approach to the intersection not exceeding LOS D.

Policy TR-P3.2 At signalized and all-way stop control intersections, LOS mid-D shall be the LOS significance threshold. At two-way stop control intersections, LOS mid-E shall be the LOS significance threshold on the worst approach.

Policy TR-P3.3 To allow for infill development and higher density development at transit centers, the LOS significance threshold shall be LOS D at signalized and all-way stop control intersections in the Downtown Urban High Density Residential Overlay District or other Priority Development Areas (PDA)

designated by the City. At two-way stop controlled intersections in these areas, the overall LOS significance threshold shall be LOS mid-E with the worst approach not exceeding LOS E.

Policy TR-P3.4 The City may allow LOS above the established LOS significance thresholds for a particular location as an interim level of service where improvements are programmed by the City that will improve the service to an acceptable level.

Policy TR-P3.5 The City may allow LOS above the established LOS significance thresholds for a particular location on the basis of specific findings described in Chapter 14.13 of the Vacaville Land Use and Development Code, Traffic Impact Mitigation Ordinance.

Policy TR-P3.7 Roadway improvements implemented by the City using the Development Impact Fee Program or other funding sources shall be designed based on the level of service standards prescribed in Policies TR-P3.1 and TR-P3.3.

Policy TR-P3.8 Require roadway improvements implemented by development projects to be designed based on the level of service standards prescribed in Policies TR-P3.2 and TR-P3.3.

Policy TR-P4.1 Evaluate development proposals based on the level of service standards prescribed in Policies TR-3.1 through TR-3.5.

Policy TR-P4.2 As part of development approvals, require reasonable demonstration that traffic improvements necessary to mitigate development in accordance with Policies TR-3.1 through TR-3.3 will be in place in time to accommodate trips generated by the project, or satisfy findings identified in Policies TR-3.4 and TR-3.5.

Policy TR-P4.3 In order to ensure that adequate roadway capacity is provided for the buildout of the General Plan and that new development does not preclude the construction of adequate circulation facilities, require all new development to provide right-of-way dedications consistent with this Transportation Element (Figure TR-6).

Policy TR-P4.4 When reviewing development proposals, consider Year 2035 projections for fair share contributions to transportation improvements (as shown in Figure TR-5) and full buildout projections (beyond Year 2035) for dedication of right of way for future road improvements (as shown in Figure TR-6).

Policy TR-P4.5 For locations where the LOS would exceed thresholds described in Policies TR-P3.2 and TR-P3.3 without the addition of traffic from a proposed

development, the City may establish impact and mitigation criteria based on the incremental traffic contribution from the proposed development as described in Chapter 14.13 of the Land Use and Development Code (Traffic Impact Mitigation Ordinance).

Policy TR-P5.1 Design intersections on arterial roadways to meet level of service standards and to avoid traffic diversion to local roadways or the freeway.

Policy TR-P5.2 Locate high traffic generating uses so that they have direct access or immediate secondary access to arterial roadways, while balancing the need to control the number of driveways that enter arterial roadways.

Policy TR-P6.3 Consider traffic calming measures consistent with the City's traffic calming policies and approved by the City as part of development proposals in an effort to lower vehicle speeds and enhance mobility for bicyclists and pedestrians.

Policy TR-P6.4 Review phased developments for the potential for contributing to, or creating routes for, cut-through traffic, and establish conditions of approval as needed to limit the potential for cut-through traffic on residential roadways.

Policy TR-P7.3 Require that new development applications include transit amenities, such as bus stops, bus bays, transit shelters, benches, and on-site drop-off locations, as appropriate, or explain why these features are infeasible or unnecessary.

Policy TR-P7.4 Require that new development applications design roadway networks to accommodate transit vehicles and facilitate efficient transit routes.

Policy TR-P7.6 Require that new development applications design roadway networks to accommodate on-street bicycle lanes, and only allow bicycle routes with sharrows when on-street bicycle lanes are impractical or infeasible.

Policy TR-P7.7 Require that new roadway networks be designed as a grid pattern to reduce circuitous travel patterns and improve access and circulation for all modes.

Policy TR-P7.8 Prioritize transportation improvements that support and enhance travel by transit, bicycle, and pedestrian modes to and from designated Priority Development Areas (PDA).

Policy TR-P8.4 Require that new development applications include bike paths or bike lanes, when appropriate.

Policy TR-P8.5 Enhance and improve bicycle connections between neighborhoods and between neighborhoods and significant destinations, such as parks, schools, transit stops and transit centers, shopping centers, and employment centers.

Policy TR-P8.9 Require that new multi-family and non-residential developments provide adequate public and private bicycle parking and storage facilities.

Policy TR-P10.1 Cooperate with public agencies and other entities to promote local and regional public transit serving Vacaville.

Policy TR-P11.4 Continue to work with Caltrans and the Solano Transportation Authority (STA) to identify and evaluate sites for parking to connect with transit and support rideshare parking, and establish standards for the development of parking sites for rideshare and transit users.

Policy TR-P11.5 Support and encourage Caltrans to preserve options for future transit use when designing improvements for Interstate and State highways.

Policy TR-P11.7 Require specific plans in new growth areas to include planning for future public transit service to these areas by considering the addition of future transit stops and route connections as part of the public transportation system.

Vacaville Municipal Code

The City's Municipal Code includes regulations that govern the transportation system. The Land Use and Development Code, and the Traffic Impact Mitigation Ordinance are of particular relevance to the project. The Land Use and Development Code identifies off-street parking requirements for each type of land use and provides development standards for emergency vehicle and fire apparatus access to residential projects. The Traffic Impact Mitigation Ordinance establishes a procedure to assess and mitigate the potential impacts of proposed development projects on the transportation system.

The Traffic Impact Mitigation Ordinance establishes traffic impact standards, which specifically allow City decision-makers to allow and accept LOS D without mitigation improvements. This standard is more lenient than that indicated in the General Plan, which establishes mid-LOS D using delay-based HCM methodology as the minimum standard of LOS for all intersections, road links, and interchanges. The Traffic Impact Mitigation Ordinance also provides for LOS E and LOS F approval under defined circumstances.

The City's Traffic Impact Mitigation Ordinance requires traffic studies for development projects found to meet the trip generation thresholds established in the ordinance. Traffic studies are

required to include traffic analysis for three conditions: Existing Conditions, Existing Conditions plus Projects that have been approved (Existing plus Approved Projects) and a 20- to 25-year projection. Transportation improvements required to mitigate impacts are based on results of this analysis. Right of way dedication is required for roadway improvements identified in the current General Plan to accommodate traffic conditions associated with buildout of all allowable land uses. Conditions of approval for development projects involving transportation improvements are based on short term impacts (Existing plus Approved Projects) and the 20-year projections.

4.7.4 Impacts

Methods of Analysis

The Vacaville traffic model was used to estimate the traffic growth increment resulting from the project. This growth was applied to the existing traffic counts to develop the volumes for Existing plus Project scenario.

Trip Generation

The trip generation for the proposed project is presented in Table 4.7-9. Trip generation rates for the proposed residential land use were obtained from the Institute of Transportation Engineer's (ITE) *Trip Generation*, 9th edition (2012), using the Single-Family Residential land use category (210). Trips to the proposed stroller parks and open space within the plan area are assumed to be either walk, bike or internal auto trips and would not add vehicle trips to the external road network. The proposed project would generate 589 weekday AM and 785 weekday PM peak hour vehicle trips.

Table 4.7-9
Vehicle Trip Generation

Land Use	ITE Code	Size	ITE Rate		Trips	
			AM	*PM*	*AM*	*PM*
Single-Family Residential	210	785 Dwelling Units	0.75	1.00	589	785
Project Vehicle Trips					**589**	**785**

Source: Kittelson & Associates, Inc. 2016.

Vehicle Trip Distribution and Assignment

The project-generated vehicle trips were distributed and assigned to the road network by the citywide traffic model. The model's distribution patterns for the project trips are summarized in Table 4.7-10 and Figure 4.7-5. The project only trips are illustrated in Figure 4.7-6.

Table 4.7-10
Project Vehicle Trip Distribution

Origin/Destination	Distribution Percent	
	AM Peak Hour	*PM Peak Hour*
Leisure Town Road, to the north	28%	23%
Leisure Town Road, to the south	6%	6%
Elmira Road, to the west	29%	27%
Marshall Road, to the west	15%	6%
Alamo Drive, to the west	17%	33%
Alamo-Fry Road, to the east	5%	5%
Total	**100%**	**100%**
Freeway Trips		
I-80 West of Alamo Drive	20%	14%
I-80 East of Leisure Town	13%	8%

Source: Kittelson & Associates, Inc. 2016. Vacaville Traffic Model.

Cumulative Impacts

The future traffic was evaluated through a process that involved vehicle trip generation, trip distribution, and assignment of the trips to the road network using the City's traffic model.

Traffic Volume Forecasts

Traffic volume forecasts are derived from the Vacaville citywide traffic model. The inputs to the model are land uses and road network assumptions throughout the city. The version of the model is the same that was used for the current General Plan EIR (2015), with specific updates to reflect the latest development projections from the City and representation of the proposed Roberts Ranch Specific Plan.

Land Use Forecasts

Land use forecasts for the Approved and 2035 Cumulative scenarios were derived from a parcel-based land use database maintained by the City of Vacaville, linked to a geographic information system (GIS). Parcels labeled as likely to develop under the Approved or 2035 Cumulative scenarios were tabulated for each geographic area (transportation analysis zone or TAZ) used in the traffic model. Residential uses were tabulated by numbers of single-family or multi-family units, Non-residential uses are tabulated by the number of developed acres.

Transportation Network

The existing transportation network is assumed for the Existing plus Approved scenario.

The following changes to the transportation network are assumed for cumulative conditions:

- Vaca Valley Road/I-505 interchange and overcrossing improvements.
- California Drive overcrossing.
- Jepson Parkway project, which would improve Leisure Town Road to a four-lane divided arterial from Route 12 to I-80 at the Leisure Town Road interchange. In Vacaville, Jepson Parkway will follow the Leisure Town Road alignment along the western border of the Specific Plan area.
- Signalization and realignment of the Leisure Town Road/Ulatis Drive and Leisure Town Road/Hawkins Road intersections
- Signalization of the Leisure Town Road/Marshall Road intersection.
- Widening of Fry Road to a four-lane arterial east of Leisure Town Road
- Widening of Peabody Road to a four-lane arterial between the Vacaville City Limits and Markley Lane.

The following bicycle facilities are planned in the study area:

- **Elmira Road Bike Path.** A Class I bike path would be built along the old Southern Pacific Railroad right-of-way on the north side of Elmira Road between Leisure Town Road and Edwin Drive.
- **Ulatis Creek Bike Path.** A Class II bike lane and Class I bike path along Ulatis Creek between Ulatis Drive and Leisure Town Road would be completed by the summer of 2012.
- **Jepson Parkway Bike Path.** A Class I bike path would be provided as a part of the Jepson Parkway improvements from I-80 along Leisure Town Road and Vanden Road to Fairfield.

SOURCE: Kittelson & Associates, Inc. (2016)

FIGURE 4.7-5

Project Vehicle Trip Distribution

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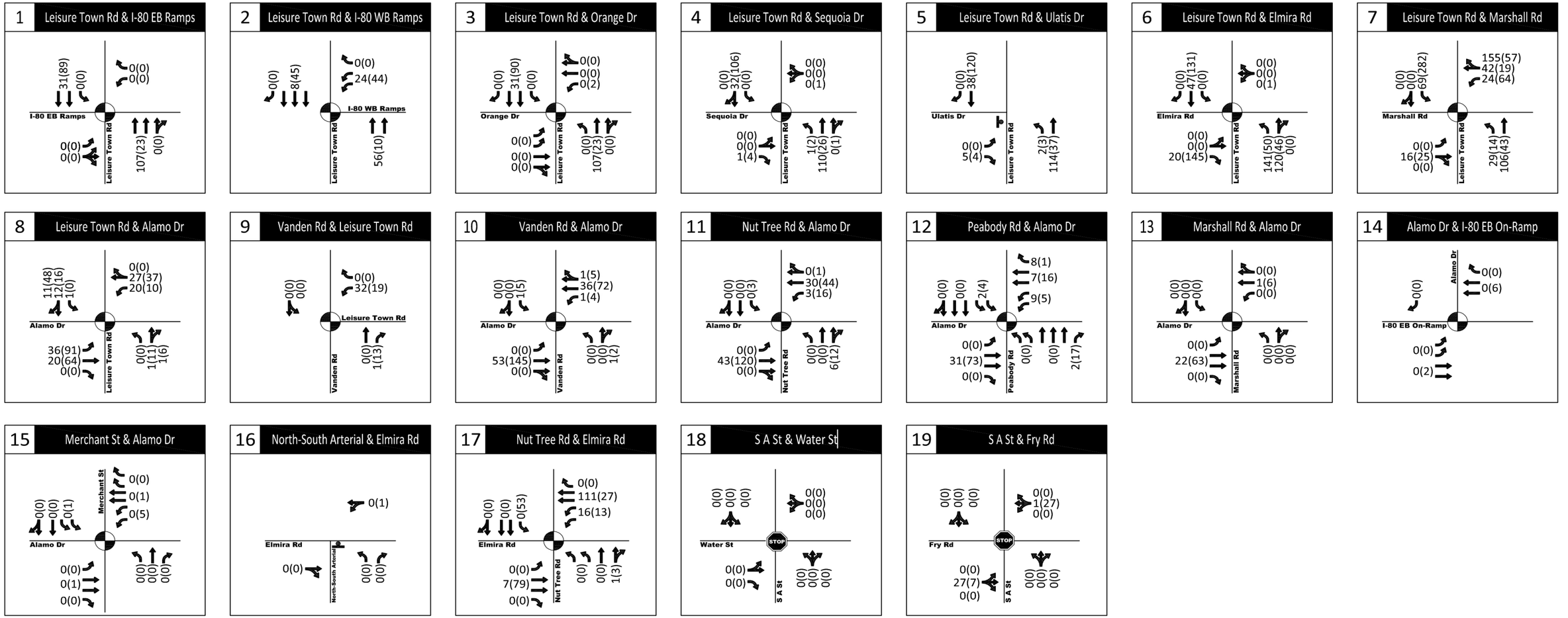

AM(PM) - Traffic Volume

STOP - All-Way Stop

- Stop Sign

- Traffic Signal

SOURCE: Kittelson & Associates, Inc. (2016)

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FIGURE 4.7-6

Project Only Traffic Volumes & Geometry

Roberts' Ranch Specific Plan EIR

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The following transit facilities are planned in the study area:

- **Commuter Rail Station.** Construction of a new Fairfield/Vacaville Multi-Modal Train Station at the southeast corner of Peabody Road and Vanden Road in northeast Fairfield for Capitol Corridor intercity rail service. The Fairfield/Vacaville Multi-Modal Rail Station would further enhance regional transit connections.

Issues Addressed in the Modified Initial Study

As discussed in the Modified Initial Study (see Appendix B), the project would not result in a change in air traffic patterns that could contribute to a safety risk, nor does the project include any design hazards or would introduce any incompatible uses. If additional development is proposed in the project site, additional project-level site plans would be reviewed by the City as a part of the entitlement process. The City would require project improvement plans to include safety elements such as school advanced warning signs and school crosswalk markings, per standard City practices. All designs would conform to the City's Design Standards and Standard Drawings unless exceptions are approved by the City. Therefore, these issues are not addressed further in the EIR.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the Vacaville General Plan, and professional judgment, a significant impact with respect to transportation and circulation would occur if development of the proposed project would do any of the following:

Intersections in Vacaville

- Cause a signalized or all-way stop controlled intersection outside of the Downtown Urban High Density Residential Overlay District4 to operate below LOS mid-D (average delay of 45 seconds or more for signalized, and 30 seconds or more for all-way stop).
- Cause the worst approach at a one/two-way stop controlled intersection outside of the Downtown Urban High Density Residential Overlay District to operate below LOS mid-E on the worst approach (average delay 45 seconds or more), or conflict with City policy to design intersections to provide for LOS D on the worst approach in the horizon year development forecast.
- Cause a signalized intersection or all-way stop controlled intersection in the Downtown Urban High Density Residential Overlay District to operate below LOS D (an average delay of 55 seconds or more for signalized and 35 seconds or more for all-way stop).

[4] The Downtown Urban High Density Residential Overlay District is roughly defined by West Street to the west, E. Monte Vista Avenue/E. Deodara Street to the north, Depot Street to the east, and Mason Street/Stevenson Street to the south.

- Cause a one/two-way stop controlled intersection in the Downtown Urban High Density Residential Overlay District to operate below LOS mid-E (an average delay of 45 seconds or more), or the worst approach to the intersection to operate below LOS E (an average delay of 50 seconds or more).
- Cause the volume-to-capacity ratio to increase by 0.02 or more at a signalized intersection or road segment operating at an unacceptable service level without the project.
- Cause the average delay to increase by 5 seconds or more at an unsignalized intersection operating at an unacceptable service level without the project.[5]

Road Segments in Vacaville

- Cause peak hour traffic volumes to exceed LOS C thresholds.[6]

For intersections and road segments on the Solano County Congestion Management System:

- Cause an intersection to degrade to below LOS C except where the existing level of service is below LOS C; at which point the project should not decrease the existing level of service.

Conflicts with Congestion Management Programs

According to Section III, CMP System Performance Element, of the Solano County Congestion Management Program, a project impact is considered significant if the project-generated traffic would:

- Cause the following road segments to degrade below LOS E:
    - Interstate 80 (I-80) between Post Mile 23.03 (Pena Adobe Road) and 24.08 (Alamo Drive). All other adjacent segments of I-80 have a CMP LOS standard of LOS F, including I-80 west of Pena Adobe Road to SR 12 West in Fairfield, and I-80 east of Alamo Drive to SR 113 South in Dixon.
    - I-505 between I-80 and the county line.
    - Elmira Road between Leisure Town Road and the Vacaville city limits.
    - Peabody Road between California Drive and Fairfield city limits.
    - Vaca Valley Parkway between I-80 and I-505.
- Cause the following road segments to degrade below LOS D:
    - Vanden Road between Peabody Road and Leisure Town Road.

[5] Due to normal fluctuation in daily traffic counts and motorists perceptions of traffic conditions, a change in v/c of less than 0.02 and in average delay by less than 5 seconds was considered to be imperceptible.

[6] The current Vacaville General Plan does not include a level of service threshold for local road segments. The LOS C threshold is consistent with prior transportation impact analysis studies in Vacaville.

For the purposes of this EIR, the City of Vacaville considers the project impact to be significant if the project-generated traffic would cause any intersection or road segment on the Congestion Management System to degrade from LOS E or better to LOS F, even if the CMP LOS standard for that segment is LOS F. This standard is more stringent than the LOS standards established by the CMP.

Result in Inadequate Emergency Access

- Would the project result in inadequate emergency access.

Conflicts with Transit, Bicycle or Pedestrian Transportation

- Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impacts and Mitigation Measures

4.7-1: Implementation of the proposed project would degrade operations at one study intersection. This is considered a significant impact.

Intersection operations were assessed for Existing plus Project conditions and compared to existing conditions. Under existing conditions all intersections operate at the City's standard LOS mid-D or better during the weekday AM and PM peak hours.

Weekday AM and PM peak hour intersection volumes for Existing plus Project conditions are illustrated in Figure 4.7-7 and intersection operations are summarized in Table 4.7-11.

With Existing plus Project traffic volumes, the intersection of Leisure Town Road (Jepson Parkway) and Elmira Road (#6) would operate above LOS mid-D with average delay greater than 45 seconds in the weekday AM peak hour. This is a **significant impact.**

Mitigation Measures

Implementation of Mitigation Measure TRAFF-1 would improve the intersection operations to LOS D or better during the AM and PM peak hours. This section of the Jepson Parkway Improvement Project is funded and programmed for construction, ensuring future implementation. With mitigation, this intersection would operate above the City of Vacaville LOS standards and the project impact would be less than significant.

TRAFF-1 At the Leisure Town Road (Jepson Parkway) / Elmira Road intersection (#6), the Project shall install the following improvements or pay in-lieu traffic fees to the City.

- Widen the north leg to provide one additional through lane; this includes widening the north leg of the intersection to accommodate the second northbound through receiving lane.

This mitigation is consistent with the City's Jepson Parkway Road Widening Project which will begin construction in 2017. At this intersection, the Jepson Parkway Project will provide:

- Northbound approach - two left-turn lanes, one through lane and one shared through-right turn lane
- Southbound approach - one left turn lane, two through lanes and one right-turn lane
- Eastbound approach - two left-turn lanes, one through lane and one right-turn lane
- Westbound approach - one left-turn lane, one through lane and one right-turn lane

Table 4.7-11
Intersection Operations –Existing plus Project

#	Intersection	Traffic Control[2]	Peak Hour	Existing		Existing plus Project	
				LOS[3]	*Delay*[4]	*LOS*[3]	*Delay*[4]
1	Leisure Town Road (Jepson Parkway) / I-80 EB Ramps	Signal	AM	C	22.2	C	31.5
			PM	B	19.9	C	21.2
2	Leisure Town Road (Jepson Parkway) / I-80 WB Ramps	Signal	AM	A	6.9	A	7.3
			PM	A	8.1	A	8.5
3	Leisure Town Road (Jepson Parkway) / Orange Drive	Signal	AM	B	18.8	B	17.9
			PM	B	19.4	B	19.8
4	Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street	Signal	AM	A	9.2	B	11.3
			PM	C	24.6	C	29.4
5	Leisure Town Road (Jepson Parkway) / Ulatis Drive	TWSC	AM	B (F)	13.1 (>50.0)	C (F)	20.5 (>50.0)
			PM	A (F)	5.0 (>50.0)	A (F)	7.5 (>50.0)

Table 4.7-11
Intersection Operations –Existing plus Project

#	Intersection	Traffic Control[2]	Peak Hour	Existing		Existing plus Project	
				LOS[3]	*Delay*[4]	*LOS*[3]	*Delay*[4]
6	Leisure Town Road (Jepson Parkway) / Elmira Road	Signal	AM	D	44.3	Mid-D	53.5
			PM	C	34.8	D	40.0
7	Leisure Town Road (Jepson Parkway) / Marshall Road	TWSC / Signal	AM	A (F)	6.9 (>50.0)	B	11.9
			PM	A (F)	3.6 (>50.0)	B	13.7
8	Leisure Town Road (Jepson Parkway) / Alamo Drive–Fry Road	Signal	AM	C	25.4	C	31.2
			PM	C	29.6	D	39.5
9	Leisure Town Road (Jepson Parkway) / Vanden-Foxboro Road	Signal	AM	A	8.4	A	9.0
			PM	A	6.6	A	6.9
10	Alamo Drive/ Vanden Road	Signal	AM	B	19.9	C	20.1
			PM	C	25.1	D	34.5
11	Alamo Drive/ Nut Tree Road	Signal	AM	C	28.5	C	28.8
			PM	C	34.2	C	34.5
12	Alamo Drive/ Peabody Road	Signal	AM	C	29.1	C	28.8
			PM	C	29.8	C	30.5
13	Alamo Drive/ Marshall Road	Signal	AM	C	28.3	C	31.3
			PM	C	28.2	C	31.1
14	Alamo Drive/ I-80 EB On-Ramp	Signal	AM	A	7.5	A	7.4
			PM	A	3.8	A	3.8
15	Alamo Drive/ Merchant Street	Signal	AM	D	38.9	D	39.0
			PM	C	28.2	C	28.6
16	Elmira Road/ North-South Arterial[1]	Does not Exist	AM	-	-	-	-
			PM	-	-	-	-
17	Elmira Road/ Nut Tree Road	Signal	AM	C	33.9	D	36.7
			PM	D	42.1	D	44.8

Table 4.7-11
Intersection Operations –Existing plus Project

#	Intersection	Traffic Control[2]	Peak Hour	Existing		Existing plus Project	
				LOS[3]	*Delay*[4]	*LOS*[3]	*Delay*[4]
18	Water Street/ A Street	AWSC	AM	A (A)	6.9 (7.5)	A (A)	6.9 (7.5)
			PM	A (A)	7.8 (8.4)	A (A)	7.8 (8.4)
19	Alamo Drive–Fry Road / A-Meridian	AWSC	AM	A (B)	9.6 (10.3)	A (B)	9.8 (10.4)
			PM	B (B)	10.6 (11.6)	B (B)	10.9 (12.0)

Source: Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable.
1 Intersection does not exist under existing conditions, therefore intersection operations were omitted.
2 Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection. The Leisure Town Road / Elmira Road intersection would be signalized with the project.
3 LOS = Level of Service; Parentheses denote the intersection's critical movement LOS.
4 Delay = Average vehicle delay reported in seconds per vehicle. Delays beyond 50 seconds are reported as ">50.0" at unsignalized locations.

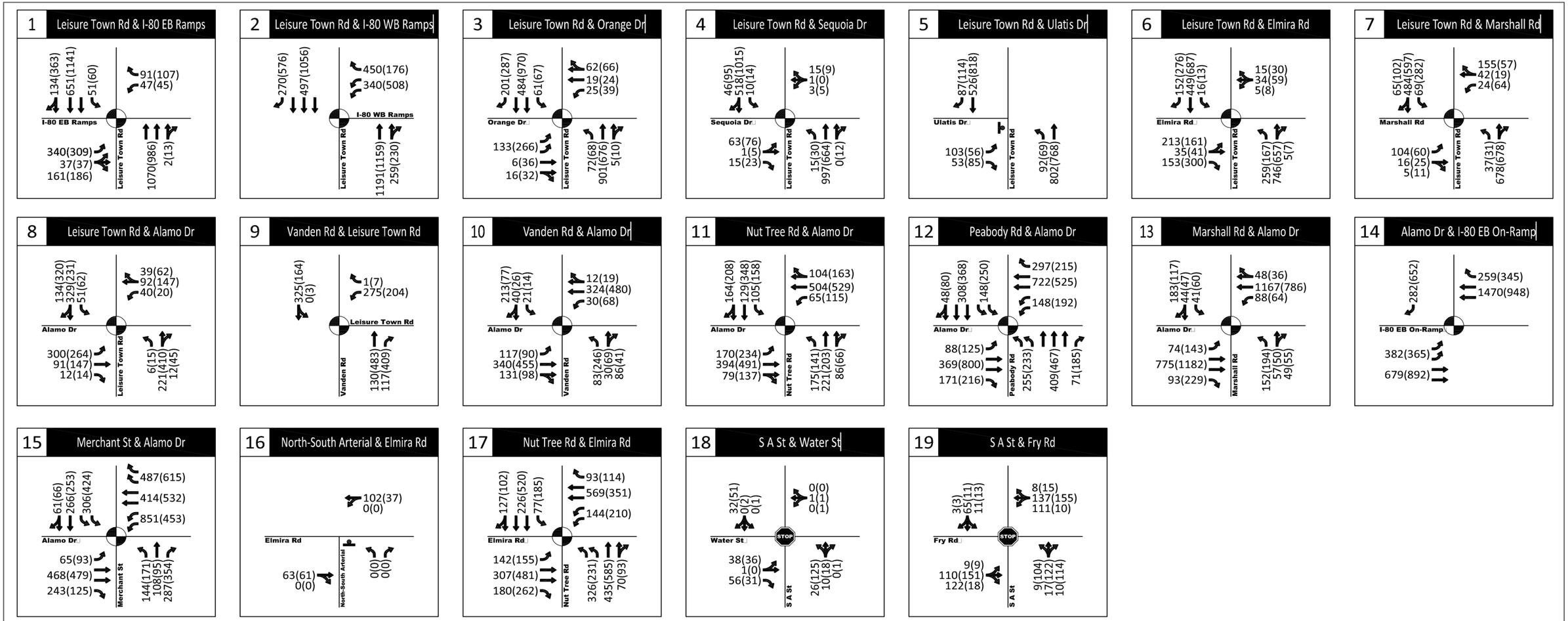
Table 4.7-12
Road Segment Level of Service Thresholds –Existing plus Project

#	Road Segment	Existing				Existing plus Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*
Alamo Drive – Fry Road									
1	W of Nut Tree	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
2	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
3	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
4	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
5	East of N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Marshall Road									
6	W of Nut Tree	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
7	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
8	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
9	Leisure Town (Jepson) to N-S Arterial1	-	-	-	-	No (No)	No (No)	No (No)	No (No)
10	East of N-S Arterial1	-	-	-	-	No (No)	No (No)	No (No)	No (No)
Elmira Road									
11	Nut Tree to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
12	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
13	East of N-S Arterial1	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Leisure Town Road (Jepson Parkway)									
14	South of Vanden	No (No)	No (No)	No (No)	Yes (Yes)	No (No)	No (No)	No (No)	Yes (Yes)
15	Vanden to Alamo	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
16	Alamo to Marshall	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
17	Marshall to Elmira	No (No)	No (No)	No (No)	No (No)	No (No)	Yes (No)	Yes (No)	No (No)

Table 4.7-12
Road Segment Level of Service Thresholds –Existing plus Project

#	Road Segment	Existing				Existing plus Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*
18	Elmira to Ulatis	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	Yes (No)	No (No)
19	Ulatis to Orange	No (No)	Yes (No)	Yes (No)	No (No)	No (No)	Yes (No)	Yes (No)	No (No)
20	I-80 Overcrossing	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
North-South Arterial[1]									
21	Elmira to Marshall2	-	-	-	-	-	-	-	-
22	Marshall to Alamo-Fry	-	-	-	-	No (No)	No (No)	No (No)	No (No)
23	Alamo-Fry to Leisure Town (Jepson)	-	-	-	-	No (No)	No (No)	No (No)	No (No)

Source: Vacaville Land Use and Development Code: Chapter 14.13, 2015. Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable. 1 Segment does not exist under existing conditions; 2Segment does not exist under existing + project conditions.
NB/EB = northbound/eastbound; SB/WB = southbound/westbound; Shading in cells means results exceed threshold



AM(PM) - Traffic Volume
- All-Way Stop
- Stop Sign
- Traffic Signal

SOURCE: Kittelson & Associates, Inc. (2016)

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FIGURE 4.7-7
Existing Plus Project Traffic Volumes & Geometry

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4.7-2: Implementation of the proposed project would increase traffic volumes above the LOS C threshold on two study road segments. This is considered a significant impact.

Road segment volumes were assessed for Existing plus Project conditions and compared to thresholds established by the City of Vacaville. Road segment volumes relative to level of service thresholds for Existing and Existing plus Project conditions are summarized in Table 4.7-12. There are two segments which exceed LOS C traffic volumes under existing conditions and would continue to have traffic volumes above LOS C thresholds with the addition of project traffic:

- Vanden Road south of Leisure Town Road (#14)
- Leisure Town Road between Ulatis and Orange (#19)

The addition of project traffic would cause two additional segments to exceed LOS C traffic volumes resulting in a **significant impact**.

- **Leisure Town Road (Jepson Parkway) between Marshall Road and Elmira Road (#17):** The addition of project traffic to existing traffic levels would cause the volumes to exceed the LOS C threshold in the northbound direction during the weekday AM peak hour and the southbound direction during the weekday PM peak hour.
- **Leisure Town Road (Jepson Parkway) between Elmira Road and Ulatis Road (#18):** The addition of project traffic to existing traffic levels would cause the volumes to exceed the LOS C threshold in the southbound direction during the weekday PM peak hour.

Mitigation Measures

Implementation of Mitigation Measure TRAFF-2a would allow the segment between Marshall Road and Elmira Road to operate at an acceptable LOS. The section between Marshall and Elmira is part of the Jepson Parkway Road Widening Project which is funded and currently being implemented. The impact on this segment would reduced to less than significant.

Implementation of Mitigation Measure TRAFF-2b would allow the segment between Elmira Road and Ulatis Road to operate at an acceptable LOS. However, the section between Elmira and Ulatis is not part of the currently funded Jepson Parkway Road Widening Project, and therefore right-of-way and funding cannot be ascertained. The impact would remain significant and unavoidable.

TRAFF-2a The project shall install the following improvements or pay in-lieu traffic fees to the City.

- Widen Leisure Town Road (Jepson Parkway) to two lanes in each direction between Marshall Road and Elmira Road.

This mitigation is consistent with the Jepson Parkway Road Widening Project which the City is currently implementing. The mitigation would increase the road capacity and allow the traffic volumes to be at LOS C or better during the AM and PM peak hours.

TRAFF-2b Widen Leisure Town Road (Jepson Parkway) to provide two lanes in the southbound direction between Ulatis Road and Elmira Road.

This mitigation is consistent with the ultimate configuration of the Jepson Parkway Concept Plan but is not part of the Jepson Parkway Road Widening Project which the City is currently implementing. The mitigation would increase the road capacity and allow the traffic volumes to be at LOS C or better during the AM and PM peak hours.

Table 4.7-13
Freeway Mainline Segment Level of Service –Existing plus Project

Freeway Mainline Segment / Direction	Existing				Existing plus Project			
	AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
	Density	*LOS*	*Density*	*LOS*	*Density*	*LOS*	*Density*	*LOS*
I-80 West of Lagoon Valley Road								
Eastbound	18.5	C	29.5	D	18.6	C	29.8	D
Westbound	30.0	D	22.5	C	30.3	D	22.5	C
I-80 West of Alamo Drive								
Eastbound	18.7	C	28.9	D	18.8	C	29.2	D
Westbound	31.5	D	24.4	C	31.9	D	24.5	C
I-80 East of Leisure Town Road								
Eastbound	19.6	C	28.9	D	19.9	C	28.9	D
Westbound	24.8	C	20.5	C	24.9	C	20.8	C
I-80 East of Midway Road								
Eastbound	19.0	C	25.2	C	19.4	C	25.3	C
Westbound	24.9	C	20.7	C	25.0	C	21.0	C

Source: Performance Enhancement Measurement System (PeMS), 2016. Kittelson & Associates, Inc. 2016.
Notes: Density = passenger cars per mile per lane; LOS = Level of Service

4.7-3: Implementation of the proposed project would increase traffic volumes along study freeway segments in the CMP system but would not exceed LOS thresholds of significance. This would be a less-than-significant impact.

Freeway mainline freeway segment operations for Existing and Existing plus Project conditions are summarized in Table 4.7-13. As shown in the table, study freeway segments on the CMP

system would operate within acceptable standards under the Existing and Existing plus Project scenarios. Therefore, the impact is **less than significant.**

Mitigation Measures

None required.

4.7-4: Implementation of the proposed project, including installation of traffic circles and other traffic calming devices, may delay emergency response or impede movement of emergency vehicles. This would be a potentially significant impact.

The analysis of emergency access considers both the adequacy of emergency access to and from the project site at ultimate buildout, and the adequacy of emergency access during construction, while some project components are already occupied but before all project roadways have been constructed. Emergency secondary access would be available in all phases of project development to address the requirements of the fire department.

The project site would be served by the Vacaville Police Department from the main police station located in downtown Vacaville and the recently constructed fire station in the Southtown project (Vanden and Cogburn Circle).

The project site layout at ultimate buildout would be consistent with State Fire Marshall Regulations, Title 19 California Code of Regulations, which require access road right-of-way to be no less than 20 feet from building to the public street. However, traffic circles and traffic calming devices shown on the project plans could potentially delay response time for emergency vehicles resulting in a **potentially significant impact**.

Mitigation Measures

Implementation of Mitigation Measure TRAFF-3 would provide emergency vehicle accessibility that meets accepted standards and the project impact would be less than significant.

TRAFF-3 Roundabouts and traffic circles shall be designed to accommodate fire trucks and other large vehicles to travel through the intersection at an appropriate speed for emergency response. On-street parking shall be prohibited near the traffic circles to ensure clear passage. All traffic calming devices shall be designed in accordance with City standards and be approved by the City.

4.7-5: Implementation of the proposed project could conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. This would be a potentially significant impact.

The Robert's Ranch Specific Plan upon completion would be consistent with the adopted transportation-related plans, ordinance, programs, or policies described in the Regulatory Setting section above, including General Plan goals and policies establishing a balanced multimodal system. Interim phases of the project may conflict with adopted plans, policies, and programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities during the initial phases of implementation. This would be a **potentially significant impact**.

The proposed sidewalks and multi-use path would provide safe and convenient pedestrian travel. Pedestrian and bicycle pathways would be provided to connect selected cul-de-sacs, including through sound walls along certain streets, thus providing access to collectors and key local roads that would provide added convenience and connectivity for pedestrians and bicyclists. Class II bike lanes would be provided along designated streets, increasing connectivity for bicyclists and serve as an additional buffer for pedestrians.

Because the project would be constructed in phases over a period of time, the project may potentially conflict with adopted plans, policies and programs related to multi-model facilities prior to full buildout of the project. For instance, the provision of pedestrian and bicycle facilities and connections to Elmira Road and Leisure Town Road might not be adequate when the initial phases, which are slated to occur on the eastern portion of the plan area, are constructed. Therefore, the project would have potentially significant interim or short-term impacts related to multi-modal facilities. However, at full buildout, the project would not conflict with adopted plans, policies, and programs related to multi-modal facilities and would not decrease the performance and safety of such facilities.

Mitigation Measures

Implementation of Mitigation Measure TRAFF-4 would ensure that multimodal accessibility is provided during all phases of project development and the project impact would be less than significant.

TRAFF-4 The project-level site plan shall be submitted for each phase of the project development for review and approval by the City to ensure safe and direct facilities for pedestrians, bicyclists, and transit riders are provided and the design does not conflict with adopted plans, policies, and programs related to such facilities.

4.7.5 Cumulative Impacts

The cumulative impacts section describes the potential transportation impacts of the project relative to two background conditions, Existing plus Approved Projects and projected 2035 development under the General Plan. Impacts related to the following two criteria are included in the cumulative analysis:

- Circulation System Performance

- Conflicts with Congestion Management Programs

Impacts related to inadequate emergency access and conflicts with transit, bicycle or pedestrian transportation would be identical to the impacts described in the project impacts section. Therefore, they are not repeated in the cumulative impacts evaluation. The project would not make a cumulatively considerable contribution to any emergency access or transit, bicycle or pedestrian transportation; therefore, all impacts and would be a less than significant impact.

Impacts on the circulation system were assessed in terms of traffic operations at study intersections and traffic volumes on local street segments.

4.7-6: Under Existing plus Approved plus Project conditions, traffic volumes would exceed intersection LOS operations at six intersections. This is considered a significant impact.

Weekday AM and PM peak hour intersection volumes for Existing plus Approved conditions are illustrated in Figure 4.7-8 and Existing plus Approved plus Project conditions are illustrated in Figure 4.7-9. Intersection operations are summarized in Table 4.7-14.

The following six intersections are expected to exceed the City's LOS thresholds during the weekday AM and/or PM peak hours under Existing plus Approved plus Project conditions:

- **Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street (#4):** The addition of project traffic to Existing plus Approved traffic levels would change the operation from LOS D to LOS E during the weekday PM peak hour.
- **Leisure Town Road (Jepson Parkway) / Ulatis Drive (#5):** The stop-controlled movements would operate at LOS F with Existing plus Approved traffic levels and the project would add more than five seconds of delay during the weekday AM peak hour.
- **Leisure Town Road (Jepson Parkway) / Elmira Road (#6):** The intersection would operate at LOS F during the weekday AM and PM peak hours with Existing plus Approved traffic levels and the project would add more than 0.02 to the volume/capacity ratio.
- **Leisure Town Road (Jepson Parkway) / Marshall Road (#7):** The project would install a traffic signal at this intersection, but with the existing lane geometry the intersection is expected to operate above LOS Mid-D (average delay greater than 45 seconds) during the weekday PM peak hour.
- **Leisure Town Road (Jepson Parkway) / Alamo Drive-Fry Road (#8):** The intersection would operate above LOS Mid-D during the weekday PM peak hour with Existing plus Approved traffic levels and the project would change the LOS to E and add more than 0.02 to the volume/capacity ratio.

- **Elmira Road / Nut Tree Road (#17):** The intersection would operate above LOS Mid-D during the weekday PM peak hour with Existing plus Approved traffic levels and the project would add more than 0.02 to the volume/capacity ratio.

Table 4.7-14
Intersection Operations – Existing plus Approved

#	Intersection	Traffic Control[2]	Peak Hour	Existing plus Approved		Existing plus Approved plus Project	
				LOS[3]	*Delay*[4]	*LOS*[3]	*Delay*[4]
1	Leisure Town Road (Jepson Parkway) / I-80 EB Ramps	Signal	AM	C	29.5	C	30.5
			PM	C	33.7	C	34.7
2	Leisure Town Road (Jepson Parkway) / I-80 WB Ramps	Signal	AM	B	10.4	B	11.4
			PM	B	13.8	B	14.8
3	Leisure Town Road (Jepson Parkway) / Orange Drive	Signal	AM	B	18.1	C	20.3
			PM	C	20.0	C	20.5
4	Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street	Signal	AM	B	12.8	A	9.9
			PM	D	37.3	E	56.0
5	Leisure Town Road (Jepson Parkway) / Ulatis Drive	TWSC	AM	E (F)	41.3 (>50.0)	F (F)	>50.0 (>50.0)
			PM	A (F)	8.0 (>50.0)	B (F)	11.6 (>50.0)
6	Leisure Town Road (Jepson Parkway) / Elmira Road	Signal	AM	F	>80.0	F	>80.0
			PM	E	58.7	F	>80.0
7	Leisure Town Road (Jepson Parkway) / Marshall Road	TWSC / Signal	AM	D (F)	29.4 (>50.0)	D	41.9
			PM	B (F)	13.0 (>80.0)	Mid-D	52.2
8	Leisure Town Road (Jepson Parkway) / Alamo Drive–Fry Road	Signal	AM	D	36.6	D	44.0
			PM	Mid-D	51.2	E	79.3
9	Leisure Town Road (Jepson Parkway) / Vanden-Foxboro Road	Signal	AM	B	11.9	B	12.4
			PM	A	7.9	A	8.1

Table 4.7-14
Intersection Operations – Existing plus Approved

#	Intersection	Traffic Control[2]	Peak Hour	Existing plus Approved		Existing plus Approved plus Project	
				LOS[3]	*Delay*[4]	*LOS*[3]	*Delay*[4]
10	Alamo Drive/ Vanden Road	Signal	AM	C	31.5	C	32.5
			PM	D	37.3	D	40.9
11	Alamo Drive/ Nut Tree Road	Signal	AM	C	33.6	C	34.0
			PM	D	36.4	D	37.3
12	Alamo Drive/ Peabody Road	Signal	AM	C	30.8	C	31.0
			PM	C	32.5	C	33.5
13	Alamo Drive/ Marshall Road	Signal	AM	D	35.2	D	35.2
			PM	C	31.3	C	31.2
14	Alamo Drive/ I-80 EB On-Ramp	Signal	AM	A	8.4	A	8.4
			PM	A	4.4	A	4.4
15	Alamo Drive/ Merchant Street	Signal	AM	D	40.8	D	40.9
			PM	C	29.4	C	29.6
16	Elmira Road/ North-South Arterial[1]	Does not Exist	AM	A (B)	2.3 (12.0)	A (B)	2.3 (12.4)
			PM	A (B)	0.8 (11.7)	A (B)	0.7 (12.0)
17	Elmira Road/ Nut Tree Road	Signal	AM	D	38.7	D	41.9
			PM	Mid-D	46.7	Mid-D	50.2
18	Water Street/ A Street	AWSC	AM	A (A)	6.9 (7.6)	A (A)	6.9 (7.6)
			PM	A (A)	7.9 (8.5)	A (A)	7.9 (8.5)
19	Alamo Drive–Fry Road / A-Meridian	AWSC	AM	B (B)	11.4 (12.3)	B (B)	11.7 (12.8)
			PM	B (B)	13.4 (14.4)	B (B)	13.8 (14.8)

Source: Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable.
1 Intersection does not exist under existing conditions, therefore intersection operations were omitted.
2 Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection. The Leisure Town Road / Elmira Road intersection would be signalized with the project.
3 LOS = Level of Service; Parentheses denote the intersection's critical movement LOS.
4 Delay = Average vehicle delay reported in seconds per vehicle. Delays beyond 50 seconds are reported as ">50.0" at unsignalized locations.

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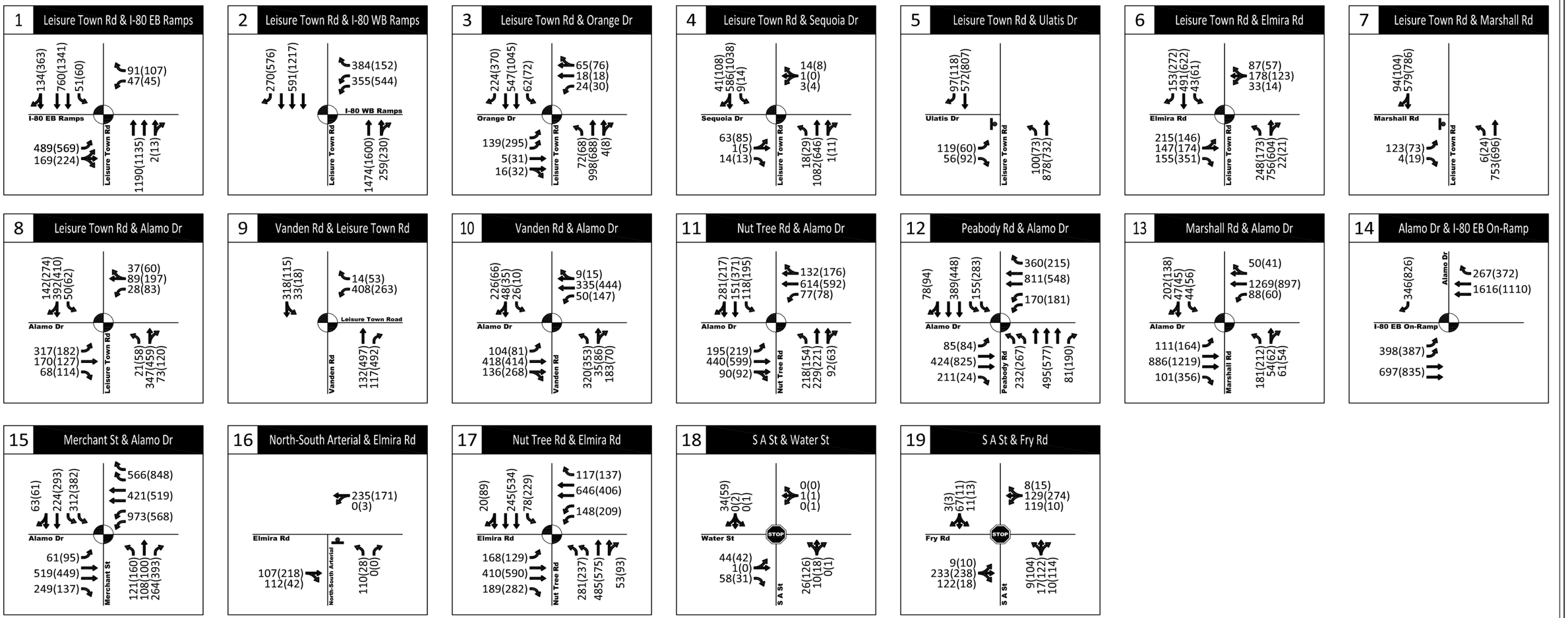

AM(PM) - Traffic Volume

STOP - All-Way Stop

- Stop Sign

- Traffic Signal

SOURCE: Kittelson & Associates, Inc. (2016)

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FIGURE 4.7-8

Existing Plus Approved Intersection Traffic Volumes & Geometry

Roberts' Ranch Specific Plan EIR

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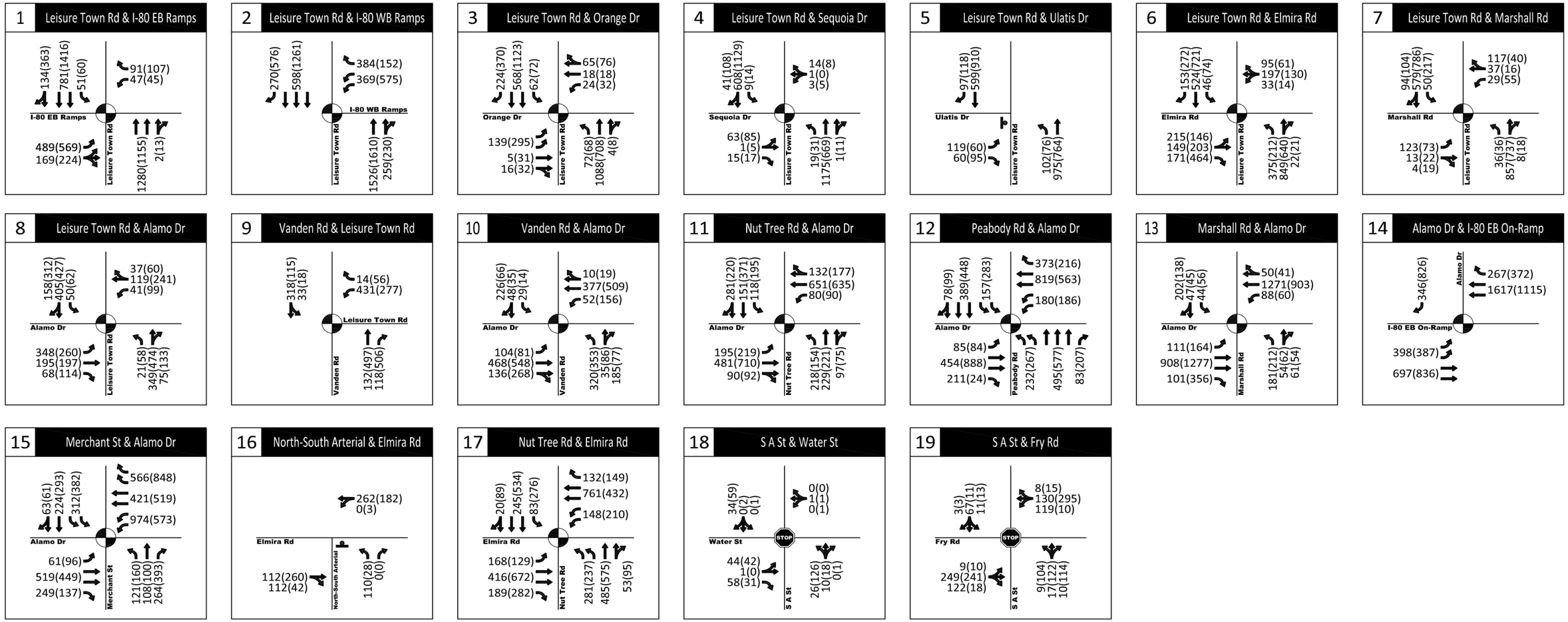

AM(PM) - Traffic Volume

STOP - All-Way Stop

- Stop Sign

- Traffic Signal

SOURCE: Kittelson & Associates, Inc. (2016)

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FIGURE 4.7-9

Existing Plus Approved Plus Project Intersection Traffic Volumes & Geometry

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Mitigation Measures

Implementation of Mitigation Measure TRAFF-5a would allow the Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street intersection to operate above the City's LOS thresholds. Mitigation Measure TRAFF-5f would enable the Elmira Road / Nut Tree Road intersection to operate above the City's LOS thresholds. However, these improvements are either not part of the currently funded portion of the Jepson Parkway Road Widening Project, and therefore right-of-way and funding cannot be ascertained or the feasibility of implementation is not ascertained due to operational, safety and right-of-way restrictions. These impacts would remain significant and unavoidable.

Implementation of Mitigation Measures TRAFF-5b, TRAFF-5c, TRAFF-5d, and TRAFF-5e would ensure the intersections operate above the City's LOS thresholds and impacts would be reduced to less than significant.

TRAFF-5 The City of Vacaville shall implement the following improvements to mitigate operations at the six impacted intersections. The project shall pay in-lieu traffic fees to the City.

TRAFF-5a At the Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street (#4) intersection, the City shall implement the following improvements:

- Add a through lane on southbound Leisure Town Road to provide one left-turn lane, one through lane and one shared through-right lane on the southbound approach.
- Widen the south leg of the intersection to provide a corresponding receiving lane.

This mitigation is consistent with the ultimate configuration of Jepson Parkway, but is not part of the Jepson Parkway Road Widening Project which the City is currently implementing. This is a temporary impact until the ultimate Jepson Parkway is constructed. With the mitigation the intersection would operate at LOS B or better during both peak hours.

TRAFF-5b At the Leisure Town Road (Jepson Parkway) / Ulatis Road (#5) intersection, the City shall implement the following improvements:

- Install a traffic signal.

This mitigation is consistent with the ultimate configuration of Jepson Parkway, but is not part of the Jepson Parkway Road Widening Project which the City is currently implementing. The Jepson Parkway concept will ultimately provide a traffic signal at this location with two through lanes in the northbound and southbound directions. Implementation of the mitigation would improve the intersection operations to LOS B or better in both peak hours.

TRAFF-5c At the Leisure Town Road (Jepson Parkway) / Elmira Road (#6) intersection, the City shall implement the following improvements:

- Northbound – add a second left-turn lane and a second through lane.
- Southbound – add a second through lane to provide one left-turn, two through and one right-turn lane.
- Eastbound – add two left-turn lanes in addition to the existing through lane and right-turn lane.
- Westbound – add a left-turn lane and a right-turn lane to the existing through lane.

This mitigation is consistent with the Jepson Parkway Road Widening Project which the City is currently implementing. Implementation of the mitigation would improve the intersection operations to LOS D in the AM peak hour and LOS C in the PM peak hour.

TRAFF-5d At the Leisure Town Road (Jepson Parkway) / Marshall Road (#7) intersection, the project shall install a traffic signal and the City shall implement the following improvements:

- Northbound – add a second through lane.
- Southbound – add a second through lane.

This mitigation is consistent with the Jepson Parkway Road Widening Project which the City is currently implementing. Implementation of the mitigation would improve the intersection operations to LOS D or better during both peak hours.

TRAFF-5e At the Leisure Town Road (Jepson Parkway) / Alamo Drive (#8) intersection, the City shall implement the following improvements:

- Northbound – add a second through lane.
- Southbound – add a second through lane.

This mitigation is consistent with the Jepson Parkway Road Widening Project which the City is currently implementing. Implementation of the mitigation would improve the intersection operations to LOS D or better during both peak hours. The Jepson Parkway Road Widening Project would also add a southbound right-turn lane and a westbound right-turn lane to provide one left-turn, one through lane and one right-turn lane on the eastbound and westbound approaches.

TRAFF-5f At the Elmira Road / Nut Tree Road (#17) intersection, the City shall implement the following improvements:

- Southbound – restripe the inside southbound through lane to an exclusive left-turn lane, providing two left-turn lanes, one through lane and one shared through-right lane.

Implementation of the changes in lane striping would improve the intersection operations to LOS D or better during both peak hours. However, the proposed geometrics may not be feasible for operational reasons. This intersection was identified as operating unacceptably in the General Plan EIR.

4.7-7: Under Cumulative plus Project conditions, intersection operations would exceed LOS thresholds of significance at one intersection. This is considered a significant impact.

Cumulative traffic volumes are shown in Figurer 4.7-10, Cumulative with Project traffic volumes are shown in Figure 4.7-11, and Cumulative with Project intersection operations are summarized in Table 4.7-15.

The following intersection is expected to exceed the City's LOS thresholds during the weekday AM and/or PM peak hours under Cumulative plus Project conditions:

- **Elmira Road / Nut Tree Road (#17):** This intersection would operate above LOS Mid-D during the weekday PM peak hour with Existing plus Approved traffic levels and the project would add more than 0.02 to the volume/capacity ratio.

Table 4.7-15
Intersection Operations – Cumulative

#	Intersection	Traffic Control[1]	Peak Hour	Cumulative without Project		Cumulative with Project	
				LOS[2]	*Delay*[3]	*LOS*[2]	*Delay*[3]
1	Leisure Town Road (Jepson Parkway) / I-80 EB Ramps	Signal	AM	D	39.1	D	41.9
			PM	D	42.5	D	44.4
2	Leisure Town Road (Jepson Parkway) / I-80 WB Ramps	Signal	AM	B	18.7	C	20.7
			PM	B	19.2	C	20.7

Table 4.7-15
Intersection Operations – Cumulative

#	Intersection	Traffic Control[1]	Peak Hour	Cumulative without Project		Cumulative with Project	
				LOS[2]	*Delay*[3]	*LOS*[2]	*Delay*[3]
3	Leisure Town Road (Jepson Parkway) / Orange Drive	Signal	AM	C	31.5	D	38.1
			PM	C	28.6	C	29.7
4	Leisure Town Road (Jepson Parkway) / Sequoia-White Pine Street	Signal	AM	B	11.5	B	11.1
			PM	B	12.3	B	13.2
5	Leisure Town Road (Jepson Parkway) / Ulatis Drive	TWSC	AM	C	26.0	C	30.4
			PM	C	34.1	D	36.6
6	Leisure Town Road (Jepson Parkway) / Elmira Road	Signal	AM	D	38.3	D	43.3
			PM	C	34.1	D	44.7
7	Leisure Town Road (Jepson Parkway) / Marshall Road	Signal	AM	B	15.8	C	23.6
			PM	B	16.0	C	33.2
8	Leisure Town Road (Jepson Parkway) / Alamo Drive–Fry Road	Signal	AM	C	25.4	C	27.7
			PM	C	28.9	D	35.1
9	Leisure Town Road (Jepson Parkway) / Vanden-Foxboro Road	Round-about	AM	A	3.2	A	3.6
			PM	A	5.1	A	5.5
10	Alamo Drive/ Vanden Road	Signal	AM	C	24.9	C	25.4
			PM	C	23.5	C	24.4
11	Alamo Drive/ Nut Tree Road	Signal	AM	C	33.9	C	34.6
			PM	C	34.6	D	35.3
12	Alamo Drive/ Peabody Road	Signal	AM	C	33.3	C	33.4
			PM	C	35.0	D	35.6
13	Alamo Drive/ Marshall Road	Signal	AM	D	39.1	D	39.2
			PM	D	35.9	D	37.3
14	Alamo Drive/ I-80 EB On-Ramp	Signal	AM	A	6.9	A	6.9
			PM	A	4.5	A	4.5

Table 4.7-15
Intersection Operations – Cumulative

#	Intersection	Traffic Control[1]	Peak Hour	Cumulative without Project		Cumulative with Project	
				LOS[2]	*Delay*[3]	*LOS*[2]	*Delay*[3]
15	Alamo Drive/ Merchant Street	Signal	AM	D	39.0	D	39.0
			PM	C	30.6	C	30.6
16	Elmira Road/ North-South Arterial	Signal	AM	A (C)	4.5 (17.6)	A (C)	4.5 (18.3)
			PM	A (C)	2.1 (15.1)	A (C)	2.1 (16.1)
17	Elmira Road/ Nut Tree Road	Signal	AM	D	39.1	D	41.3
			PM	Mid-D	47.3	Mid-D	50.6
18	Water Street/ A Street	AWSC	AM	A (A)	7.1 (7.7)	A (A)	7.2 (7.7)
			PM	A (A)	8.2 (8.8)	A (A)	8.2 (8.8)
19	Alamo Drive–Fry Road / A-Meridian	AWSC	AM	A (A)	8.8 (9.6)	A (A)	8.8 (9.6)
			PM	B (B)	11.0 (12.1)	B (B)	11.3 (12.4)

Source: Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable.
1 Signal = Signalized Intersection, TWSC = Two-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection.
2 LOS = Level of Service; Parentheses denote the intersection's critical movement LOS.
3 Delay = Average vehicle delay reported in seconds per vehicle. Delays beyond 50 seconds are reported as ">50.0" at unsignalized locations. Delays beyond 80 seconds are reported as ">80.0" for signalized locations.

Mitigation Measures

Implementation of Mitigation Measure TAFF-6 would allow the intersection to operate above the City's LOS thresholds. However, the feasibility of implementation is not ascertained due to operational, safety and right-of-way restrictions. Therefore, the project impact would remain significant and unavoidable.

TRAFF-6 The City of Vacaville shall implement the following improvements to mitigate operations at the impacted intersection. The project shall pay in-lieu traffic fees to the City.

At the Elmira Road / Nut Tree Road (#17) intersection, the City shall implement the following improvements:

- Southbound – restripe the inside southbound through lane to an exclusive left-turn lane, providing two left-turn lanes, one through lane and one shared through-right lane.

Implementation of the changes in lane striping would improve the intersection operations to LOS D or better during both peak hours. However, the proposed geometrics may not be feasible for operational reasons.

4.7-8: Traffic volumes under Existing plus Approved plus Project conditions would be above the LOS C threshold on five study road segments. The project would cause traffic volumes to exceed the LOS C threshold on one of the five segments. This is considered a significant impact.

Road segment volumes were assessed for Existing plus Approved conditions and compared to thresholds established by the City of Vacaville. Road segment volumes relative to LOS thresholds for Existing plus Approved and Existing plus Approved plus Project conditions are summarized in Table 4.7-16.

Four segments which exceed LOS C traffic volumes under Existing plus Approved conditions would continue to have traffic volumes above LOS C thresholds with the addition of project traffic:

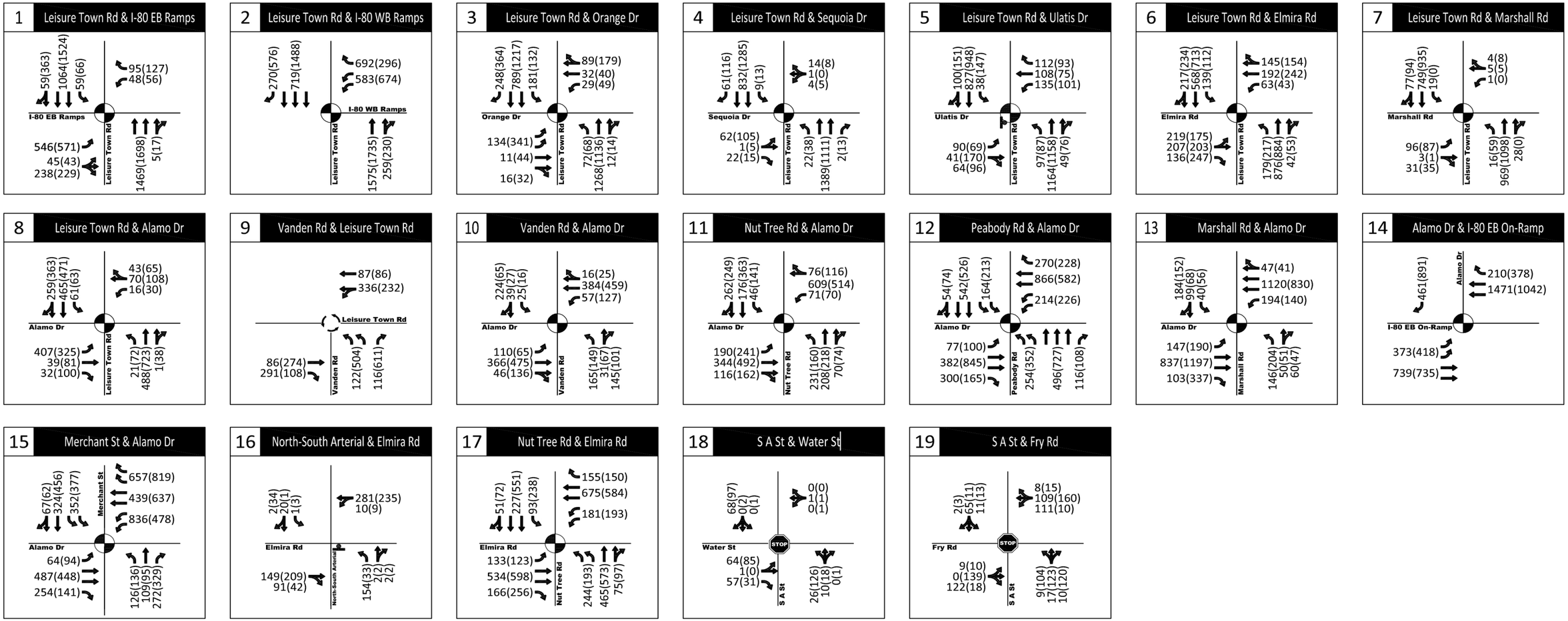
- Vanden Road (Jepson Parkway) south of Leisure Town Road (#14)
- Leisure Town Road (Jepson Parkway) between Marshall and Elmira (#17)
- Leisure Town Road (Jepson Parkway) between Elmira and Ulatis (#18)
- Leisure Town Road (Jepson Parkway) between Ulatis and Orange (#19)

The project would cause one additional segment to exceed LOS C traffic volumes:

- Leisure Town Road (Jepson Parkway) between Alamo and Marshall (#15)

Mitigation Measures

Implementation of Mitigation Measure TRAFF-7a would allow the segments south of the Vanden Road/Leisure Town Road intersection, between Alamo and Marshall and between Marshall and Elmira to operate at an acceptable LOS. These segments are part of the Jepson Parkway Road Widening Project which is funded and currently being implemented. The impact on these three segments would be less than significant.



AM(PM) - Traffic Volume

STOP - All-Way Stop

- Stop Sign

- Traffic Signal

- Roundabout

SOURCE: Kittelson & Associates, Inc. (2016)

DUDEK

FIGURE 4.7-10

Cumulative Without Project Traffic Volumes & Geometry

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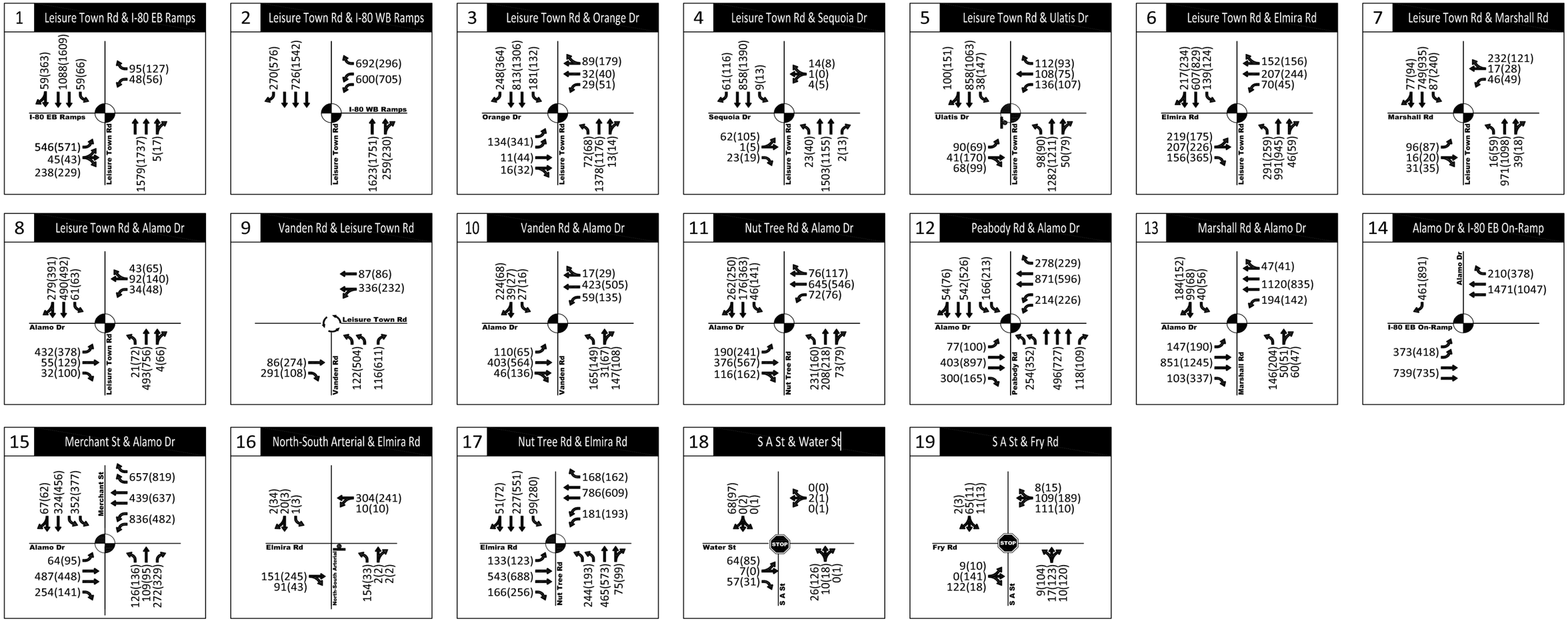

AM(PM) - Traffic Volume

STOP - All-Way Stop

- Stop Sign

- Traffic Signal

- Roundabout

SOURCE: Kittelson & Associates, Inc. (2016)

DUDEK

FIGURE 4.7-11

Cumulative With Project Traffic Volumes & Geometry

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Implementation of Mitigation Measure TRAFF-7b would allow the segments between Elmira and Ulatis and between Ulatis and Orange to operate at an acceptable LOS. However, these segments are not part of the Jepson Parkway Road Widening Project, and therefore right-of-way and funding cannot be ascertained. The impact on these two segments would remain significant and unavoidable.

TRAFF-7a Widen Leisure Town Road (Jepson Parkway) to two lanes in each direction between south of Vanden Road and Elmira Road.

This mitigation is consistent with the Jepson Parkway Road Widening Project which the City is currently implementing. The mitigation would increase the road capacity and allow the traffic volumes to be at LOS C or better during the AM and PM peak hours.

TRAFF-7b Widen Leisure Town Road (Jepson Parkway) to provide two lanes in each direction between Ulatis Road and Orange Drive.

This mitigation is consistent with the ultimate configuration of the Jepson Parkway Concept Plan but is not part of the Jepson Parkway Road Widening Project which the City is currently implementing. The mitigation would increase the road capacity and allow the traffic volumes to be at LOS C or better during the AM and PM peak hours.

Table 4.7-16
Road Segment Level of Service Thresholds – Existing plus Approved plus Project

#	Road Segment	Existing plus Approved				Existing plus Approved plus Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*
Alamo Drive – Fry Road									
1	W of Nut Tree	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
2	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
3	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
4	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
5	East of N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Marshall Road									
6	W of Nut Tree								
7	Nut Tree to Vanden								
8	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
9	Leisure Town (Jepson) to N-S Arterial[1]	-	-	-	-	No (No)	No (No)	No (No)	No (No)
10	East of N-S Arterial[1]	-	-	-	-	No (No)	No (No)	No (No)	No (No)
Elmira Road									
11	Nut Tree to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
12	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
13	East of N-S Arterial[1]	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)

Table 4.7-16
Road Segment Level of Service Thresholds – Existing plus Approved plus Project

#	Road Segment	Existing plus Approved				Existing plus Approved plus Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*
Leisure Town Road (Jepson Parkway)									
14	South of Vanden	Yes (Yes)	No (No)	No (No)	Yes (Yes)	Yes (Yes)	No (No)	No (No)	Yes (Yes)
15	Vanden to Alamo	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
16	Alamo to Marshall	No (No)	No (No)	No (No)	No (No)	No (No)	Yes (No)	No (No)	No (No)
17	Marshall to Elmira	No (No)	Yes (Yes)	No (No)	No (No)	No (No)	Yes (Yes)	Yes (Yes)	No (No)
18	Elmira to Ulatis	No (No)	Yes (No)	Yes (No)	No (No)	No (No)	Yes (Yes)	Yes (Yes)	No (No)
19	Ulatis to Orange	No (No)	Yes (Yes)	Yes (No)	No (No)	No (No)	Yes (Yes)	Yes (Yes)	No (No)
20	I-80 Overcrossing	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
North-South Arterial[1]									
21	Elmira to Marshall[2]	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
22	Marshall to Alamo-Fry	-	-	-	-	No (No)	No (No)	No (No)	No (No)
23	Alamo-Fry to Leisure Town (Jepson)	-	-	-	-	No (No)	No (No)	No (No)	No (No)

Source: Vacaville Land Use and Development Code: Chapter 14.13, 2015. Kittelson & Associates, Inc. 2016.
Notes: "-" indicates not applicable. 1 Segment does not exist under existing conditions; 2Segment does not exist under existing + project conditions.
NB/EB = northbound/eastbound; SB/WB = southbound/westbound; Shading in cells means results exceed threshold

4.7-9: Traffic volumes under Cumulative plus Project conditions would be above the LOS C threshold on one study road segment. This is considered a significant impact.

Road segment volumes were assessed for Existing plus Approved conditions and compared to thresholds established by the City of Vacaville. Road segment volumes relative to LOS thresholds for Existing plus Approved and Existing plus Approved plus Project conditions are summarized in Table 4.7-17.

One segment which would exceed LOS C traffic volumes under Cumulative without Project conditions would continue to have traffic volumes above LOS C thresholds with the addition of project traffic:

- Vanden Road (Jepson Parkway) south of Leisure Town Road (#14)

The project would not cause any additional segments to exceed LOS C traffic volumes.

Under the Cumulative and Cumulative with Project scenarios, traffic volumes would be above the LOS C and D thresholds on the following segment:

- Vanden Road south of the Leisure Town Road intersection (#14) in the southbound direction during the weekday AM peak hour and northbound during the weekday PM peak hour.

Mitigation Measures

Implementation of Mitigation Measure TRAFF-8 would increase the road capacity and allow the traffic volumes to be at LOS C or better during the AM and PM peak hours. This section of the Jepson Parkway Road Widening Project is funded and currently being implemented. The road segment would operate above City of Vacaville LOS standards and the project impact would be less than significant.

TRAFF-8 The City shall implement the following improvements and the project shall pay in-lieu fees to the City for the acquisition of necessary right-of-way and installation of the improvements:

- Widen Leisure Town Road (Jepson Parkway) to two through lanes in each direction south of the Vanden Road/Leisure Town Road intersection.

Table 4.7-17
Road Segment Level of Service Thresholds – Cumulative

#	Road Segment	Cumulative without Project				Cumulative with Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*
Alamo Drive – Fry Road									
1	W of Nut Tree	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
2	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
3	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
4	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
5	East of N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Marshall Road									
6	W of Nut Tree	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
7	Nut Tree to Vanden	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
8	Vanden to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
9	Leisure Town (Jepson) to N-S Arterial[1]	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
10	East of N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
Elmira Road									
11	Nut Tree to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
12	Leisure Town (Jepson) to N-S Arterial	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
13	East of N-S Arterial[1]	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)

Table 4.7-17
Road Segment Level of Service Thresholds – Cumulative

#	Road Segment	Cumulative without Project				Cumulative with Project			
		AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
		SB/WB	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*	*SB/WB*	*NB/EB*
Leisure Town Road (Jepson Parkway)									
14	South of Vanden	Yes (Yes)	No (No)	No (No)	Yes (Yes)	Yes (Yes)	No (No)	No (No)	Yes (Yes)
15	Vanden to Alamo	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
16	Alamo to Marshall	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
17	Marshall to Elmira	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
18	Elmira to Ulatis	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
19	Ulatis to Orange	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
20	I-80 Overcrossing	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
North-South Arterial									
21	Elmira to Marshall	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
22	Marshall to Alamo-Fry	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)
23	Alamo-Fry to Leisure Town (Jepson)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)	No (No)

Source: Vacaville Land Use and Development Code: Chapter 14.13, 2015. Kittelson & Associates, Inc. 2016.
Notes: NB/EB = northbound/eastbound; SB/WB = southbound/westbound; Shading in cells means results exceed threshold

Table 4.7-18
Freeway Mainline Segment Level of Service – Existing plus Approved

Freeway Mainline Segment / Direction	Existing plus Approved				Existing plus Approved plus Project			
	AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
	Density	*LOS*	*Density*	*LOS*	*Density*	*LOS*	*Density*	*LOS*
I-80 West of Lagoon Valley Road								
Eastbound	19.3	C	34.0	D	19.4	C	34.3	D
Westbound	35.5	E	23.7	C	35.8	E	23.7	C
I-80 West of Alamo Drive								
Eastbound	20.3	C	32.9	D	20.4	C	33.3	D
Westbound	36.7	E	26.9	D	37.2	E	26.9	D
I-80 East of Leisure Town Road								
Eastbound	20.5	C	29.0	D	20.7	C	29.1	D
Westbound	24.5	C	21.3	C	24.6	C	21.5	C
I-80 East of Midway Road								
Eastbound	22.9	C	26.6	D	23.3	C	26.7	D
Westbound	25.9	C	24.1	C	26.1	D	24.4	C

Source: Performance Enhancement Measurement System (PeMS), 2016. Kittelson & Associates, Inc. 2016.
Notes: Density = passenger cars per mile per lane; LOS = Level of Service

4.7-10: Implementation of the proposed project under Existing plus Approved plus Project conditions would increase traffic volumes along study freeway segments in the CMP system but would not exceed LOS thresholds of significance. This would be a less-than-significant impact.

Freeway mainline freeway segment operations for Existing plus Approved conditions are summarized in Table 4.7-18. Study freeway segments on the CMP system would operate within acceptable standards under both the Existing plus Approved and Existing plus Approved plus Project scenarios. This is a **less-than-significant impact.**

Mitigation Measures

None required.

Table 4.7-19
Freeway Mainline Segment Level of Service – Cumulative

Freeway Mainline Segment / Direction	Cumulative without Project				Cumulative with Project			
	AM Peak Hour		*PM Peak Hour*		*AM Peak Hour*		*PM Peak Hour*	
	Density	*LOS*	*Density*	*LOS*	*Density*	*LOS*	*Density*	*LOS*
I-80 West of Lagoon Valley Road								
Eastbound	21.4	C	35.9	E	21.5	C	36.3	E
Westbound	36.1	E	26.7	D	36.5	E	26.8	D
I-80 West of Alamo Drive								
Eastbound	22.4	C	35.0	E	22.4	C	35.3	E
Westbound	36.3	E	29.5	D	36.8	E	29.5	D
I-80 East of Leisure Town Road								
Eastbound	21.0	C	36.8	E	21.3	C	37.0	E
Westbound	29.5	D	23.0	C	29.6	D	23.1	C
I-80 East of Midway Road								
Eastbound	21.3	C	32.9	D	21.7	C	33.1	D
Westbound	29.8	D	24.1	C	29.9	D	24.4	C

Source: Performance Enhancement Measurement System (PeMS), 2016. Kittelson & Associates, Inc. 2016.
Notes: Density = passenger cars per mile per lane; LOS = Level of Service

4.7-11: Implementation of the proposed project under Cumulative plus Project conditions would increase traffic volumes along study freeway segments in the CMP system but would not exceed LOS thresholds of significance. This would be a less-than-significant impact.

Freeway mainline freeway segment operations for Cumulative conditions are summarized in **Error! Reference source not found.**4.7-19. Study freeway segments on the CMP system would operate within acceptable standards under both the Cumulative without Project and Cumulative with Project scenarios. This is a **less-than-significant impact**.

Mitigation Measures

None required.

4.7.6 References

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